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Hurricane Survivors' Attitudes Regarding the Therapeutic Benefits of Animals

Tina Callwood
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Walden University

College of Social and Behavioral Sciences

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Tina Callwood

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Walden University

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Abstract

Hurricane Survivors' Attitudes Regarding the Therapeutic Benefits of Animals

by

Tina Callwood

MA, Liberty University, 2016

BA, University of the Virgin Islands, 2000

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

August 2021

Abstract

There is research on the benefits of animal-assisted interventions. However, no study was found on hurricane survivors' lived experience and their attitudes toward animals after a traumatic experience. The purpose of this hermeneutic phenomenological study was to explore the lived experience of hurricane survivors' attitudes toward their companion animals or other animals they interacted with after a natural disaster. The transactional theory of stress and coping was used to explain how participants appraised their stress and reduced it. Constructivism was used to uncover hurricane survivors' experiences and their attitudes toward animals after the disaster. The research question examined the lived experiences of hurricane survivors regarding their interaction with pets or companion animals following the storms, level of distress, coping methods, roles of pets in their recovery, and any noticeable benefits. Convenience and snowball sampling were used in this qualitative study. Eleven participants who experienced Hurricanes Irma and/or Maria, interacted with an animal, experienced trauma, and were 18 years old or older were interviewed. Interviews were semistructured and conducted by telephone or Zoom videoconferencing. With inductive coding, four thematic categories were formed to answer the research question. It was found that participants had an emotional and surreal storm experience, were distressed during and after the storms, used various coping strategies to minimize distress and perceived benefits from interacting with animals during and after the storms. Findings may be used for positive social change by creating awareness and including animals in therapy and disaster recovery efforts.

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Dedication

To my Heavenly Father, I dedicate this dissertation to you for being the force behind my success and the source of my strength. It is true, I can do everything through Christ, who gives me strength (Philippians 4:13). Thank you for sending Riley to me, who has been the inspiration behind this research. I also dedicate my work to my husband, Vernon. You believed in my "crazy" dream, supported me, and made many sacrifices to help me through this journey. To my daughters, I appreciate your love, understanding, and the countless hours you allowed mommy to shut out the world to work on this project. I hope it motivates you to follow your dreams.

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Chapter 1: Introduction to the Study

Introduction

Trauma survivors consist of persons who have experienced a significant amount of stress from natural disasters, human-made disasters, physical or sexual abuse, accidents, and other traumatic events (Little & Akin-Little, 2019). Trauma can occur as an emotional response when the person exceeds their level of coping resources (Lazarus & Folkman, 1984). Interventions are often needed to assist an individual in coping with trauma.

Animal-assisted interventions have garnered numerous studies on their efficacy in working with trauma. This efficacy stemmed from the human-animal bond that promoted emotional support and served as a coping mechanism (Fine, 2015). Coping mechanisms can include the use of companion animals. Therapy animals and service animals were trained according to their level of interaction in working with individuals. In this study, I presented literature that indicated the use of service animals in assisting trauma survivors.

I also considered areas that needed further research. I incorporated the individuals' attitude, pet-owning experience, and their perception of any value of their interaction with animals. I included personality factors as they strongly correlated with a person's perspective toward animals (see Prokop & Randler, 2018). I considered those factors as I focused on the population of hurricane survivors, including some that did not seek formal therapy following their traumatic experience (see Kantor et al., 2017).

In the Caribbean, trauma results from repeated exposures to disasters, specifically, hurricanes, that occur annually (Dudley-Grant, 2016). I aimed to capture the lived

experience of hurricane survivors' attitudes toward the therapeutic benefits of animals. The findings of this study add value to existing research and may promote additional studies.

The results of this study may have social implications. It can encourage communities to consider creating animal-assisted programs that could serve as a conduit for promoting recuperation following disasters or a traumatic event. The results of this study could also encourage clinicians to consider incorporating animals in therapy to attract patients that otherwise may have avoided treatment. In this chapter, I presented the background, problem statement, the purpose of the study, research question, theoretical foundation, conceptual framework, nature of the study, definitions, assumptions, scope and delimitations, limitations, and significance of this study.

Background

A brief overview of trauma is presented, specific to natural disasters. I also introduced the human-animal bond. A more comprehensive explanation of these aspects is explored in Chapter 2.

Natural Disasters

More than half of adults in the United States have experienced a traumatic event (Briere & Scott, 2014). Survivors of trauma make up most clients who seek therapy (Elliott et al., 2005). Traumatic events can take the form of different experiences. These experiences include but are not limited to natural disasters such as hurricanes, floods, earthquakes, and fires (Briere & Scott, 2014; Johannesson et al., 2015; Matthews, 2006; Stratta et al., 2015; Thompson et al., 2014).

In this study, I explored the hurricane survivors' experiences relative to trauma and coping. Traumatic events can be natural disasters, like hurricanes, which can lead to the development of psychological symptoms. These symptoms may include posttraumatic stress disorder (PTSD), anxiety, and depression (Lai et al., 2015; Lowe et al., 2015a; Lowe et al., 2015b). Further, hurricanes tend to create traumatic experiences such as widespread displacement, property damage, significant losses, injury, and death (Bevilacqua et al., 2018; Cherry et al., 2017; Ehrlich et al., 2010; King et al., 2016; & Lai et al., 2015).

Human-Animal Bond

During the past 10-15 years, numerous studies have shown a positive relationship between social support and improved human wellbeing and survival (e.g., Esterling et al., 1994; House et al., 1988; Sherbourne et al., 1992). Also, some of these studies suggested that the benefits received from animals might buffer the effects of stress (Ader et al., 1995). Research has also consistently shown a relationship between pets and reduced anxiety and physiological responses to acute and chronic trauma across different settings (Mueller et al., 2015).

Animals can be a crucial part of the therapeutic process, especially as trauma survivors progress through the stages of recovery. Trauma recovery occurs in three phases: stabilization/safety, remembrance and mourning, and reconnection (Herman, 1997). In clinical research, treating trauma continues to be a priority, particularly related to PTSD in the post-9/11 veteran community (Tedeschi et al., 2015).

This study was needed to provide a deeper understanding of trauma survivors' attitudes toward their companion animals and other animals they interacted with relative to their experience. Reviews currently exist, indicating that interacting with animals provided therapeutic value to individuals (Grajfoner et al., 2017; Jau & Hodgson's 2018). However, there were not enough qualitative studies that communicate those lived experiences.

Problem Statement

Research has increased during the last few decades on presenting animal-assisted interventions' benefits (Serpell et al., 2017). Animal-assisted interventions have been useful with trauma survivors in reducing stress, anxiety symptoms and improving mental health (Earles et al., 2015; Jau & Hodgson, 2018; Lessard et al., 2018; Mims & Waddell, 2016). However, there was little research exploring persons' subjective experiences that survived natural disasters.

Research was lacking in hurricane survivors' lived experience and their attitudes toward their pets and other animals as they process their traumatic experiences. Though the human-animal relationship has a history of reducing distress and improving mental health, there was not enough supporting evidence. Crossman (2016) purported that research has not kept pace in understanding this relationship. Crossman also specified that researchers and practitioners are awaiting methodical advancements that can add credibility to the field of psychology. The gap explored in this research can complement existing research and could be significant to the field of psychology.

Literature exists on the therapeutic benefits that animals have had on people who have experienced trauma (Earles et al., 2015; Jau & Hodgson, 2018; Kelly & Cozzolino, 2015). However, the literature lacked information on specific personal experiences. Further, Serpell et al. (2017) suggested that there was value in exploring personal experience on this topic in future studies to assess such participant characteristics as personality, attitudes towards animals, and previous animal owning experience. Moreover, individual factors such as pet owner experience (Matchock, 2015; Yarborough et al., 2018), relevant developmental factors (Amiot & Bastian 2016), and culture (Prokop & Randler, 2018) were influential in forming attitudes about animals.

Additionally, more research was needed to understand better the different types of traumas and their outcomes (Conrad et al., 2017; May & Wisco, 2016; O'Haire et al., 2015; Shuwiekh et al., 2018) with regards to pet ownership. Mainly, it helped to understand the lived experience of pet owners who were survivors of two Category 5 hurricanes within two weeks. Participants indicated any positive or negative influence on pet ownership provided to them following their traumatic experience. Capturing these experiences contributed to a gap in the literature on this topic within the existing research.

In providing psychological services, it may be crucial to understand the relationship between animal attachments and wellbeing. Peacock et al. (2012) shared a need to research the mental health implications of secure animal attachments with community populations. They suggested that this may help to improve preventative and treatment-focused psychological services catered to those individuals. Amiot and Bastian

(2016) also believed that recognizing human-animal relations was critical to psychology. They cited that animals were increasingly relevant to psychological models of wellbeing, development, and moral reasoning.

Additionally, Jau and Hodgson (2018) indicated that their study's data is not transferable beyond the population they used. Their qualitative research used a small sample of three persons to explore the phenomenon of animal interaction and wellbeing. They found that there was a direct and indirect benefit of interacting with animals. Jau and Hodgson (2018) also stated that there were numerous quantitative studies. Still, it would be helpful to extend their research to larger populations.

Purpose of the Study

The trauma experienced following a natural disaster is unique for each person. Trauma has not been examined relative to their interactions with animals in the aftermath of a storm. Gathering information from each participant helped to understand the phenomenon from their perspective. It provided insight, meaning, and a unique perception of the rewards or shortcomings of their experience.

The purpose of this study was to explore the lived experience of hurricane survivors' attitudes toward their companion animals or other animals they interacted with during the event of a natural disaster. To accomplish this, I used a qualitative approach. The intent was to personally interview Virgin Islanders on their experience following Hurricanes Irma and Maria. These storms impacted the Virgin Islands between September 6 to 21, 2017. I probed the survivors' perception of their interaction with animals during their experience of the hurricanes. These responses created a better

understanding of how these participants perceived contact with their animals during and after experiencing the storms.

Research Question

Seeking to answer the research question was best accomplished by using a hermeneutic phenomenological approach. I used phenomenology because it allowed me to assess the participants' perceptions relative to the phenomenon (see Burkholder et al., 2016). I used semistructured interviews to assist in exploring the participants' lived experiences. It best captured the responses of the individual using their own words. I used the following research question to guide this research. I developed a better understanding of how a person perceived their interactions with animals in the aftermath of the storms:

RQ: What are the lived experiences of hurricane survivors regarding their interaction with pets or companion animals following the storms?

Theoretical Foundation

The theoretical foundation for this study was the transactional model of stress and coping. It is a framework that appraised the process of dealing with stressful events (Lazarus & Folkman, 1984). These situations were considered as person-environment transactions. The external stress was mediated by the individual's appraisal of the stressor and the resources they can access. For hurricane survivors, the primary evaluation was the disaster (stressor). The person evaluated how they could alter the situation and manage their adverse emotional reactions (see Lazarus & Folkman, 1984). That was considered their secondary appraisal. The coping methods used to regulate a person's

feelings and mediate the situation affect the coping process's outcome. The result could be their psychological wellbeing and the therapeutic benefits they receive from animals.

The human-animal bond was used to explain therapeutic benefits that were derived through interaction with animals. Fine (2015) demonstrated that the human-animal relationship applied to a social aspect. He specified that humans seek out social support from animals as a means of coping with stressful situations. Having social support was a foundation for optimum physical and mental health. As previously indicated, having animals is an ideal resource for social support, physical and psychological health. Persons tend to gravitate toward animals based on their perception of them. They perceived pets as being available to meet their needs.

The transactional model of stress and coping was a theory that best embodied this study. It correlated with how individuals appraised their stressors and employed coping strategies to deal with their situation. Interacting with animals was one strategy that served as a distraction from a stressor (Crossman, 2016; Jau & Hodgson, 2018; Maharaj, Kazanjian, & Haney, 2016). In the process, the individual's psychological wellbeing was restored, which occurred through human-animal bonding (Friedmann et al., 2015; Jau & Hodgson, 2018; Yarborough et al., 2018). I best captured the participants' experiences through the research question.

The theory of stress and coping supported the lived experience of an individual coping following the storms. This theory provided a framework for understanding the participants' experiences of animal interaction and when noticeable differences from that

contact became evident. Chapter 2 provides additional details about the transactional model of stress and coping.

Conceptual Framework

Constructivism and phenomenology composed the conceptual framework. With constructivism, people interpret events in unlimited ways (Burkholder et al., 2016). An individual's perception of events portrays how they think, feel, and behave. In this study, I explored the lived experience of hurricane survivors and their attitude towards animals' therapeutic benefit, which provided clarity on how the individual thought, felt, and behaved. The meaning was created as I interacted with the participants. Each individual had their own unique experience of how they coped in the aftermath of the disaster. What one person held as truth may be the opposite for another. However, there is no single truth, as each of their experiences were valid. Moreover, using constructivism for this study added value. It allowed me to explore personal experiences and individual attitudes toward animals (see Serpell et al., 2017).

Phenomenology is similar to constructivism. It is a philosophical approach to research that relied on the individual's perspective to understand the phenomenon's significance (Ravitch & Carl, 2016). Interviewing the participants explained the shared meaning for the individuals who experienced the event.

Hermeneutic phenomenology, based on Heidegger's philosophy, stated that people live in the world, and there is no way to bracket experiences, contrary to Husserl (Peoples, 2021). Hermeneutics, per Heidegger, is the recognition that all interpretations must presume some meaning in advance and not appear meaningless (Kelly, 2009).

Based on one of the tenets of this phenomenological approach, *Dasein* means "being there." *Dasein* refers to the self. Heidegger highlighted that "being in the world" stands for unitary phenomenon and "must be seen as a whole" (1927/2011, p. 79). There is a preunderstanding of the phenomena, which is revised consistently until a new understanding is formed.

The hermeneutic circle begins concretely and temporally (Spanos, 1976, p.57). Using the hermeneutic circle allowed for revising my knowledge of the phenomena. Reviewing the interview transcripts created an understanding of the whole, while coding the data created an understanding of the parts. This circular process continued until a new interpretation was developed. Based on Heidegger, interpretation is a constant revision (Peoples, 2021). This is how people make sense of the phenomena.

Constructivism and phenomenology were a framework for understanding the responses to the research question. These questions lead to an exploration of how the participants' experienced the phenomena, including their thoughts, feelings, and behaviors. Based on constructivism, the participants may have interpreted those events in limitless ways and communicated those experiences in different ways (see Burkholder et al., 2016). With phenomenology, the participants' shared their knowledge as per their understanding of the experience. Though responses may have been unique to the individual, there may have been a shared meaning of how the phenomena were experienced.

From the perspective of constructivism and phenomenology, the interview instrument was a vehicle that allowed the individual to share their experience uniquely,

yet possibly creating collective meaning. This instrument was researcher-developed and semistructured. This was designed to yield in-depth responses to the research question. The instrument allowed probing to ensure that the participants elaborated on their experiences. Once data was collected, examined, and coded, it revealed similar themes among the different responses. Additional details are provided in Chapter 2 about constructivism and phenomenology.

Nature of the Study

In this study, I used a qualitative approach. It best described the lived experience of the participants. The goal was that this study's findings would add to what previous quantitative articles have portrayed regarding the therapeutic benefits of animals. As there are not enough qualitative studies on this matter, this study captured those experiences. Data consisted of personal interviews with the participants on animals' therapeutic value, attitude toward animals, and their pet-owning experience.

Using the transactional model of stress and coping, constructivism, and phenomenology best captured the essence of the study. These concepts were useful in assessing the lived experience of hurricane survivors. The assessment included the participants' attitudes toward animals and any pet-owning experience that may have influenced animals' therapeutic benefits.

Once data was collected, I transcribed it. The initial interviews were transcribed using NVivo, while the remaining interviews were transcribed with MAXQDA. The data were then examined, and significant responses were coded using MAXQDA. Themes were then derived based on categories. Data gathering stopped at 11 participants, within

the proposed 10 to 15 participants that were targeted. Initially, there was a low participation rate of hurricane survivors who interacted with animals post storm, so snowball sampling was added as a recruitment strategy (see Scharff et al., 2015). Snowball sampling is asking participants to recommend additional persons for the study that meet the criteria (see Burkholder et al., 2016).

Definitions

For the benefit of readers, the following are explanations of the key terms.

Animal-assisted activity (AAA): A goal-oriented interaction that includes a trained human-animal team aimed at providing emotional support, motivational, educational, and recreational purposes (Jegatheesan et al., 2014).

Animal-assisted interventions (AAI): A goal-oriented intervention delivered by a trained practitioner that includes animals and aids in improving client functioning (Stewart et al., 2016).

Animal-assisted therapy (AAT): A goal-oriented, planned, and structured therapeutic intervention conducted by trained health, human service, or educational professionals (Fine, 2015). It focuses on promoting the client's physical, emotional, cognitive, and socioemotional functioning.

Companion animals: Pets that are not considered stationary objects in the household but recognized as part of the family system (Mueller et al., 2015).

Human-animal bond: A mutually beneficial and dynamic relationship between a person and animal, influenced by behaviors that contribute to the health and wellbeing of

both (AVMA, 2020). This relationship can include emotional, psychological, and physical interactions between the person, animal, and the environment.

Posttraumatic stress disorder (PTSD): It is usually diagnosed one month after the traumatic event. The individual often experiences nightmares, flashbacks, intrusive memories, exaggerated started responses, sleep difficulties, and other symptoms (Pole et al., 2016).

Service animals: Any dog trained to work with or perform tasks for individuals that have a disability, including physical, mental, intellectual, sensory, or psychiatric (Phillips, 2015).

Social support: Supportive behavior received by close others that intends to alleviate distress (Gleason & Iida, 2015).

Stressor: A stimulus or event that is assessed, judged, or perceived as being aversive and which causes a "stress response" (Anisman, 2015).

Therapy animals: A registered animal works with a handler and trained to work with people to provide comfort and emotional support (Phillips, 2015).

Trauma: An emotional response to a terrible event that includes but is not limited to rape, accident, or a natural disaster (Little & Akin-Little, 2019).

Traumatic events: Experiences that include, but are not limited to, war, natural disasters, human-made disasters, threatened or actual physical abuse or sexual abuse, terrorist attacks, or severe car accidents (Little & Akin-Little, 2019).

Assumptions

There were several assumptions in this study. One primary assumption I made was that participants shared their honest experiences, reducing favorable responses, and minimizing bias. The second assumption was that participants were aware of the therapeutic benefits of their interaction with animals. The third assumption was that participants could identify at least one therapeutic benefit they received from their animal. Lastly, there was an assumption that respondents were attentive to their companion animals during or after the trauma. These assumptions were necessary to help explain the phenomena. It also created awareness for my inferences about people's attitudes toward their companion animal's therapeutic benefits.

Scope and Delimitations

Over the last 50 years, there have been increasing studies on animal-assisted interventions' benefits (Serpell et al., 2017). Among the existing literature, some questions remain unanswered. There is a void of information on an individual's experience with animal interaction following a disaster. Conducting this study was helpful to understand if and when the individual perceived any advantages or disadvantages of that interaction. Qualitative research provided clarity of what the individual experienced.

Relevant literature to this study included quantitative research that studied the purported benefits of pet ownership for trauma-exposed individuals (see Barker et al., 2017; Peacock et al., 2012; Romaniuk et al., 2018). Other qualitative studies provided insight into relationships with animals. It explained how individuals perceived their

companion dogs and how it affected their meaning of life (Maharaj et al., 2016). Also, qualitative studies displayed how the individual's improved impulse control and self-esteem and reduced stress and anxiety symptoms in animal-assisted interventions (Earles et al., 2015; Jau & Hodgson's, 2018; Kelly & Cozzolino, 2015; Lessard et al., 2018; Mims & Waddell, 2016). As with these studies and any research to be undertaken, an adequate sample was highly critical. Moreover, it was beneficial to capture real-life experiences of pet ownership, traumatic exposure, and self-perceived advantages or disadvantages of animal interactions.

For this study, the population selected were 10 to 15 adults, age 18 and older. To be eligible, the individual must have experienced Hurricanes Irma or Maria and had a companion animal during that time. Participants either reported self-identified trauma or were clinically diagnosed. I excluded individuals if they had companion animals but did not experience Hurricanes Irma or Maria. Similarly, if the person experienced the storms but did not have a companion animal during that time, they were ineligible. Exclusions also applied to individuals younger than age 18 or who did not acknowledge any stressors following the storms. The stressors the survivors experienced played a critical role in this study. Participants were excluded from the study if they refused to be audio recorded. Recording the interview was essential in capturing responses accurately.

The theory that bests aligned with this study was the transactional model of stress and coping by Lazarus and Folkman (1984). It discussed how an individual appraised the stressor and their attempts to manage their emotional reaction to it. Another theory explored for this study was the biophilia hypothesis. This theory was introduced by

Wilson (1984) as the innate need of humans to understand and interact with nature. As people came to understand other organisms, they placed a higher value on them and themselves. However, this theory did not entirely explain the relationship between stress and coping. As a result, the transactional model of stress and coping replaced the biophilia hypothesis because it was more explicative of how a person appraised stress and found ways to cope.

I explored the lived experience of individuals' attitudes concerning animals' therapeutic benefits using the theoretical model of stress and coping, constructivism, and phenomenology. The theoretical model and the conceptual framework helped to display the connection of the person's appraisal of their traumatic experience and how they possibly coped with their companion animal's help.

Constructivism and phenomenology also supported this study. These were the only two frameworks to be investigated. Constructivism reflected how the participants perceived their hurricane experience and defined them, which helped create a better understanding of their thoughts, feelings, and behavior (see Burkholder et al., 2016). Phenomenology allowed me to explore how a person's experience related to the phenomenon.

With the participants sharing their experience using their own words, I viewed the transferability of that experience with similar persons in that situation. Phenomenology, in this instance, explained the collective meaning for several individuals who experienced the phenomenon. It used transferability to assess similarities among the individual's experiences. Further, the value of the results from a phenomenological study relied on

transferability (Burkholder et al., 2016). Transferability is the ability to apply the findings to another situation.

Limitations

There were anticipated limitations to this study. First, there was no face-to-face contact. However, a Zoom video conference was offered as an option. My presence during data gathering may have influenced how the participant responded to questioning. Second, the participants responded to open-ended questions that were not verifiable. The participants expressed themselves using their own words, so their responses were subjective. Third, individual research bias could threaten this study if I interjected personal thoughts, feelings, and experiences into the analysis. Triangulation using more than one source to verify a claim's basis (Burkholder et al., 2016) addressed biases. It strengthened the reliability of the study (Creswell, 2013). Triangulation allowed me to investigate other research findings and assess if they supported the results of this study. Also, triangulation assured that this study had some value. Besides, I avoided showing emotion or any indication toward a specific response. I used a journal to record my experiences during the study. The journal was a reflective tool and a conscious reminder to avoid biases.

A fourth limitation of this study was that the results might not be transferable. This research was conducted with individuals in the Virgin Islands. This geographical area may pose regional differences in the perception and attitudes of post storm experiences and animal interaction. Lastly, being a single researcher for this study restricted the perspectivetaking, which may limit this study's dependability. As the sole

research instrument, it was possible that I may have misinterpreted, overlooked the most salient points inadvertently, or recorded insufficient details.

Significance

This research filled a gap in the literature by understanding the lived experience of persons who may have perceived the advantages or disadvantages of interacting with animals following a natural disaster. In this study, I potentially uncovered the attitudes of the respondents toward animals. The findings may add value to existing studies that explored the therapeutic benefits of the animal. Capturing the hurricane survivors' subjective experiences added the perspective of how these individuals may have affirmed or discounted the claim of therapeutic benefits.

The findings may have social implications. The results can influence communities that are considering alternative programs to include animal interaction following significant disasters. Additionally, it can be an inspiration for clinicians who may want to offer an alternative therapy form for clients that may be apprehensive towards formal approaches.

Having alternative therapeutic approaches that include animals may provide some benefit. Yarborough et al. (2018) suggested that service dogs' use may be a reasonable option for veterans who are reluctant to pursue or persist with traditional evidence-based treatments for PTSD. Reluctance to therapy may be a similar experience of Virgin Islanders, exposed to trauma following the hurricanes. Some individuals may not seek formal treatment but may have animals that provide some therapeutic benefits. These individuals may try to cope with stressful situations without seeking professional help.

One of the most significant factors of not seeking mental health treatment was misinformation and fear contributing to the stigma (Dudley-Grant, 2016). A barrier may also include the perception of mental health issues as an external demonic force now resident inside the individual. Acknowledging this issue tends to spread fear and concern about transmitting it to family members. These are some of the problems that prevent Virgin Islanders from seeking professional help. Some Virgin Islanders either struggle through their difficulties or use other sources of coping.

Such coping mechanisms may include interaction with animals. Thompson et al. (2014) found that animal attachments could provide a novel conduit for accessing, communicating with, and motivating vulnerable people to engage in resilience-building behaviors that promote survival and facilitate recovery. Animal-assisted interventions (AAIs) have shown health benefits that have been demonstrated through petting a therapy animal, which releases endorphins. Serpell et al. (2017) suggested that future research should include the recipient's personality, attitudes towards animals, and previous animal-owning experience, even with insinuated benefits.

The lived experiences of individuals who experienced hurricanes may help researchers and clinicians understand how persons receive value from animals after a disaster. Insight from communicating with these survivors uncovered any unfavorable aspects of interacting with animals. Perhaps these findings could offer an alternative to formal therapy to a population of people that usually would not seek it.

Additionally, this study may impact positive social change. It exposed the possible benefits of animals in the healing of trauma, particularly following a hurricane.

Lastly, it could appeal to the clinicians in my community to possibly considering animal-assisted interventions in the therapeutic process or including them in interventions following a disaster.

Summary

Traumatic events occur in several ways, including natural disasters. Such disasters become traumatic when the situation escalates beyond an individual's ability to cope (Lazarus & Folkman, 1984). The transactional model of stress and coping explained this more descriptively.

Animal-assisted interventions are one coping mechanism that persons experiencing trauma have tapped into to provide emotional support (Fine, 2015). Several studies indicated how well these interventions had provided relief to the recipients (Ader et al., 1995; Mueller et al., 2015). This chapter suggested that this research pursued information from a different perspective. I captured the subjective experiences of individuals that experienced interaction with animals following a hurricane. Based on constructivism, there are many ways a person can interpret their experience. From a phenomenological perspective, these individuals' points of view aided in understanding these experiences. The findings of this study may have social implications that could benefit communities and clinicians. The results could present more options for individuals that are reluctant to pursuing formal therapeutic approaches.

This chapter showed how survivors of natural disasters are exposed to trauma. It suggested the experience of the human-animal bond may be beneficial to recovery. This study's findings may be used to facilitate the integration of animals in disaster

intervention and therapeutic services. In Chapter 2, I present literature on the advantages and disadvantages of human-animal interaction. I reviewed the theoretical foundation and conceptual framework, coping with natural disasters and traumatic events, human-animal bond, animal-assisted therapy for trauma, therapeutic benefits of animals, attitudes toward animals, pet-owning experience, and surviving a hurricane.

Chapter 2: Literature Review

Introduction

In researching the literature on the benefits of animal interaction, I have found no literature that explored the lived experience of hurricane survivors who were pet owners or exposed to animals at the time of the natural disaster. Much is known about animals' therapeutic benefits (see Earles et al., 2015; Jau & Hodgson's, 2018; Lessard et al., 2018; Mims & Waddell, 2016). However, there is a gap in the literature regarding persons' subjective experiences that survived natural disasters. More specifically, research was deficient in hurricane survivors' lived experiences and their attitudes toward their pets and other animals concerning their experiences of a natural disaster overall. An exploration of hurricane survivors' experiences can add to existing research and could be significant to the field of psychology.

The findings of this study could contribute to developing knowledge about human-animal relationships. Crossman (2016) specified that there was not enough research that helped understand the human-animal relationship despite knowledge of its psychological benefits. Making advancements in this area could add value to psychology. Therefore, the purpose of this study was to explore the lived experience of hurricane survivors' attitudes toward their companion animal or other animals they interacted with during their experience of a natural disaster. The specific population was Virgin Islanders following Hurricanes Irma and Maria.

There is a significant population of persons that do not seek formal therapy, including hurricane survivors. This population typically experiences PTSD (Chan

&Rhodes, 2014). These individuals often self-report the severity of their PTSD symptoms. Equally, people who report PTSD symptoms were more likely to report disaster exposure (Harville et al., 2015). After Hurricane Katrina, a major disaster in 2005, less than one-third of persons with anxiety or mood disorders received mental health care (Wang et al., 2009). According to research by Wang et al. (2009), survivors reported mood and anxiety disorders using the K6 scale of nonspecific psychological distress. Of those that did receive care, services were of low intensity and frequency. Some of the respondents receiving care dropped out of treatment by the time of the survey interview. Some persons reported not finding suitable services or did not have access to such care. Some of the survivors already lacked financial resources before the storm and were members of racial and ethnic minority groups.

Besides, some persons did not view their mental health issues as needing treatment. Although other individuals acknowledged a need for mental health treatment, they avoided seeking help due to attitudinal barriers (citation). Avoidance was partly due to fear of re-experiencing the trauma or stigma towards mental health issues and services.

Also, people may avoid mental health services because they use their pets for support. For instance, people tend to find unconditional love and acceptance in their pets, particularly during difficult times (Gorczyca& Fine, 2015). Taking care of an animal forces people to provide attention, affection, and companionship, which gives the person a sense of purpose and connection. Animals tend to recognize and are attuned to a person's emotions and can sense when they are wanted or needed. Furthermore, having companion animals allows the person to use their strength to help themselves.

Being exposed to a hurricane can make a person prone to experiencing depression, anxiety, and PTSD (Dass-Brailsford & Hage Thomley, 2015). These are psychological concerns that warrant treatment. These symptoms can be exacerbated by living on an island with no immediate form of escape, particularly when the individual has an avoidant style of coping (see Thompson et al., 2018).

However, many persons do not seek traditional therapy to eradicate psychological symptoms resulting from trauma. They may rely intentionally on other forms of coping, such as social support, volunteering, and religiosity, particularly praying (Matthews, 2006). Introducing the lived experience of the therapeutic benefit of animals could provide another alternative to coping postdisaster. For instance, companionship with an animal could be particularly meaningful for people who do not seek treatment or continue treatment for symptoms associated with their traumatic exposure.

Moreover, animal-assisted therapy is effective for persons impacted by trauma (Stewart et al., 2016). I used numerous studies depicting the effectiveness of its benefits to support this study, providing evidence for how exposure to an animal may increase the potential for psychological healing. Considering the literature gap, I explored the phenomenon of how pet ownership or exposure to animals can have possible therapeutic effects on hurricane survivors. Increased knowledge in this area might attract persons who avoid traditional therapy. Besides, local clinicians may become interested in using animal-assisted interventions.

This chapter addressed the literature search strategy, reviewed the literature on the theoretical foundation and conceptual framework, and the literature review related to key

concepts. The theoretical foundation was the transactional model of stress and coping. The conceptual framework was constructivism and phenomenology. The literature review included discussing the concepts of coping and natural disasters, coping and traumatic events, human-animal bond, animal-assisted therapy for trauma, the therapeutic benefits of animals, attitudes toward animals, the pet-owning experience, and surviving a hurricane.

Literature Search Strategy

The following databases assisted in identifying relevant material: Academic Search Complete, Business Source Complete, CINAHL Plus with Full Text, Gale Academic OneFile Select, MEDLINE with Full Text, PsycARTICLES, PsycINFO, Science Citation Index, Science Direct, Social Sciences Citation Index, SocINDEX with Full Text, and ProQuest Dissertations and Theses. Search engines included the Walden University Library and Google Scholar.

The following keywords were used: *animal-assisted intervention, animal-assisted therapy, attitudes toward animals, companion animals, human-animal bond, hurricane-related stressors, models of stress, natural disasters, perception of animals, pet-assisted therapy, pet-owning experience, posttraumatic stress disorder, and animal-assisted therapy/animal-assisted-intervention/animal-assisted activities, surviving a hurricane, theory of stress, therapeutic benefits of animals, therapeutic benefits of pets, and trauma.* I used terms in multiple databases, previously mentioned, within the Walden University Library and *Google Scholar*. Table 1 presents a description of the key terms used in each database.

Table 1*Summary of Keywords and Databases*

Databases	Keywords
Academic Search Complete	Companion animals; surviving a hurricane
Business Source Complete	Animal-assisted intervention
CINAHL Plus	Animal-assisted therapy; human-animal bond; natural disaster; pet-owning experience; posttraumatic stress disorder and animal-assisted interventions; surviving a hurricane
Gale Academic OneFile Select	Animal-assisted therapy; human-animal bond; surviving a hurricane; therapeutic benefits of animals
Medline	Animal-assisted intervention; attitudes towards animals; companion animal; human-animal bond; natural
PsychARTICLES	Posttraumatic stress disorder
PsychINFO	Companion animal; human-animal bond; models of stress; posttraumatic stress disorder and animal-assisted therapy; therapeutic benefits of pets; theory of stress; trauma
Science Citation Index	Human-animal bond
Science Direct	Attitudes toward animals; pet-owning experience
Social Sciences Citation Index	Animal-assisted therapy; companion animal; human-animal bond; hurricane-related stressors; pet-assisted therapy; posttraumatic stress disorder and animal-assisted intervention; surviving a hurricane
SocINDEX	Animal-assisted intervention; animal-assisted therapy; attitudes toward animals; companion animals; human-animal bond; pet-owning experience; therapeutic benefits of animals

Additional material included Human-Animal Interaction Section 13 of Division 17 of the American Psychological Association and American Veterinary Medical Association websites. Articles were researched from May 2018 to June 2020 and were within a 5-year window. However, I included articles older than 5 years that were deemed original and contributed to this study.

Theoretical Foundation

The theoretical foundation of this study was the transactional model of stress and coping developed by Lazarus and Folkman (1984). This model also referred to as the transactional theory of stress and coping, is a framework that appraised the process of coping with stressful events. Stressful situations were considered as person-environment transactions. The external stress was mediated by the individual's appraisal of the stressor and the resources they have access to. For hurricane survivors, the primary appraisal was the disaster (stressor). Per the framework, hurricane survivors evaluated how they could alter the situation and manage their adverse emotional reactions (Lazarus & Folkman, 1984), considered the secondary appraisal.

The coping methods used to regulate a person's feelings and mediate the situation influenced the coping process's outcome (Lazarus & Folkman, 1984). How the person managed the person-environment relationship depended on the appraised situation. The individual may seek social support to regulate their emotions and may find this support through animals. As Fine (2015) portrayed, the human-animal bond may apply in a social aspect. More specifically, people tend to seek out social support from animals as a means of coping, which may be an ideal source. Having social support is a foundation for

optimum physical and mental health. Glanz and Schwartz (2015) suggested that interacting with animals enhances psychological wellbeing.

The transactional model of stress and coping specified that a person continuously appraised stimuli within their environment (Lazarus & Folkman, 1984). In appraising, the individual generated emotions. Distress occurred when there is a perception of threat, challenge, or harm. Those feelings led to coping strategies for managing emotions or an attempt to eradicate the stressor. The coping process led to an outcome, which the person analyzed as favorable, unfavorable, or unresolved. Naturally, when the outcome was desirable, the person had positive emotions. When the result was adverse or unresolved, the person remained distressed. Distress led to additional coping strategies to resolve the stressor.

In the transactional theory of stress and coping, Lazarus and Folkman (1984) defined stress as the relationship between the person and the environment that the person appraised as strenuous or surpassed their ability to cope and negatively affect their wellbeing. Lazarus and Folkman indicated that research pointed to the mediating role of cognitive appraisal. The appraisal occurred between the situation and coping, and the mediating role of coping that happens between the person's resources and outcome. The assessment could directly relate to a person's circumstances, like experiencing a hurricane, optimism and emotional coping, and subjective health.

This theory now includes meaning-focused coping, which viewed the stressor as overwhelming and uncontrollable (Folkman, 1997; 2008). Meaning-focused coping considered the person's values, beliefs, and goals needed to focus on their priorities,

assign meaning to actual events, and evaluate the positive sense of stress (Carver & Connor-Smith, 2010; Folkman, 2008). Meaning-focused coping led to feeling positive and reassured the person of the resources they used to attain cognitive appraisal.

There was an application of the transactional model of stress and coping as theories in previous studies. In one study, Gieselmann et al. (2020) applied this theory to focus on appraising individuals' nightmare distress. The individuals felt more distressed when they felt threatened and harmed by their nightmares. The nightmares were the primary appraisal based on Lazarus and Folkman's (1984) theory. The secondary appraisal was the lack of coping skills these individuals possessed in eradicating the stressor. Zhou et al. (2019) conducted a study with adolescent earthquake survivors 1 year following the 2017 earthquake in Southwest China. Zhou et al. applied Lazarus and Folkman's transactional model of stress as the theory. Zhou et al. found that the earthquake experience activated the adolescent's appraisal of the event, which triggered their coping strategies. These adolescents may have activated avoidance and emotional venting as their means of coping with minimizing their emotions after their traumatic experiences. In both studies, the primary appraisal was the activating event. The secondary appraisal was the coping technique that the individuals chose to minimize their distress.

In my study, the research question's design bears relevance to the transactional model of stress and coping. This theory expounded on the primary appraisal and the secondary appraisal. The research question prompted the participants to elaborate on their

stressors, which was the primary appraisal. It also considered whether their interaction with animals was their way of coping, which was the secondary appraisal.

Phenomenology, constructivism, and the transactional model of stress and coping aligned with each other. Those were all based upon the individual's experience of a phenomenon. Those aspects expressed what I attempted to explore in this study.

Conceptual Framework

In this study, I used constructivism and hermeneutic phenomenology as conceptual frameworks. It helped me portray the experience of the participants based on knowledge and perception. The theoretical foundation was the transactional model of stress and coping. This theory helped with understanding the interconnectedness among stress, coping, and support. This study's findings suggested a connection between the individual appraising their stressor and perceiving the benefits animals played in minimizing the situation.

Constructivism

Constructivism is a relativist perspective that asserted that people could interpret events in unlimited ways (Burkholder et al., 2016). How people look at events and make meaning of it helped to understand their thoughts, emotions, and behavior. Similarly, constructivists speculated that people could not experience reality directly; but rather experienced a phenomenon that is then interpreted by the senses (Burkholder et al., 2016). With this relativist perspective, there is not an external, verifiable reality outside of the observer. As a result, there can be no value-free objective observations on the part of the researcher. Further, Burkholder et al. (2016) specified that experiences are derived

socially and historically. Experiences can come from the complexity of the participants' views.

Like I did in this study, other researchers have used constructivism. Chipangura et al. (2016) viewed disaster risk as socially constructed by creating a common and shared definition. This viewpoint has increased the framing of natural disasters because of human vulnerability. In another study, Lee and Makela (2018) used a constructivist approach. They used in-depth interviews better to understand experienced therapists' cognitive activities and strategies when they practice equine-assisted psychotherapy. Lee and Makela found this information valuable for helping new therapists and students gain confidence when using equine-assisted psychotherapy.

With a constructivist approach, participants in my study shared their experiences on surviving the hurricane and any perceived benefits of animal interaction. This closely aligned with constructivism is phenomenology. Like constructivism, phenomenology is derived from the individual's experience. This conceptual framework depicted the lived experience of the participant's experience in connection with the phenomenon.

Phenomenology

Phenomenology is dependent on a person's point of view to gain insight into the meaning of the phenomena (Ravitch & Carl, 2016). Therefore, knowledge comes directly from the person who experiences it. Hermeneutic phenomenology is based on Heidegger's philosophy. He believed that "being there," or *Dasein*, is the self (Peoples, 2021). Hermeneutics is an interpretation of *Dasein*'s being (Heidegger, 1927/2011, p. 58). It is not possible to separate the self from being in the world. Therefore, a person has a

preunderstanding of a phenomenon. This is known as fore-conception (Peoples, 2021). Another important aspect is the hermeneutic circle. The Heideggerian hermeneutic circle is a process that deconstructs the "metaphysical/spatial frame of reference" and designates oneself as the interpreter (Spanos, 1976, p.76).

Further, phenomenology lets what shows itself be seen from itself in the same way it shows itself (Heidegger, 1927/2011, p. 58). The phenomenon is showing-itself-in-itself suggesting a distinct way of encountering something. Therefore, the word phenomena are the totality of what exists in the light of day or may be brought to the light (Heidegger, 1927/2011, p. 58).

Creswell (2013) described phenomenological research as seeking to inquire about the participant's lived experience relative to a phenomenon. More specifically, phenomenology is a method of how a person's perceptions are analyzed relative to a specific phenomenon (Burkholder et al., 2016). A phenomenon is an event or an experience that happens to a person. It is something that can be defined. Phenomenology helps to understand the human factors that occur in the experience. This framework provided me with answers such as how an individual perceives a phenomenon to enable it within a context. Phenomenology helped better to understand the person's experience of a situation.

Burkholder et al. (2016) also pointed out that phenomenology looks directly at the individual's experience and view of the phenomenon. Also, phenomenology creates the opportunity to understand why the person reacted the way they did to the situation. Using this information allowed me to see the comparability and differences among participants'

responses. Notably, participants responded using their own words. Phenomenology allowed me to view the experience's transferability to other participants with similar backgrounds in similar situations.

Phenomenology in previous studies helped examine the lived experience of the participants. Kern-Godal et al. (2016) used phenomenology as an approach to understanding the experiences of horse-assisted therapy. The thematic analysis was used to investigate how the participants constructed the relationship with the horses and their perceptions of the consequences of that reality with substance abuse treatment. In Favali and Milton's (2010) study, phenomenology was employed to explore the experience of disabling adult horse-riders; the themes derived supported the limited literature that the authors explored. Dell et al. (2011) used a phenomenological approach to explore participants' perspectives of an equine-assisted learning program. There were supposed healing benefits that authors needed to investigate. Using phenomenology allowed the authors to gain insight through emerging themes about the learning program's healing experience.

Using a hermeneutic phenomenological perspective was a benefit for this study. Hermeneutic phenomenology was an appropriate approach that allowed me to explore the participants' lived experiences, make meaning, and create a new understanding. My pre-understanding of this phenomenon was continuously revised. The more I gathered information, reviewed, coded, and made sense of the data, the better my understanding of the phenomenon developed. As Heidegger suggested, interpretation was a constant revision that allowed me to make sense of the phenomena (Peoples, 2021).

Phenomenology provided insight into hurricane survivor's attitudes regarding the therapeutic benefit of animals.

Literature Review Related to Key Concepts

The literature review for this study comprised several key concepts, providing relevant details about the purpose of the study. Key concepts surrounded coping and natural disasters, coping and traumatic events, human-animal bond, animal-assisted therapy for trauma, therapeutic benefits of animals, attitudes toward animals, pet-owning experience, and surviving a hurricane.

Coping and Natural Disasters

People have different ways of coping after a traumatic incident. Cherry et al.'s (2017) quantitative study assessed older commercial fishermen for their coping styles following two major hurricanes and an oil spill. The authors found that lifetime trauma was related to all three coping styles that were explored: avoidant emotional coping, active emotional coping, and problem-focused coping. Cherry et al. specified that avoidant emotional coping was relative to being in denial and using self-distraction. Active emotional coping involved cognitively reframing the situation or using humor. Problem-focused coping pertained to individual action planning and finding solutions to help them overcome their situation. Cherry et al. stated that avoidant emotional coping showed a relationship with fear for life and safety during the traumatic experience. However, Cherry et al. indicated that exposure to hurricane stressors and other lifetime traumas was related to problem-focused and active emotional coping styles. Avoidant coping styles were directly related to depressive symptoms.

Conversely, all three coping styles showed a significant correlation with a greater risk of PTSD (Cherry et al., 2017). Cherry et al. accomplished their goal in assessing individuals that experienced multiple disaster exposures. They satisfied their inquiry about storm-related stressors and other lifetime traumatic events that may have influenced a person's ability to cope with oil spills' stress. Cherry et al. were also able to measure the relationship between coping styles and psychological outcomes. However, it was questionable whether the symptoms of depression were directly related to the oil spills or Hurricane Katrina.

Coping styles were also assessed in Stratta et al.'s (2015) quantitative study. Student survivors of a hurricane in Italy were assessed for their coping styles and resilience following trauma. The Resilience Scale for Adolescents, Brief Cope, and Trauma and Loss Spectrum scales, developed by Hjemdal et al. (2006), were used as measures. Stratta et al. asserted that there were some positive and emotional coping styles on resilience. Emotional coping had a direct impact on the outcome. The positive and emotional coping were positively related in addition to emotional and disengagement coping styles. Based on the measures used, results indicated that resilience directly influenced PTSD symptoms, which partially mediated the impact of the coping styles. The students' coping styles operated as a protective factor in developing stress symptoms. Emotional disengagement coping skills could occur directly after a traumatic experience. However, when problem-focused strategies intervene, resilience was more likely to buffer the stressor and helps the person reach a successful outcome. Stratta et al. had a

large sample size, which was a significant strength. However, even with the number of participants, the study cannot be generalized to the adult population.

Coping and Traumatic Events

Moreover, coping strategies can serve as mediators in the aftermath of a traumatic experience. In Thompson et al.'s (2018) quantitative study, a sample of 341 patients were recruited from an emergency department was assessed following a traumatic event. Of those evaluated for PTSD symptoms, 220 completed the one-month interval, 195 completed the three-month interval, and 164 completed the six-month interval. Resilience was predictive of social support. Social support was an active coping strategy that was inversely related to social withdrawal. Social withdrawal was considered an avoidant coping strategy. Also, there was a significant correlation between resilience and most active coping strategies. Conversely, there was a negative relationship between resilience and most of the avoidant coping strategies.

All the avoidant coping strategies had a positive relationship with developing PTSD symptoms (Thompson et al., 2018). Also, half of the active coping strategies, like problem-solving and the ability to express emotions, showed a greater possibility of developing PTSD symptoms. The other active coping strategies did not contribute to developing PTSD symptoms. Also, Thompson et al. indicated that social withdrawal was more likely at the three-month assessment. Social withdrawal fully mediated the relationship between resilience at the one- and six-month assessments for PTSD symptoms. This demonstrated that persons with lower levels of resilience were more likely to socially withdraw to cope with stress following traumatic experiences. Socially

withdrawing made them more prone to developing PTSD symptoms. Thompson et al. suggested that resilience and social withdrawal might be useful therapeutic targets for mitigating PTSD symptoms following a traumatic event. A drawback of this study was the huge participant dropout rate.

Human Animal-Bond

As mentioned in the transactional model of stress and coping, strategies were employed to help the person manage their emotions or eliminate the stressor (Lazarus & Folkman, 1984). Animals were one method of coping with such stressors, which started with the human-animal bond. Fine (2015) demonstrated that the human-animal bond applied to a social aspect. He specified that humans sought out social support from animals as a means of coping with difficult situations. Social support can be considered supportive behavior received by close others that were intended to alleviate distress (Gleason & Iida, 2015). Having social support was a foundation for optimum physical and mental health.

Additionally, it was stated that having animals was an ideal resource for social support, physical and mental health. Persons tend to gravitate toward animals based on their perception of them. They perceive pets as being available to meet their needs.

Further, a person's emotion likely has a relationship with how they associate with pets. In Su et al.'s (2018) quantitative study, there was a correlation between the attribution of emotions and the degree of attachment to the animal. Su et al. found that the relationship was more significant for Japanese and Western owners than for Chinese owners. The significance indicated that the attribution of emotions was more associated

with the degree of attachment in Japan and Western countries than in China. One advantage of this study was Su et al. were the first to explore animal emotions by analyzing the bond between Japanese owners and their companion animals. This helped the community by providing knowledge that helped them increase animal welfare awareness. However, using paper-based and online questionnaire surveys to gather data may have made the findings inconsistent.

In addition to a person's attributions of emotions, individuals may view their relationship with their animal as sacred. Maharaj et al.'s (2016) qualitative study assessed the human-canine bond. They found that the human-canine relationship contains a sacredness and spirituality from the dog's short life, the depth of the emotional bond, and a sense of duty to provide dogs with a meaningful experience. This study also suggested the challenges of caring for the dog and coping with the animal's loss. Maharaj et al. also found that this relationship provided new possibilities for reviewing the impact of animal-assisted activities on therapy animals and their caretakers. Maharaj et al. had 22 women and five men that volunteered for the study. It was not indicated the ethnicity of the individuals. Perhaps having more males and diverse ethnic groups would add more complexity to the findings of this study.

Animal-Assisted Therapy for Trauma

Animal-assisted interventions (AAI) have been instrumental in providing benefits that aid in trauma-informed care (Stewart et al., 2016). This has included reducing anxiety symptoms, encouraging strong therapeutic rapport, reducing feelings of detachment, and offering clients a way to express themselves non-verbally. Specific

directive techniques have included socialization walks with the animal to help clients that were struggling to interact with other people in social situations due to anxious feelings. Another technique was meditation and animal-assisted grounding techniques. This had been helpful for trauma survivors. The client was encouraged to use grounding techniques through physical touch with the animal. They also used sensory experiences, like petting the animal, when participating in meditative practices. Clinicians often introduced appropriate touch and preferred touching areas of the animal.

Further, animal-assisted therapy has been used in the treatment of trauma. Kloep et al. (2017) used a quantitative approach. They found that the use of psychiatric service dogs, coupled with an intensive trauma resilience training program for veterans with ongoing symptoms, was feasible as a complementary treatment for PTSD. This could also yield beneficial results in terms of symptom improvement to the overall quality of life. Kloep et al. conducted an intensive 3-week training program. Their samples included two separate cohorts of military veterans. The participants used self-reported measures. Kloep et al. reported a decrease in symptoms of PTSD and depression, and anger. They then reported an increase in social support and their quality of life. A disadvantage was its small sample size, making it difficult to generalize and compare previous effect sizes from more traditional treatment programs. Despite this limitation, Kloep et al. were able to conclude that using psychiatric service dogs in addition to the intensive trauma resilience program was possible; that this could be a complementary treatment for PTSD. Incorporating psychiatric service dogs could produce benefits that could improve the individual's general wellbeing.

In another study, Yarborough et al. (2018) used a mixed-methods approach and provided support for using service dogs for PTSD. In addition to reducing PTSD symptoms, it was also found to help facilitate recovery and realize veterans' meaningful goals. Using service dogs for PTSD appeared to be a reasonable option for veterans who were reluctant to pursue or persist with traditional evidence-based treatments. Based on the veteran's reports, their PTSD symptoms decreased with the assistance of their service dog. This included hypervigilance, nightmares, intrusive thoughts, suicidal impulses, and medication use. Yarborough et al. reported improved sleep quality, emotional connections, community participation, and physical activity. The findings of Yarborough et al.'s study were consistent with research on the improvements people experienced using service dogs. They were unable to assess if the service dogs were the main factor for the benefits reported due to the study's time constraints.

Lessard et al.'s (2018) qualitative study also assessed the usefulness of psychiatric service dogs (PsySD) per the veterans' perspective that was managing PTSD. Some of those veterans had their dogs between 2 and 4 years. Their perceptions were positive for the following themes: "service dog's role and tasks" and for "personal advantages and environmental impacts." There were 16 subthemes that emerged. Those subthemes suggested that PsySD is a potentially satisfying and adaptable assistive modality to help veterans manage their PTSD symptoms. PsySD can also prevent worsening aggravation and chronicity. Lessard et al. further concluded that PsySD could be used as tertiary prevention for this population. Also, PsySD was sometimes used to complement psychotherapy or as a substitute aid following psychotherapy. As previously suggested,

using this form of animal-assisted therapy can be complementary and reduces isolation and barriers within formal therapy. There were strengths of Lessard et al.'s study. They used a strategic sample of 10 participants that they recruited from dog training schools. They also interviewed the participants in their primary languages of French and English. However, there was a possibility that the study contained response biases. Participants were eager about their experience and may have responded desirably.

Furthermore, therapy dogs have been shown to reduce subjective stress and anxiety after a person experiences a traumatic situation per Lass-Hennemann et al.'s (2018) quantitative study. Sixty female participants were randomly assigned to one of three groups. They were all exposed to a traumatic film. The first group interacted with a friendly dog for 15 minutes after the film. Another group then watched a film of someone interacting with a dog. The last group was instructed to relax. The individuals who interacted with the dog following the film had lower levels of anxiety, a more positive affect, and decreased physiological arousal than the other two groups reportedly. There were weaknesses noted in Lass-Hennemann et al.'s study. The findings were not generalizable to real traumatic situations. Participants only included females who used oral contraceptives, and it was unsure whether the results would differ among non-users or male participants. Apart from this drawback, the methodology was well executed, and there was a thorough analysis and presentation of the data.

In general, using animals in therapy has been shown to have some advantages. Kelly and Cozzolino's (2015) qualitative study continued to show how animal-assisted therapy has been beneficial to many populations for various physical and psychological

issues. Kelly and Cozzolino used this therapy to help at-risk youth overcome trauma and substance abuse. They found that the youths were able to attain short-term outcomes of improving their impulse-control and self-esteem. The youths also demonstrated a decrease in their depressive symptoms. This program might have accomplished the short-term outcomes of improving self-control, self-esteem, and depressive symptoms. A shortcoming was the small sample size and the dropout rate throughout the program.

Equine-assisted therapy was another form of using animals in an intervention. Based on Earles et al.'s (2015) qualitative study, equine-assisted therapy was proposed to be an effective form of therapy for persons suffering from PTSD, anxiety, and depressive symptoms. A 6-week program was implemented using horses. Sessions included the participants meeting the horse, touching the horse, mounting the horse, and leading and backing up the horse. These strategies were used as a psychological intervention in which participants learned critical skills. Participants reported lowered anxiety, depressive, and PTSD symptoms after therapy. Earles et al. suggested that combining therapy with the horses may have increased mindfulness. Earles et al.'s strength of the study was the use of standardized measures. However, the study did not have a control group, so it was unsure whether the effects were completely a result of equine-assisted therapy.

Additionally, equine-facilitated cognitive processing therapy, a manualized adaptation of cognitive processing therapy, was used to treat PTSD symptoms. Wharton et al.'s (2019) quantitative study used equine-facilitated activities, including 12 face-to-face sessions with the veterans. Their PTSD symptoms were assessed, and 84% of them no longer met the diagnosis criteria at the end of the intervention. Wharton et al. had a

small sample size but maximized their study using standardized measures, including the PTSD Checklist.

Therapeutic Benefits of Animals

Animal-assisted interventions are also reportedly used for non-trauma psychological issues. Romaniuk et al.'s (2018) quantitative study examined equine-assisted therapy for veterans and their partners. They considered depression, anxiety, stress, posttraumatic stress, happiness, and quality of life. Romaniuk et al. compared the results to an individual versus a couple's program. Three assessment periods were used, including pre-intervention, post-intervention, and 3 months follow-up. Veterans seemed to benefit better from the therapy's effects when their partners were integrated into the treatment program.

Further, the results suggest that using equine-assisted therapy may help reduce depression, anxiety, stress, and PTSD symptoms. The findings also indicate that equine-assisted treatment may help improve happiness and quality of life. However, those benefits may be short-term if partners are not included in the treatment of the veterans. Although Romaniuk et al. (2018) had a small sample size and did not include a control group, they could suggest that incorporating veterans' partners in the intervention may provide meaningful benefits such as symptom reduction. Involving family members may increase treatment benefits (Sherman et al., 2015).

Krause-Parello and Morales' (2018) qualitative study was based on phenomenology. They interviewed 21 participants who provided insight into their experiences with service dogs. The most salient themes that emerged were procurement,

psychosocial functioning, value, and detriment. The findings suggest that service dogs improved the veterans' physical and psychological health, provided a coping resource, providing social support, and encouraged independence. One limitation was the possible risk of subjective interpretation when identifying codes and reoccurring themes.

However, Krause-Parello and Morales confirmed their ability to reach data saturation, which may have helped expound the findings.

Equine-assisted therapy was also used as an intervention for adolescents. Dell et al.'s (2011) qualitative study used a phenomenological approach to explore the experience and benefits of equine-assisted learning residential treatment with adolescents. The participants described their experience as a meaningful connection to the horse. This therapy helped them to calm down and stay present at the moment. These participants felt that they were able to connect with the horses nonverbally. Dell et al. found a difference in the experience of males versus females. Males described their interaction with horses as a way of expressing their affection. The female participants' experience was their ability to express empathy and develop caretaking abilities with the horses. The strength of this study was using a phenomenological approach to capture the participants' experiences. However, Dell et al. experienced shortcomings with their research. Beyond the participants in their study, the data was not transferable to other populations. Some other challenges included were a language barrier, participant mood fluctuated based on the day, and building rapport with the youths before conducting the interview.

Favali and Milton's (2010) qualitative study also used a phenomenological approach. They explored the riding experiences of five disabled horse-riders. A couple of

the themes that emerged were physical benefits and psychological benefits. Favali and Milton highlighted several therapeutic benefits that the horse-riders encountered during their contact with the horses. Favali and Milton's (2010) study suggested that animals can be used in therapeutic settings. The potential benefit of contact with animals, particularly horses, was made clear. However, the drawback of this study was the lack of transferability. The participants were all experienced horse riders, so the findings may not apply to non-riders.

In this qualitative study, Kern-Godal et al. (2016) explored horse-assisted therapy with patients with substance use disorder. Using a phenomenological approach, Kern-Godal et al. captured the experience of the patient's relationship with the horse and their perspective of its contribution to their therapy. One of the strengths was the understanding gained of the participants' impactful experiences using horse-assisted therapy. Horse-assisted therapy was suggested to be relevant to substance use treatment retention and completion. The human-animal relationship in this study appeared to foster emotional support and regulation. However, there were still unanswered questions about the human-animal relationship's neurobiological nature and the actual therapeutic process used. Therefore, it would be challenging to assume relevance to other treatment domains. This therapy approach would also need to be tested on different populations.

The findings in Grajfoner et al.'s (2017) qualitative study also pointed to an improvement in student's wellbeing, mood, and anxiety after using a dog-assisted intervention, lasting only 20 minutes. Students that interacted with the dog only, without its handler, showed a more significant effect in improvement. When the handler was used

along with the dog, it resulted in a negative effect. The findings indicated that though the intervention was brief, using the dog alone resulted in improved functioning. The conclusion of this study corroborates with existing research (Barker et al., 2016; Binfet & Passmore, 2016; Crossman et al., 2015) that report improvements in students' anxiety, mood, and wellbeing after interacting with a therapy dog. However, it contained a small sample size making it difficult to generalize the findings to other populations.

In Barker et al.'s (2017) quantitative study, data from a previous study on canine-assisted activity (CAA) revealed that it did not influence students' stress levels one week before completing final exams. The authors assessed whether their involvement with CAA affected how they perceived family support and current stressors. They found that even though there was no significant impact on the student's perception of family and pet relationships, they could cope better with stressors. Barker et al. have several strengths. They randomly assigned participants to condition, the projective, validated technique (FLSD) that was used for assessment, and additional support in using this technique in human animal-interaction studies. Despite these strong points, there were a few drawbacks. The focus of the research was on measuring changes in perceived and physiological stress connected with CAA. The authors did not assess the CAA's effect on perceptions of family or pet relationships. Though Barker et al. had a diverse sample, it was primarily female. This was not a true representative of other university students. In addition, students self-selected to participate in the study as it was geared towards pet owners and non-pet owners.

Animal-assisted interventions were also extended to hospitalized persons. This was explored in Yamasaki's (2018) qualitative study. Yamasaki used participant observation, informal and semistructured interviews, and a review of organizational materials. Using a personal pet hospital visitation program, hospitalized individuals were able to interact with animals. The program strived to encourage the human-animal bond by visiting persons hospitalized with various stages of illnesses. Yamasaki's portrayed three types of communication that resulted from personal pet visits. The communication types included compassion, connection, and response. The animal's presence was perceived as more than a visit. It seemed to evoke empathy and a mutual understanding between the patients, their family members, and even providers. Yamasaki's study provided some knowledge on meaningful communication between the patient, their family members, and providers, which can affect pet hospital visits. However, this finding cannot be transferable beyond this program and the participants. Also, the participants may have been interested, appreciative, and supportive of pet visits.

Animals, in general, tend to provide some benefit. Jau and Hodgson's (2018) qualitative study employed three participants' experiences and the benefits of their interaction with animals. They found a direct and indirect benefit of animal interaction and their mental health and wellbeing. This could be a source for planning non-medical and holistic ways of helping people improve their mental health. Also, integrating animals in mental health or residential programs could help encourage life skills. This includes social skills and confidence. Phenomenology allowed Jau and Hodgson to

explore the participants' experience interacting with the animals. However, based on the small sample size, the findings were not transferable to other populations.

Conversely, Peacock et al.'s (2012) quantitative study found that the attachment to a companion animal was a significant positive predictor of psychological distress. This included depression, anxiety, and somatoform symptoms. After controlling for demographic variables, the attachment relationship to companion animals and a person's psychological distress was explored. A person's social support and psychological distress were also moderated by being attached to a companion animal. Peacock et al. (2012) noted that individuals with a strong bond with their animals were more psychologically vulnerable. This may be due to the intensity of their attachment to the animal. Persons may experience separation anxiety when they must be away from their animals. Mainly, being away for prolonged periods may increase worry and concern about leaving the animal alone. If the person must seek medical attention, they may refuse to do so if it means being away from the companion animal.

Further, they may struggle with health interests and maintaining their relationship with their pets (Peacock et al., 2012). One challenge with the study was the sample may not be generalizable. The population was mostly middle-aged females living with a dog. The study might contain dogs as the dominant animal because of the dry dog food incentives; however, it was unknown how effective the incentives would have been to improve the likelihood of a higher questionnaire return. Despite all those limitations, the study's findings added value to what one can understand about the human-companion animal relationship. the results of this study support other researchers.

(Antonacopoulos&Pychyl, 2010) stated that having a strong attachment bond with an animal can also be a negative aspect. Attachment to animals can lead to poor health outcomes.

Attitudes Toward Animals

Individual attitudes were considered in animal-assisted therapy.

CrossmanandKazdin (2017) conducted a quantitative study to assess attitudes toward animal-assisted therapy. They selected 210 participants who were exclusively living in the United States. Other than that exclusivity, the population was diverse in age, gender, and ethnicity. Also, the participants were assessed on their perception of companion animals, which impacted their perception of animal-assisted therapy. Persons with a positive attitude toward companion animals favored and supported animal-assisted therapy than those who did not favor companion animals. A strength of Crossman and Kazdin's study was their selection strategy. They used a crowdsourcing marketplace to attract their sample population. They restricted the location to the United States to minimize cultural influences. Crossman and Kazdinmade their advertisement general, which increased persons who may or may not like animals. They ended up with a sizeable sample and preferred to share the intent of the study during debriefing. A drawback of this study was the reliance on self-reported measures. This study did not answer important questions about whether a person's positive attitude influences their preference to select a treatment using AAI.

Attitudes toward animals were also assessed with high school students. Martens et al.'s (2019) quantitative study assessed several Dutch and Belgian high school students'

attitudes towards animals. There was some variation in the level of concern for animal welfare. Those that had more positive attitudes toward animals were among female participants, those who ate little or no meat, Belgian students, pet owners, and students that have been to the zoo at least once. One strength of Martens et al. was their ability to assess to see if various variables correlate with young people's attitudes toward animals and their wellbeing. The sample population was a study of Dutch and Belgian high school students. The findings may differ if a similar study was conducted with different nationalities.

Another perspective was considered relative to the attitudes toward pets. In a quantitative study, Guthrie et al. (2018) assessed whether there was any relationship between a person's view of love with a romantic partner and their attitude toward pets. Positive and negative attitudes toward pets were revealed. People who were favorable towards pets endorsed an erotic love style. Conversely, those that supported a ludic love style had unfavorable attitudes toward pets. Ludic love styles were defined as a game wherein the person engaged in deception and manipulation to avoid emotional closeness. Also, men endorsed higher levels of social support as opposed to women. Guthrie et al. reported gender differences in romantic status, love style, and pet attitudes. They also used correlational analysis between pet attitudes, love styles, and other human relationship variables. However, all the participants did not live with pets. Some most likely considered their family pet when responding. Also, Guthrie et al. admitted the Pet Attitude Scale-Modified (PAS-M) scale used was not an exact measure of a person's attitude toward their pets.

In Reeve and Delgado's (2015) quantitative study, they examined how personality traits are associated with the amount and type of attachments people have toward their pets. The Big Five Inventory was used in addition to other measures to assess pet owners. Those traits included extraversion (outgoing, friendliness), neuroticism (moody, negative emotion), conscientiousness (careful, diligent), agreeableness (warm, friendly, tactful), and openness to experience (open-minded, imaginative). Participants identified either as a dog person, a cat person, both, or neither. Reeve and Delgado suggested that extraversion, conscientiousness, and agreeableness were more related to persons that self-identified as dog persons. Further, results indicated that persons who indicated neuroticism, conscientiousness, selected a dog as their favorite pet, and identified as a dog person, cat person, or both were more likely to demonstrate affection for companion animals. Conversely, persons that displayed conscientiousness, extraversion, and openness had a lower avoidant attachment to pets. Neuroticism increased anxious attachments to pets, though it was suggested to possibly have some benefits in pet ownership. However, previous research denounced any benefits. No difference in levels of neuroticism was associated with pet ownership or caring (Parslow et al., 2005). Reeve and Delgado (2015) used descriptive statistics, which presented an illustration of participants who identified as a cat person, dog person, or both. However, the sample was mostly made up of Caucasians, females, and Americans. This made it difficult to generalize the findings to other populations.

Individual perceptions, attitudes, and emotional responses toward animals were also assessed using visual depictions of animals. In this qualitative study, Kalof et al.

(2016) selected participants that were pre-university students. They used a short-term primary-source approach using a personal meaning map to capture the participants' responses. Kalof et al. presented the participants with slide shows of animals to activate their emotions and encourage feelings of kinship. The participants' perceptions of animals were measured using a personal feeling map. Prior to the showing, the perception of the animal was referred to as "pets/symbols," "biological/nature," "commodity/resource," and "dangerous." After the slide show, 92% of the participants changed their perception of "animal." This shift led the participants to have improved perceptions and feelings of kinship with the animals. Within the sample of Kalof et al.'s study, there were some diversities, including ethnicity, age, and gender. They also used a constructivist approach that allowed the participants to share their perceptions of animals without being labeled right or wrong. It would have been interesting to know if this applied to domesticated animals. All the animals used in this study were undomesticated.

Martens et al. (2016) used a quantitative approach to evaluate how the attachment level of cat and dog owners was related to their attribution of emotions toward their pets and their attribution of mirrored emotions. These attributions can be explained as emotional contagion. The attribution was a phenomenon that causes animals to shift their affective state to mirror those of other animals, such as experiencing fear (Spinka, 2012). In the human-animal relationship, dogs have been shown to refer to their owner's emotional messages to make sense of their behavior (Hare & Woods, 2013; Merola et al., 2012; Wang et al., 2013). The findings of the study suggest that pet owners attribute several emotions toward their pets (Martens et al., 2016). This included basic emotions

such as anger, happiness, fear, surprise, disgust, and sadness. Martens et al. also attributed complex emotions such as shame, jealousy, disappointment, and compassion. Basic emotions were the general trend, except for sadness. Martens et al. found that all the pet owners showed strong attachment toward their pets. However, the level of attachment varied based on gender and the level of education. Martens et al. specified those pet owners that ascribed human characteristics to their animals and pet their animals scored higher on Pet-Bonding Scale. Pet owners' attribution of mirrored emotions was significant for most emotions, excluding joy, happiness, sadness, surprise, shame, disappointment, and compassion. The findings of Martens et al.'s study implied that the pet owners acknowledged their paralleled emotions, and their level of attachment to their dog was significant for all emotions. However, the relationship was only significant for a few emotions for cats. Despite this finding, Martens et al. encountered some limitations. The sample was recruited from the internet and contained more women than men. There was a concern of response bias. However, that might be low as the questionnaires were anonymous.

In a mixed study, Fox and Gee (2019) presented that human-animal relationships have been changing as animals are now more accepted in human society and culture. Companion animals are now becoming more popular in British homes. This has caused a social shift in the family as they are now more accepted into the home. This has even affected how pets behave in public spaces. This has prompted pet owners to be more responsible with their companion animals. Human identity is becoming defined through human-animal relationships. With animals becoming more popular in the homes, it

introduced new ways for pet owners to show their love and care for their companion animals. For the purpose of the study, the sample size seemed appropriate. It allowed Fox and Gee the ability to conduct in-depth interviews. There was diversity within the group of participants. Though, the study lacked participants from ethnic minority groups. This underrepresentation may have been reflected from their dissimilar views of pet ownership, cultural or religious norms, pet-keeping practices, lack of interest in the study, or the local demography.

In a mixed-methods study, MacKay et al. (2016) reviewed online obituaries to get an assessment of how individuals felt about their pets when they passed away. This was accomplished using a mixed-methods approach. These obituaries helped to explain the human-animal bond and positive human emotions surrounding the animal's death. Most obituaries were written by female pet owners, while others were written by males and children. Some of the common descriptions regarding the animal included "child-like," "part of the family," showing "sympathy," "gratitude," and "sense of humor." Some writers expressed guilt in losing their animal, while some referred to them as being in the afterlife. Some writers noted that they had an instant connection with the animal. The authors also noted that animals described as "child-like" were more perceived as being in an "afterlife" and having had an "instant connection" with their owners. MacKay et al. concluded that using the online pet obituary was a valuable source that captured how people felt about the death of their animals. A strength of MacKay et al. study was that the data was easily accessible. The online companion obituaries were free. This helped assess the human-animal relationship. For generalizations to be made with other

populations, more information would need to be provided on the type of owners that write obituaries. Such information should include their family setting, social status, income, and education. Additionally, some pet owners may not be able to afford to post an online obituary as there was a cost for this service. This can eliminate a portion of the population.

Pet-Owning Experience

Personality styles can also influence how individuals select animals. Alba and Haslam (2015) focused their quantitative study on the difference of dominance-related traits between dog people and cat people. Dominance-related traits included social dominance orientation, interpersonal dominance, competitiveness, and narcissism. Persons who had high social dominance orientation and competitiveness were more likely to prefer submissive pets, such as dogs. The dog's temperament was more likely to complement their preference for dominance. This reflected what Gosling, Sandy, and Potter (2010) presented. There were significant differences on all Big Five dimensions (extroversion, agreeableness, openness, conscientiousness, and neuroticism) between dog people and cat people. Dog people were more likely to be extraverted, less neurotic, and lower on Openness than cat people. They also were higher on Conscientiousness and Agreeableness than cat people. A shortcoming of Alba and Haslam's (2015) study included their inability to directly assess that dog people enjoy the submissiveness of dogs, as they proposed. However, their study added to the literature on personality differences between cat and dog people. Alba and Haslam investigated differences in their personality characteristics that were not been studied yet.

Freiwald et al. (2014)'s quantitative study captured the respondents' attitudes toward pet acquisition and care. The most common source for obtaining cats was at the shelters. Conversely, dogs were most often obtained from breeders. Owners that acquired pets from the shelters were most likely to take their pets to the veterinarian regularly for care than pets that were obtained from other means. Some pet owners, particularly cats, reported not taking their animals for regular care. An advantage of Freiwald et al.'s study was it provided some understanding of the participants' attitudes toward pet acquisition and care. These respondents were in the Chicago area, which was also a disadvantage. The findings may not be generalizable to other areas.

Apart from obtaining a pet and taking care of its basic needs, pet ownership can provide some advantages. An advantage of pet ownership could involve overall satisfaction with life. Pet owners tend to be more satisfied than nonowners but showed no significant difference in wellbeing, personality, emotional regulation, or need satisfaction. Bao and Schreer's (2016) quantitative study asserted that dog owners scored higher than cat owners on these measures. The Big Five personality traits were also used (extraversion, agreeableness, and neuroticism, specifically) as a mediator between the type of animal owned and wellbeing. The findings of this study suggested that owning a dog has a clearer association with positive outcomes. The methodology that Bao and Schreer employed was a strength in their study. They had a sizeable sample, with various ages and an equal mixed gender. Their choice of data analysis, such as independent samples t-tests and mediation analyzed using bootstrapping procedures, helped Bao and Schreer to present their quantitative findings. They admitted that it was difficult to remove

the complex relationships among some of the variables. That included the participant's wellbeing, personality, pet ownership, and other intricate variables.

Besides experiencing an advantage of pet ownership, it may have a downside. Recent findings from Mueller et al.'s (2018) quantitative study suggested that there might be a relationship between pet ownership and depression. However, it was difficult to assess the directionality of that relationship. There were several possibilities indicated. Owning an animal may increase a person's chance of developing depression. Conversely, a person who already has depression may obtain a pet in hopes of dealing with their depressive symptoms. However, Mueller et al. indicated the owning a pet was a significant predictor of the chances of having experienced depression. Nonetheless, the authors concluded that there was a relationship between owning a pet and depression. Mueller et al. just could not figure out the directionality of that relationship. Their strongpoint was the 2012 data that they accessed from a Health and Retirement Study. The sample was re-interviewed every 2 years. The sample consisted of detailed information such as the participants' family structure, health, and participation in the workforce. However, questions were not repeated in the 2014 survey, which placed limits on Mueller et al.'s ability to draw causal conclusions about HAI relationships and health outcomes.

Similarly, Antonacopoulos and Pychyl (2010) assessed a group of adult pet owners versus non-pet owners that were living alone in terms of loneliness and depression. Using a quantitative approach, Antonacopoulos and Pychyl hypothesized that owning a pet or not, emotional attachment to pets, and human social support would

interact and have an influence on the level of loneliness and depression. Pet ownership and attachment to pets did not predict the individual's levels of being lonely or depressed. Conversely, dog owners who had high levels of human social support were less lonely than adults that did not own pets. When there was an interaction between attachment to pets and human social support, pet owners with low levels of social support and high attachments to pets were more likely to be lonely and depressed. In

Antonacopoulos and Pynchyl's study, the complicated nature of the relationship between pet ownership and psychological wellbeing was emphasized. However, there was difficulty assessing pet owners who lived alone with little human social support. It was unsure that those that were highly attached to their pet were lonelier and more depressed before they received their pet. Conversely, it was also hard to tell if, after acquiring their pet, bonding with their pet, they became lonelier and more depressed.

Depression was also evaluated to identify any relationship it may have with the multiple roles a person has. Cline's (2010) quantitative study explored the link between depression and multiple roles to understand the effect of the role of dog ownership. No main effects of dog ownership on depression were found. Conversely, differing effects of dog ownership were found on depression in married people versus single ones and on men versus women. The findings of this study suggested that dog ownership may work better for single individuals and for women in terms of lowered depression. People who are married have roles and obligations to fulfill. Women were more likely to value their relationship with owning a pet as opposed to men. Cline's study provided insight into how owning a dog was related to the individual's depression. Despite this, there were

unanswered questions about the role strain in dog ownership. The relationship can vary by investment in owning the dog. An owner that was highly invested in their dog could have more benefits because of increased social networks and more social support. On the other hand, the owner can experience a shortage in other areas of their lives, including important relationships. Also, the dog can add stress to the owner's life, or there may be a difference in energy level.

A pet owner's quality of life was an important factor to consider. To better assess the quality of life of dog owners, the Dog Owner Quality of Life Questionnaire (DOQOL) was developed and validated by Oyama et al. (2017). In this quantitative study, there were three important aspects of this instrument, including emotional wellbeing, the effect of ownership on social and physical activities, and any stress or inconvenience of dog ownership. The stress of pet ownership was more specific to added responsibilities, damage to property, and interruptions in taking a vacation or an extended stay away that excluded the dog. The DOQOL was important to explore both the positive and negative aspects of owning a dog. This measure exposed any negative effects ownership had on the individual, such as how roles were juggled. In addition, the instrument can detect the relationship of stress, whether it was reduced from interacting with the animal versus being increased if the negative aspects outweigh the benefits of ownership. Oyama et al.'s study had a couple of strengths. They developed and validated their instrument to assess the quality of life in pet owners. This measure was subject to pilot testing and factor analysis. In addition, these authors evaluated the instrument's goodness of fit by three separate criteria. This did not negate Oyama et al.'s challenge of having the findings

of their study transferable. They had a large sample of participants, but it might not be representative of the general dog-owning population.

Surviving a Hurricane

The aftermath of a hurricane can leave individuals traumatized. Using a quantitative approach, King et al. (2016) indicated that some persons are prone to developing PTSD, while others may also be susceptible to developing major depressive disorder (MDD). PTSD was associated with exposure, sociodemographic, emotional and personality, and social support factors (Neria et al., 2008). There were specific trauma exposures that contribute to PTSD, such as being physically exposed to the disaster, witnessing injury or death of someone close, evacuating, staying at a shelter, and having their home destroyed (King et al., 2016). However, losing a job, being in a disaster area, and being displaced make one more prone to MDD. Dass-Brailsford and Hage Thomley (2015) focused on Hurricane Katrina survivors. King et al. (2016) found that low-income families living in the most vulnerable areas severely felt the effects of the storm. Minority groups were also exposed to extreme trauma following the hurricane. King et al. suggested that assessing a person's history of disaster trauma exposure and stressors provides a better understanding of their susceptibility to developing PTSD or MDD. This assessment also provided a better perspective of the differentiation in trauma exposure and stress. The strengths of King et al.'s study were its large sample and using a DSM-IV-TR criteria-based assessment. The limitation was only 70% of household heads from FEMA's evacuees' list were included. Besides, the representativeness of Katrina's

evacuees in the area is unknown. It was also difficult to assume sampling bias because the information was not available to the non-participants.

In Matthews' (2006) qualitative study, survivors of hurricanes tended to develop emotional distress, feel depressed, fearful, and helpless. This can happen before, during, and after the hurricane. They may have increased feelings of anxiousness, feeling depressed, worrying constantly, and have difficulty functioning in important areas of their lives. The findings of Matthews' study presented some significant reactions of survivors after the disaster. However, lasting psychological effects and coping strategies were not reviewed.

More specifically, this can take a toll on older adults' functioning. The type of disaster exposure can have an independent effect on depressive symptoms of older adults over a five-year period. Wilson-Genderson et al.'s (2018) quantitative study specified that disaster exposure types included geographic, peri-traumatic stress (occurs around the time of trauma), personal and property loss, and post storm hardship. A person's emotional response during the disaster also played a role in depressive symptoms as long as 5 years after a disaster. Peri-traumatic stress that was experienced during a disaster played a role in this. If the exposure were reduced, then depressive symptoms would decrease. Wilson-Genderson et al.'s study suggested that exposure to traumatic stress be reduced prior to a storm since emotional responses are more likely to lead to depressive symptoms. This can include evacuating the storm area. When peri-traumatic distress was not attended to, it can result in years of suffering. Wilson-Genderson et al.'s study showcased strength. They used a large sample that was representative of the individuals

that had different types of exposure to Hurricane Sandy. The longitudinal design incorporated measures before and after the hurricane. This design also assessed exposure at the individual and the country level. However, the study included self-reports of peri-traumatic stress, personal loss, property loss, and hardship experienced after the hurricane. This made the study subject to recall bias.

Within the family context, hurricane-related stressors were viewed differently. Lai et al. (2015) reported in their quantitative study that mothers' and children's responses to hurricane-related stressors were perceived differently. Levels of child posttraumatic stress (PTS) symptoms were reported higher by the mothers. Parents and children tend to have different interpretations of events, which was objective. This variation meant that parents and children had differences in how they perceived and recalled the event. The different perspectives account for the discrepancies of recall. This information was important for assessing hurricane survivor's interpretation of hurricane-related stressors, as responses would also be subjective. There are several limitations of Lai et al.'s study. This study only contained reports on hurricanes for a specified period. The authors were unable to discuss the stability of dyad agreements or discrepancies over time. Additionally, only mothers were included in the study. Moreover, the sample was a representation of individuals who were experienced, Hurricane Katrina. Therefore, this makes it difficult to generalize the findings to other populations of different disaster exposure. However, in spite of these drawbacks, Lai et al.'s findings suggested that it was important to consider the subjective experience of parents and children's exposure to a

major disaster. Both parents and children would have unique experiences per their encounter with a disaster.

Survivors of 2008's Hurricane Ike in Galveston Bay, Texas, were assessed for differences in determinants of PTSD and depressive symptoms, including that hurricane experience and post storm nontraumatic stressors. Tracy et al. (2011) used quantitative methods, and results indicated that the determinants of hurricane-related PTSD were 6.1% and 4.9% was depression. Hurricane experiences had a direct relationship with PTSD symptoms. Persons with lower education, lower household income, and higher lifetime stressors were more prone to depression. In addition, hurricane exposures and hurricane-related stressors were predictors of depression. Persons that lost or had damaged sentimental possessions were associated with both PTSD and depressive symptoms. Individuals with health-related issues had higher PTSD symptoms, while those with greater financial loss had higher depressive symptoms. A limitation of Tracy et al.'s study was the sample was not representative of the persons who directly experienced hurricanes. However, the authors were still able to differentiate the determinants of PTSD and depression. This suggested that though PTSD was an effect of exposure to an event, the risk of depression results from the individual being vulnerable and their exposure to stressors.

The long-term course of posttraumatic symptoms and indications of poor general health was explored in Johannesson et al.'s (2015) quantitative study. Swedish civilians were assessed following a natural disaster. Signs of stress were obvious but decreased during follow-up assessments. However, it was not as noticeable between three- and six-

year post-disaster. There were four trajectories of long-term posttraumatic stress. They included resilience, recovery, moderate chronic, and severe chronic. Most participants ranked as resilient but had higher levels of posttraumatic stress than the comparison group up to 6 months following the disaster. Participants that had severe disaster exposure and bereavement had long-term distress. The authors concluded increases the probability of prolonged psychological issues. There were a few limitations with Johannesson et al.'s study. Most notable was there was not enough data in the year following the disaster. This could have provided more insight into how people develop reactions and the delayed reactions people experienced during this time. In addition, Johannesson et al. (2015) used an extensive set of items relative to disaster exposure, yet several indicators relied on only one or two of those items. This could have increased the chances for mistakes and fail to capture various aspects like social support. Johannesson et al. also tailored the indicators of direct trauma to that specific event, which was not an established measure. Lastly, the data was collected through self-reporting. Despite these obvious drawbacks, Johannesson et al.'s study had some strengths. They had a large sample, included a comparable longitudinal design, had a detailed classification of exposure, and had a similar comparison group. Their sample were survivors that had a higher socioeconomic status, did not have many pre-disaster stressors, and returned home to almost no damage, and did not have many secondary stressors.

Besides physical and mental health challenges, loss of resources can affect a person's life. Loss of resources is common after hurricanes, impacting people and their communities (Paul et al. 2014). This quantitative study specified that people are prone to

losing homes, household contents, and employment. Hurricane Ike survivors were assessed one year post storm for a relationship between disaster-related variables and post-disaster stress. Results suggested that loss of resources, hurricane exposure, and sociodemographic characteristics were positively related to PTSD and depressive symptoms. Paul et al.'s research used a large sample in their study, which added to the literature by assessing the results of particular types of losses in the aftermath of the hurricane. Paul et al. used variables that were relative to PTSD and depressive symptoms, hurricane-related valued objects and losses, exposure to the hurricane, and demographic characteristics. Several challenges were noted with Paul et al.'s study. The measures used were limited. A couple of the measures used to measure PTSD and depressive symptoms were not diagnostic tools that provided a diagnostic status of the patient. Also, the findings of this study may not be generalizable as some populations were not underrepresented.

Tangible (financial) loss of resources and nontangible (psychosocial) loss of resources were both explored as to their influence on depression following a natural disaster (Ehrlich et al., 2010). In this quantitative study, the participants' hurricane experience was also measured for their influence on depression. Participants included women who were pregnant during or immediately after Hurricane Katrina. There were assessed 6 and 12 months postpartum. Both tangible and nontangible loss and hurricane experiences were reported as being significant on the participants' depressive levels. Specifically, nontangible resources were more highly reported than tangible resources. This seemed to explain the relationship between high hurricane exposure and depression.

Ehrlich et al. concluded that nontangible resources were more likely to predict psychological distress in postpartum women following a disaster. Ehrlich et al.'s study had several limitations. There was a high rate of loss to follow-up. After Hurricane Katrina, people moved to different residences, and those that were unable to complete a follow-up may have had a different risk of depression. It was difficult to compare the findings of the participant with those persons who left right after the storm and never returned to the area. Particularly among pregnant women, there may be differences in those who stayed in the area after the storm versus those who left. In addition, the population surveyed were more educated, older, and most likely were married compared to other pregnant women in the section. Despite these limitations, Ehrlich et al. were able to propose having interventions that focus more on psychosocial resources in addition to helping persons regain tangible possession. This can minimize the negative psychological impact following a disaster.

Areas are known to be prone to repeated disasters, which increases the possibility of loss, and compromises mental and physical health. Osofsky et al. (2015) used a quantitative approach to assess the relationship between hurricane-related loss, oil spill disruption, and environmental quality of life on mental and physical health was explored on Hurricane Katrina survivors in Louisiana. Osofsky et al. found that there was a relationship between the stress from the oil spills and exacerbated mental and physical health symptoms. In addition, the oil spills compounded loss associated with Hurricane Katrina and further decreased the environmental quality of life for the survivors. A strength of Osofsky et al.'s study was that most of the participants were directly exposed

to the oil spill. However, this strength can also be considered a challenge. The sampling may not be generalizable to larger populations.

Perceived social support from pre-to post-disaster was explored for Hurricane Katrina survivors. Chan et al. (2015) conducted a quantitative study using three assessments with survivors. They examined the influence of perceived social support on general psychological stress and posttraumatic stress after the storm. Interviews were conducted after the storm, 1-year post storm, and 4-years post storm. Chan et al. found that decreased perceived social support remained significant at the last assessment. In addition, it was unchanged between the two post-disaster assessments. They also found that posttraumatic stress might not be a direct result of a lack of social support. It was more relative to preexisting deficits in social resources that tend to impact general psychological stress and posttraumatic stress and increase the chances of disaster-related stressors. The results of Chan et al.'s study may not be generalizable to other populations that survived a hurricane. This included the different levels of damage, destruction, and national attention. The findings may neither be generalizable to other disasters like a tsunami or an earthquake. These disasters do not have the same advanced notice as hurricanes allow reducing the chance for advanced preparation. In addition, the sample was not representative of those that experienced the hurricane. This included income and education levels. Despite this, Chan et al.'s study provided confirmation that higher levels of social support prior to a disaster result in lower levels of general psychological distress (GPD) 4 years following a major natural disaster.

In their quantitative research, Lowe et al. (2015) explored individual and community level factors relative to posttraumatic stress and depressive symptoms. They found that persons experiencing or being a witness to a traumatic event were positively associated with a higher level of depression and posttraumatic stress. In addition, demographic characteristics and higher disaster-related stressors were more significant with posttraumatic stress only. Whereas, on the community level, areas with higher social capital were positively correlated with higher posttraumatic stress. Persons that did not experience disaster-related stressors living in a community with high economic development had a lower risk of depression. Lowe et al. suggested that resources on both the individual and community levels work together to shape post-disaster resilience. Lowe et al.'s study displayed some strengths. The interviewers were actual employees of the survey research firm. They had training experience in mental health measures in addition to the ones that were used in the current study. Prior to completing the study, they conducted mock interviews with their supervisors. Conversely, there were several downsides to the study. There may have been participation bias as the interviews were conducted over the telephone. The findings of the study may not apply to residents in the zone being sampled. Some of the individuals may not have owned phones or answered calls from unknown numbers. In addition, the research was situated in New York City, and the findings may not be generalized to the areas that experienced the same or similar natural disasters.

In the aftermath of a disaster, mental health services can be beneficial to the recovery of individuals. Dass-Brailsford and Hage Thomley (2015) used a quantitative

approach which showed that providing additional mental health services after a disaster improved the participant's wellbeing. There were significant improvements between baseline and 6 months later on all measures. After 6 months of walk-in therapy, participants were less depressed, less anxious, and less traumatized than at baseline. The authors indicated mental health symptoms in these survivors. These symptoms included depression, anxiety, and posttraumatic stress disorder. Several strengths were noted in Dass-Brailsford and Hage Thomley's study. The program exemplified how mental health services could be adjusted to serve in environments that cannot support traditional therapy. The authors displayed how preparation and training with a strong program can provide services following a disaster. In addition, the program was small, easy to administer, and allowed for closely monitoring counselors. This made for swifter improvements as needed. There were notable drawbacks to the program. Clients met with different counselors each session. The sample size was small, making the findings difficult to generalize with other populations. Additionally, participants completed their surveys, which could have resulted in response bias.

Bevilacqua et al.'s (2018) quantitative study examined the demographic and mental health characteristics of participants after Hurricane Sandy, another natural disaster. Out of the 1,011 participants in Puerto Rico, 488 screened into linkage to a mental health program. Out of those participants, about 315 accepted to be linked to mental health care. Of those accepted, 143 of the participants attended their first mental health treatment appointment. This study had a few shortcomings that should be considered when interpreting the findings. Bevilacqua et al. relied on convenience

sampling to recruit their participants. This may have resulted in selection bias favoring persons that may be open-minded to mental health treatment. Though the sample closely matched those of the area in question, African Americans were included in larger numbers in the study. This may have resulted from heavy recruitment in their geographical area. The participants did self-reporting on validated measures relative to their mental health symptoms. However, Bevilacqua et al.'s study did display some strong points. They provided useful information that can be valuable following a disaster. In such situations, mental health treatment can reduce the stigma and increase participation in mental health treatment. If individuals become familiar with these services, it can increase the potential of these seeking these services in the future.

Of the literature reviewed for this study, there were some important factors that were made known. Storm-related stressors and other traumatic events were likely to impact an individual's ability to cope with stress disasters, like oil spills (Cherry et al., 2017). General wellbeing and mood tend to improve when interacting with an animal. Using psychiatric service dogs in addition to other therapeutic services can be a complementary PTSD treatment (Kloep, 2017). Having an animal can be a downfall as it can lead to poorer health outcomes (Antonacopoulos & Pychyl, 2010).

Mental health services can be tailored to fit different populations that cannot accommodate traditional therapy (Dass-Brailsford & Hage Thomley, 2015). Preparation and training are needed to implement these services following a disaster. Higher levels of social support before a disaster can have lower levels of PTSD in the aftermath of a major disaster. When exposed to a traumatic event, depression occurs as a result of the

person's being vulnerable and their exposure to stressors (Tracy et al., 2011). It was suggested that implementing interventions that focus on psychosocial resources can be even more valuable than replacing nontangible resources (Ehrlich et al., 2010), which can minimize the psychological impact after a disaster.

Despite the factors that were revealed in this study, there was much that remained unknown. It was questionable whether depressive symptoms have a direct relationship with oil spills or hurricanes (see Cherry et al., 2017). Despite some of the studies presenting great information, generalizing or making it transferable (see Dell et al., 2011; Jau & Hodgson, 2018; Lass-Hennemann et al., 2018; Peacock et al., 2012; Stratta et al., 2015; Yamasaki, 2018) was difficult based on the uniqueness of the participants and geographical location. It was not known if animals were solely responsible for improving general well-being (see Earles et al., 2015; Yarborough et al., 2018). There were still unanswered questions about the possibility of a person's attitude having an impact on their preference of choosing treatment using AAI (see Crossman & Kazdin, 2017). There was confirmation that a pet owner's emotions mirror their level of attachment to their dogs (see Martens et al., 2016). The study was not clear if pet owners who lived alone and was highly attached to their pet were lonelier and more depressed prior to obtaining their pet. It also raised questions if these pet owners became lonelier and more depressed after obtaining and bonding with their companion animal (see Antonacopoulos & Pychyl's, 2010). Questions remained if owning a dog puts a role strain on pet ownership (see Cline, 2010). Answers can be that the pet owner was highly vested

and receive more social support, or they are drained in other important areas of their life.

The extent of psychological effects and coping skills were not reviewed.

Additional studies are needed in several areas. Future research should expand on the benefits and challenges of pet visits on varied programs, settings, and participants (see Yamasaki, 2018). Exploring mental health implications of strong attachment relationships to pets with community populations would be helpful (see Peacock et al., 2012). This would help improve mental health services for people with companion animals. More research would be needed to support the benefits of using animal-assisted interventions with college students (see Barker et al., 2016). It would be valuable to understand the relationship between love styles and pet attitudes versus love styles and attitudes toward animals in general (see Guthrie et al., 2018). Using structured interviews and experimental analyses, much study was needed to shed light on the interaction between an owner and pet identity (see Trigg et al., 2016). In addition, the role of anthropomorphism in the interaction of pet attachment and human social support should be explored further (see Antonacopoulos & Pychyl, 2010). An important factor that may be useful was assessing racial differences and their influence on the relationship between a person and the animal (see Cline, 2010). Further studies are needed to assess the extent of how symptomatic recovery and resilience relate to a person's functioning and wellbeing (Johannesson et al., 2015). There was also a need to provide more details on assessing determinants of postdisaster psychopathology (see Tracy et al., 2011). Further studies could minimize reporting bias; participants should have a medical diagnosis by a mental health professional (see Bevilacqua et al., 2018).

Summary and Conclusions

This chapter was a review of the literature relative to the concepts of the study. This included the theoretical foundation, which was the transactional model of stress and coping. Basing the study on this model portrayed how stress, coping, and support related to the participant's experiences. The conceptual framework was comprised of constructivism and phenomenology. Using this conceptual framework helped to describe the participants' experiences and better understand the phenomenon. Other concepts presented in this literature review included coping and natural disasters, coping and traumatic events, human-animal bond, animal-assisted therapy for trauma, therapeutic benefits of animals, attitudes toward animals, pet-owning experience, and surviving a hurricane.

Based on the literature reviewed, there were several findings. People have different ways of coping following a disaster. They can be avoidant, use active emotional coping, or problem-solve (Cherry et al., 2017). Sometimes resilience plays a role in buffering the stressor (Stratta et al., 2015). Individuals tend to use coping strategies to serve as a mediator after a traumatic event (Thompson et al., 2018). Persons that use this strategy were less likely to develop PTSD symptoms. Animal interaction was one coping strategy that people tend to employ. People use animals as social support to cope (Fine, 2015). Some people seek animal-assisted interventions that have been shown to reduce anxiety and PTSD symptoms while improving sleep, emotional wellness, and physical activity (Stewart et al., 2016; Yarborough et al., 2018). These benefits can be realized through petting an animal (Waddell, 2016) and interacting with the animal daily

(Crossman, 2016). However, each person does not have the same experience. Some individuals may have allergies, be prone to disease or injury, cannot afford the expense of having a companion animal (Friedmann & Krause-Parello, 2018), or experience an emotional burden (Brooks et al., 2019). For persons that can benefit from animal interaction, their attitude (Crossman & Kazdin, 2017; Payne et al., 2015), gender, and personality (Reevy & Delgado, 2015) play a role in their bonding. However, more research was needed on an individual's attitude towards the perceived benefits of animals. Overall, interacting with the animal daily can improve reduced stress and increase mental health wellness even when the person does not receive formal therapy (Crossman, 2016). This can be helpful following a disaster.

After hurricanes, people tend to be stressed, depressed, or fearful, leading to anxiety or depression (Matthew, 2006). These symptoms can lead to impaired functioning in several areas (Lowe et al., 2015). Though some people demonstrate resilience, over time, they can experience low levels of mental health symptoms. Using animals can be a different way to encourage resilient behaviors and promote mental health wellness (Thompson et al., 2014). This can be through pet ownership which can be a protective factor following a disaster.

The experience of hurricane survivors who interact with animals after a disaster remains unknown. With all the benefits presented of interacting with animals, whether in therapy or not, there are no findings that present this information (see Earles et al., 2015; Jau & Hodgson, 2018; Lessard et al., 2018; Mims & Waddell, 2016). Hence, the importance of this study. I addressed that gap in the literature by exploring the lived

experience of persons who may have perceived the advantages or disadvantages of interacting with animals following a natural disaster. This information may be useful in creating treatment options for individuals who might not have access to traditional therapy. Particularly those that interact with animals.

The gap in the literature was addressed using a qualitative approach. In Chapter 3, I provide a detailed description of the research design and rationale, the role of the researcher, methodology, participant logic, instrumentation, researcher developer instruments, procedures for recruitment, participation, data collection, and the data analysis plan. The chapter will conclude with issues of trustworthiness, credibility, transferability, dependability, confirmability, and ethical procedures.

Chapter 3: Research Method

Introduction

The purpose of this study was to explore the lived experience of hurricane survivors' attitudes toward their companion animals or other animals they interacted with during their experience of a natural disaster. The focus of this study was on the experience of Virgin Islanders who survived Hurricanes Irma and Maria and were pet owners at the time of the natural disaster. These storms impacted the Virgin Islands between September 6 to 21, 2017 (FEMA P-2021, 2018).

In this study, I used Zoom videoconferencing and telephone interviews based on qualitative methods. I probed survivors on their perspective of animal interaction at the time of their trauma exposure. Also, I gathered information on participants' attitudes and pet ownership experience. Finally, responses portrayed what survivors believed to be most helpful during their experience of the storm and its aftermath.

This chapter reviews the research design and rationale, the role of the researcher, and methodology. Next, I describe participant logic, instrumentation, researcher developer instruments, procedures for recruitment, participation, data collection, and data analysis plan. Lastly, issues of trustworthiness, credibility, transferability, confirmability, and ethical procedures will be discussed.

Research Design and Rationale

The following research question guided the study and developed a better understanding of how a person perceived therapeutic benefits from animals:

RQ: What are the lived experiences of hurricane survivors regarding their interaction with pets or companion animals following the storms?

The human-animal relationship depicts the tendency a person has in seeking social support from animals to cope with stressful situations (Fine, 2015). This relationship can be a foundation of wellbeing and improved psychological functioning and can be an ideal resource for social support, physical and mental health. This research filled a gap in the literature as I explored how individuals perceived any advantages or disadvantages of animal interaction following a natural disaster. I also assessed individuals' perceptions of the therapeutic value that an animal provided to them. This event was relative to the bond that humans have with animals.

Constructivism and phenomenology were the conceptual frameworks of the study. Combined, these conceptual approaches allowed me to capture participants' experiences with therapeutic animals during a natural disaster to understand the subjective meaning of their experiences better. Constructivism helped to depict the individual meanings that the participants had from their experiences (see Creswell, 2013).

Phenomenology is a qualitative research design that seeks to understand the lived experience of the person (Burkholder et al., 2016). The use of hermeneutic phenomenology helped me answer my research question regarding hurricane survivors' perceptions of the rewards or challenges of animal interaction after their traumatic experiences.

Phenomenology is an evaluation of the individual's perception of the phenomenon (Burkholder et al., 2016; Creswell, 2013). This concept reflected why the participant

behaved the way they did in response to their situation. Phenomenology helped me answer how the hurricane survivor viewed the phenomenon and helped me place it within a context. Knowledge about this phenomenon could only come from the individuals who have directly experienced it (see Ravitch & Carl, 2016). Using a qualitative approach captured the participant's experience using their own words. Therefore, personal interviews captured the hurricane survivor's perception of the advantages and disadvantages of animals following the aftermath of the storms. The results of this study may add value to existing research.

Role of the Researcher

In this qualitative study, I was the primary instrument of data collection (see Creswell, 2013). The role I assumed was observer-participant. This role allowed me to be present with the study participants to collect and record data but not contribute to the conversation (see Burkholder et al., 2016). In this role, I was the sole means of recruiting participants, conducting interviews, analyzing the data, and interpreting the findings. As a result, there was a possibility that this study may have been exposed to bias.

Although the phenomenological study can lead to a rich understanding of experience, it has limitations, including the introduction of bias in the recruitment of subjects, collecting the data, and interpretation. Individual bias may exist when the researcher's thoughts, feelings, and experiences skew the research. I understood the possibility of bias and sought to reduce it. Steps were in place to ensure that the process of retrieving and processing information was credible and without prejudice. For

example, I remained conscious of personal and professional affiliations involved in this study and tried to avoid participants with whom I had a personal relationship.

Additionally, there were specific steps I used to reduce biases. First, I recorded the reflections, questions, and ideas during the research process by journaling (see Ravitch & Carl, 2016). Second, open-ended questions solicited the participant's perspective rather than my own. Third, I remained neutral and avoided showing strong emotional reactions to participants' responses. Staying neutral prevented the participants from attempting to respond in a way that conformed to my expectation. Fourth, there were detailed records of the data collection. Fifth, I used an audit trail. This audit trail included all field notes on what was completed, seen, heard, or experienced throughout the entire process. The audit trail helped to establish the confirmability of this study's findings. The audit trail clarified that the results were from the participants' responses instead of my preconceptions and biases (see Burkholder et al., 2016). Last, any limitations encountered in the study were acknowledged, particularly as they pertained to participants' responses.

Methodology

Participant Selection Logic

The sample targeted for this study was approximately 10 to 15 hurricane survivors that experienced Hurricanes Irma or Maria and had companion animals. The sample size was based on the phenomenological approach, which in most studies usually ranged between five to 15 participants (see Burkholder et al., 2016). Using more significant numbers would not necessarily provide more insight into the participant's experience of

the phenomenon. However, there were no definitive rules on the maximum number of participants a study should have, but rather what the researcher was trying to investigate (see Ravitch & Carl, 2016). If data saturation occurred between five to 15 participants, then the recruitment process would have ceased. The recruitment process was intended to remain open if data saturation did not happen. Recruitment would continue until it satisfied the purpose of the study and yielded enough information to answer the research question (see Ravitch & Carl, 2016). I interviewed 11 participants.

Participants answered preliminary questions to establish eligibility. If they were deemed eligible, semistructured questions guided the interview process. Potential participants experienced Hurricanes Irma or Maria and had a companion animal. Also, they either reported self-identified trauma or were clinically diagnosed. Similarly, participants were consenting adults, age 18 and older. Interview protocols were conducted via Zoom video conferencing and by telephone. The instrument was researcher-produced and contained open-ended questions.

Recruitment flyers (Appendix A) about the study were posted at the veterinary centers, the animal shelter, and pet stores. Letters of cooperation were not required from those establishments since they did not involve onsite participant recruitment. The recruitment flyer included my contact information so potential participants could inquire about their participation interest and eligibility. Primarily, the contact information was my official Walden University email address. After contacting participants, I recorded their information and scheduled their interviews.

Instrumentation

In this study, I was the sole interviewer. I used one data collection instrument (Appendix B) to conduct semistructured interviews. Information was audio recorded using Zoom's videoconference platform for virtual meetings. For telephone interviews, I used a mobile call recorder application. An interview protocol was used to ensure consistency in the interview process. The instrument was my guide and organized the essential aspects of the interview. The organization included the interviewee's name, date of the meeting, interview questions, and pertinent information about initiating and concluding the interview (see Burkholder et al., 2016).

The interview questions (Appendix B) were researcher-produced and were used to solicit responses using a virtual format or by telephone. Both interview formats allowed me to be personally present with the participant, which encouraged rapport (see Burkholder et al., 2016). Virtual interviews, like face-to-face interviews, were intended to provide the opportunity to observe the participant, assess nonverbal behavior, and allow me greater control over the interview environment. The research question was carefully considered in the formulation of these interview questions. The interview questions were open-ended and semistructured to provide depth to the participant's responses. This structure assisted in yielding enough information that was useful in answering the research question. This instrument was vetted for clarification and ensured that items were adequate in answering the research question. Details on the vetting process will be discussed in the following section.

Research Developed Instruments

The interview questions (Appendix B) of this study were administered using a semistructured interview. This interview type is best suited for beginning researchers, as structured interviews do not offer sufficient opportunity to probe (Burkholder et al., 2016). The questions were open-ended, as this format was permissible in qualitative studies. The interview questions were uniquely developed to yield answers to the research question. These questions were used to solicit information from the participants to obtain the data needed to answer the research question. Using a semi structured approach to questioning allowed for probing the participants. This may not have been necessary for each participant based on how expansive their descriptions were. Probing questions were anticipated or developed as the interview progressed to encourage elaboration on an item (see Burkholder et al., 2016). If new probes were formed, they were recorded. The research question was the center of the research design and guided the interview questions (see Ravitch & Carl, 2016). This required a good understanding of the topic being studied, including what was known and unknown (see Burkholder et al., 2016).

The interview questions (Appendix B) were semistructured and geared towards the purpose of the study to increase content validity. Content validity refers to the extent items within a test or other measures represent all facets being assessed (Sattler, 2008). To assess that the content was valid, I consulted with other professionals to enhance the measure and to ensure that all aspects were covered. The instrument contained questions to cover all characteristics of the phenomenon. The items were

worded to encourage the participants to provide information without prompting towards the desired reply. The specificity of the questions was to assess the lived experience of hurricane survivor's attitudes toward any perception of value while interacting with their companion animal.

The quality of the data collection instrument had everything to do with the validity of this study and the quality of the data (see Ravitch & Carl, 2016). The instrument directly influenced the data collected, the analysis, and the interpretation of the findings. Therefore, the interview instrument (Appendix B) went through a vetting process. Vetting instruments involved sharing multiple drafts of the instrument with knowledgeable others who could provide valuable feedback (see Ravitch & Carl, 2016). These knowledgeable others were experts in the field. Allowing experts to vet the instrument uncovered what was missing, any assumptions implied, and the lack of clarity of the questions (see Ravitch & Carl, 2016; Zelt et al., 2018). Also, these experts assessed the items on the instrument for relevance and comprehensiveness (see Scholtes et al., 2011). Vetting helped reveal additional problematic areas, biases, and generally improved the quality of the instrument and its contribution to the study (see Ravitch & Carl, 2016). Once the interview instrument went through this process, I rehearsed it. It was practiced on a peer to assess word clarity, the content and sequence of the questions, and follow-up questions (see Ravitch & Carl, 2016).

Procedures for Recruitment, Participation, and Data Collection

Zoom videoconferencing and telephone interviews were used to collect data from the participants. The study participants were queried about their lived experiences relative

to their interaction with pets or companion animals following the storms. Participants answered several questions that lead them to describe any pros and cons associated with the experience. These responses satisfied the research question. Occasional probes were used if there were insufficient information. Additional items probed participants' realization of any rewards or challenges interacting with the animal following the storm.

Interviews were conducted via Zoom videoconferencing or by telephone. It was done in a locked, private room to minimize privacy risks. The intent was to interview at least one to two participants weekly, depending on participation interest. Participants were interviewed several times. The expectation was that interviews would take approximately 30 to 45 minutes per participant. Zoom videoconference interviews were audio-recorded through Zoom's videoconferencing platform. A mobile call recorder application was used for telephone interviews.

Before ending the interview, it was crucial to make my participants feel protected and secure, particularly as they shared their disaster experiences (see Rubin & Rubin, 2013). During this period, their questions or concerns were clarified as necessary. Also, I requested permission to contact the participant for clarification as needed (see Burkholder et al., 2016). After completing the interview, I debriefed the interviewees by expressing gratitude for their contribution to the study. As per the informed consent, I reminded participants of their \$10 gift card that I would email to them. Also, I expected that there might have been friendly banter that followed. Therefore, it was necessary that I pay attention to those conversations as the participant indirectly delivered additional information useful to the study (see Rubin & Rubin, 2011).

Data collection continued until I had enough information to answer the research question and when participation interest ceased. The goal was to reach data saturation when there were no new emerging themes or patterns (see Burkholder et al., 2016). Also, saturation occurred when the phenomena have been clarified. There were not enough participants for this study, so my recruitment strategies were modified. For instance, I received permission from Walden University's Institutional Review Board (IRB) to do convenience sampling and permit participants to share my contact information with persons they know who might be eligible for the study. Also, Rubin and Rubin (2011) stated that researchers could gain access to knowledgeable interviewees through shared social networks. Therefore, this became part of my revised recruitment strategy, and I distributed my recruitment flyer through those networks.

Data Analysis Plan

The interview questions were semistructured based on the research question (Table 2). The research question specifically was geared to explore the participant's experience with animal interaction following a storm and when there were any noticeable benefits or lack thereof with this experience. The interviews captured the participant's subjective experiences.

Table 2*Connection Between Research Question and Interview Questions*

RQ:	Interview Questions
What are the lived experiences of hurricane survivors regarding their interaction with pets or companion animals following the storms?	What was your experience during the hurricanes?
	Can you describe the level of your distress?
	In what ways did you cope during that time?
	What kind of animal did you have at the time of the hurricane?
	How did you interact with your pet at the time of the storm?
	What was your general attitude towards animals?
	How would you describe your temperament at the time of the storm?
	Did your temperament influence your interaction with your animal?
	Did your pet play a role in your recovery from distress?
	Did having the animal cause you any stress?
When did you notice any benefits from your companion animal?	

After the data was collected, it was organized and prepared for analysis. The first set of data was transcribed using NVivo, a qualitative software program that facilitated verbatim transcription of the data and increased the efficiency of analyzing the data (see Zamawe, 2015). It offered an automated transcription of my audio data (see QSR International, 2020). Subsequent interviews were transcribed with MAXQDA 2020 (see VERBI Software, 2019). It is also a qualitative software program for qualitative research. All data were coded with MAXQDA and were reviewed to find codes, categories, and identify themes.

Aligned with the concept of hermeneutic phenomenology, I analyzed participants' transcripts, generated meaning, and developed an essence of those descriptions. Those descriptions reflected the hurricane survivors' perspective of any noticeable differences in their interaction with animals. However, there was information that was contrary to the developing theme that should be considered. Discrepant cases were identified as people or situations that do not follow a pattern or theme (see Ravitch & Carl, 2016). Evidence

was provided of these cases that challenged and complicated my findings. Acknowledging discrepant cases that conflicted with the theme added to the credibility of an account (see Creswell, 2013). The discrepancy became more realistic and more valid. I interpreted the findings after establishing the meaning and descriptions. The inconsistency helped to suggest if the results confirmed past information or diverged from it (see Creswell, 2013). Nonetheless, the findings provided insight into the phenomenon that the study participants experienced.

Issues of Trustworthiness

Although the phenomenological study can lead to a rich understanding of experience, it has limitations, including the introduction of bias in the recruitment of subjects, collecting the data, and interpretation. Individual bias may exist if my thoughts, feelings, and experiences interfered, which may skew the research. I understood the possibility of the introduction of bias and the ability to reduce it. Necessary steps ensured that the process of retrieving and processing information was credible and without prejudice. I was also conscious of any personal and professional affiliations involved in this study. The aim was to select participants that I had no personal relationship with. I was aware of my experience as a pet owner and refrained from creating a preconceived idea of how the participants presented information.

Credibility

Credibility indicated that the findings of the study are convincing based on the data presented (Burkholder, 2016). Credibility determined if the results of the study were accurate from my view, the participant, or the person reading it (see Creswell, 2013). It is

one of the strengths of qualitative research. Therefore, it was critical to ensure that the study employed several strategies to ensure credibility. This process included clarifying the bias I brought to the study and presenting negative or discrepant information that ran counter to the themes. Employing those strategies assisted in establishing credibility.

Creswell (2013) suggested that clarifying the researcher's bias created an open and honest narrative that would resonate with readers. Further, this was a good quality of a qualitative study. Researcher bias indicated how worldview, culture, gender, and socio-economic origin influence the interpretations of the findings. Presenting negative information opposite to the themes depicted in real life and added credibility (Creswell, 2013). Credibility was accomplished by discussing evidence of the theme. Giving contradicting information made the information more realistic and valid.

Transferability

Transferability is the ability to use findings from one study and transfer it to another situation (Burkholder et al., 2016). To ensure transferability, Creswell (2013) suggested several techniques. I provided a detailed understanding of the focus of the research, the role of the researcher, the process of participant selection, and the collection of data. Also, the collection of data and analysis strategies depicted a specific order to ensure a clear and accurate picture of the methods used in the study. Participants were selected from varying venues. Specifically, the selection was drawn from sites that have animal interaction and from public spaces within the community. Using various locations were intended to encourage participation from different ethnicities, ages, gender, and classes of people.

Dependability

Dependability is the evidence of consistency in how data was collected, analyzed, and reported (Burkholder et al., 2016). An audit trail was used in this study to confirm dependability. An audit trail is a description of how data was collected, how the categories were derived, and how I made decisions throughout the study (see Merriam, 2009). The information came directly from field notes and memos of my reflections and conclusions made during the study. The audit trail included all field notes on what I had done, seen, heard, or experienced throughout the entire process. The field notes and memos helped to establish the confirmability of this study's findings. These notes reflected the participants' responses instead of my preconceptions and biases. I included examples of the coding process, using a table to display how themes evolved. This depiction will help other individuals assess the dependability and confirmability of the study.

Confirmability

Confirmability is the degree to which the methods used in the study can be verified, analyzed, and concluded (Burkholder et al., 2016). Confirmability is essential, as it requires that other researchers using the same procedures arrive at the same conclusion (Burkholder et al., 2016). I documented the processes to verify the data throughout the study. I used a data audit after the research and reviewed the data collection and how it was analyzed. Reviewing the data helped to uncover any errors that may have surfaced and potentially influenced the study. The goal was to ensure that the responses yielded from the interviews were analyzed and interpreted appropriately.

Ethical Procedures

There were implications for decisions made during the study. These implications included participant recruitment, measurements, data storage and analysis, and dissemination (see Burkholder et al., 2016). About participant recruitment, one of the first steps was receiving approval from Walden's IRB (approval number 08-13-20-0664026). This process helped to evaluate the ethical compliance of proposed research studies. The procedure also oversaw the interactions with the participants, researchers, and Walden University. Once approval was received, qualitative measurements were used to gather a deeper understanding of the phenomenon. The measurements relied on textual data that was obtained by interviewing the participant (see Burkholder, 2016). The interview encouraged confidentiality.

Also, analyzing the data had ethical implications. As a researcher, it was necessary to obtain factual explanations within the sample and not encourage preconceived ideas or special interests (see Wasserman, 2013). Faulty information included manipulating data that would lead to the desired outcome. When it is time to disseminate the findings, it will be done in a manner that encourages the use of the results to enhance social change (see Creswell, 2013).

Informed consent was another strategy I used. Providing consent allowed the participant to be informed about the study throughout the process, beginning at recruitment. Informed consent allowed me to offer the right for the participant to participate voluntarily and their right to cease participation. Informed consent was a means that communicated respect for the participant, risks, and benefits, and who

benefited from the study. Participants were provided with informed consent before participating in the study.

As part of the interview process, capturing participant's accurate responses were necessary. Audio recording increased the likelihood of obtaining those responses and was specified in the informed consent. To reduce participants feeling uncomfortable with having their interview recorded, they were notified that only their responses would be recorded and not their identifying information. If the participant still refused to have their responses recorded, they were not permitted to participate in the study. If the participant decided to withdraw before the study's completion, the participants' research activities would be discontinued. No further interaction would be pursued to collect any information for the study. If the participant became upset, the goal was to listen to their concern, try to understand their discomfort, examine what went wrong, and try to problem-solve. The participant would have been informed that they could discontinue their participation and withdraw their information from the study. Also, if the study participant became emotionally upset, they would have been offered a referral for counseling.

With data collection completed, appropriate storage of the data was critical to not exposing the participant's identity. It was crucial to consider the various possibilities to avoid a data breach. Thus, strategies were needed to be in place at the outset of the study (see Ravitch & Carl, 2016). Those strategies continued throughout the study until it concluded.

Lastly, confidentiality was vital in this study. Based on the nature of the data collection, I knew the participants' identifying information. Their identity was protected to avoid inferences. Emails exchanged about the study between me, and the participant was deleted to maintain privacy. Pseudonyms were assigned to identify participants and facilitate confidentiality. If in the event confidentiality was breached, the university's IRB would have been contacted for clarity in moving forward. An additional step would have been informing the participant of the unintentional breach of privacy. The commitment to assuring confidentiality was communicated through the consent form and throughout the interaction with the participant.

I was the sole authorized person that had access to the data. A master file containing the identity of the participants was kept electronically under password protection. The original documents were deleted. Files will be stored electronically for 5 years. After that, they will be removed and discarded using a third-party data removal application. Eraser is a free licensed software and an advanced security tool for Windows (Eraser, 2020). This software allows the complete removal of sensitive electronic data from the hard drive by overwriting it several times with carefully selected patterns. This format of eliminating data will enhance client privacy and prevent the information from being misappropriated.

Summary

The main points of this chapter provided detailed descriptions of this study's qualitative approach. Constructivism and phenomenology were among them. The methodology, participant selection, and relevant sections of this chapter provided

explanatory measures of the research process. Trustworthiness, credibility, transferability, dependability, confirmability, and ethical procedures were also addressed. Utilizing the strategies discussed in this chapter guided and ensured the safe processing of participants' information while protecting their identity. The results of the data collected will be presented in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this study was to explore the lived experience of hurricane survivors' attitudes toward their companion animals or other animals they interacted with during the event of a natural disaster. The following research question guided the study.

RQ: What are the lived experiences of hurricane survivors regarding their interaction with pets or companion animals at the time of Hurricanes Irma and Maria?

In this chapter, I will present the setting and participant demographics for this study. Next, I will present the data collection method and data analysis employed in this hermeneutic phenomenological qualitative study. I will end this chapter by discussing the evidence of trustworthiness, credibility, transferability, dependability, confirmability, and the results.

Setting

Due to Covid-19 safety precautions, in-person interviews were not permitted. Participants were interviewed via Zoom videoconferencing or by telephone. I interviewed in a locked, private room to minimize privacy risks. The participants' setting was at their leisure and comfort as they did not have face-to-face contact. All the participants that interviewed on the Zoom videoconferencing platform had their cameras on. However, after a few minutes into one of the interviews, one participant requested to turn off her camera because she felt underdressed and uncomfortable. Her request was honored, and her camera being off did not negatively influence the interview session.

Demographics

For this study, the sample included hurricane survivors that experienced Hurricane Irma and/or Maria and interacted with animals (Table 3). In September 2017, those Category 5 hurricanes occurred within 2 weeks of each other and devastated the Virgin Islands (FEMA P-2021, 2018). Participants had to be 18 years or older. There was a total of 11 participants. There were two participants between 18 to 29 years of age, eight participants between ages 30 to 49, and one participant between 50 and 69. Nine of those participants were females, and there were two males. All the interviewees were Black or African American. Based on the 2010 U.S. Census, the Virgin Islands population is comprised of 76% Black or African Americans (University of the Virgin Islands, 2020).

Table 3

Participant Demographics

Participant	Age	Gender	Ethnicity	Animal
Ace	18-29	Female	African American	Dog(s)
Bev	18-29	Female	African American	Cat(s)/Dog(s)
Cam	30-49	Female	African American	Cat(s)/Dog(s)
Des	50-69	Female	African American	Cat(s)/Dog(s)
Ely	30-49	Female	African American	Dog(s)
Fey	30-49	Female	African American	Cat(s)
Gil	30-49	Male	African American	Cat(s)
Isa	30-49	Female	African American	Cat(s)/Dog(s)
Jon	30-49	Male	African American	Dog(s)
Kim	30-49	Female	African American	Dog(s)
Lyn	30-49	Female	African American	Dog(s)

*Pseudonyms were used to protect the identity of the participants.

Data Collection

The sample targeted for this study was approximately 10 to 15 hurricane survivors that experienced Hurricanes Irma or Maria and had companion animals. I conducted 11

interviews over 8 months. Each participant took part in interviews conducted by telephone or by Zoom videoconferencing using a semistructured interview protocol. The Zoom videoconference option was a variation from the previously proposed face-to-face interview, which I anticipated using a hand-held audio recording device. The change in data collection was implemented during the initial Walden IRB application process. Due to COVID-19, social distancing restrictions were on and off in my community. There was unavailability of anticipated public meeting spaces. Considering the obstacles involving in-person interviewing, retaining this method as previously proposed would have posed unnecessary delays in data collection.

Seven participants preferred Zoom video conferencing during the data collection process, while four participants opted for the telephone interview. Interviews were initially estimated to be about 30 to 45 minutes long. However, they lasted about 30 to 71 minutes. Most participants were interviewed between two to three times which allowed me to gain meaning from their experience. Interviewing ceased when there was no further meaning. After all the interviews were concluded, transcribed, and summarized, member checking was used. This process helped ensure that the participants' stories were captured accurately. In addition, it gave them the chance to confirm, dispel, or provide additional information. Member checking is a participant validation process to establish credibility (Ravitch & Carl, 2016).

Interviews were audio-recorded using a mobile recording application for telephone interviews. Participants' interviews were audio-recorded on the Zoom videoconferencing platform if they selected this interviewing option. Pseudonyms were

assigned to identify participants and facilitate confidentiality (Table 3). Emails exchanged between the participant and me were saved as a portable document format (PDF) file. The original email was deleted to maintain privacy. PDF copies of the emails, audio recordings, and interview transcripts were saved under password protection.

Participants were initially recruited via advertisement flyers posted at the veterinary centers, animal shelters, and pet stores. However, due to COVID-19 and the on-and-off government stay-at-home order in my community, I had difficulty recruiting participants. Therefore, I submitted a change in request to Walden's IRB to revise my recruitment strategies. After receiving the approval, my recruitment efforts were expanded to include media platforms such as WhatsApp smartphone messaging application, Mobile text messaging application, Facebook Messenger application, Email, and allowing participants or potential participants to share my information with other individuals they feel may be able to contribute to the study. I also requested to add convenience sampling to go along with the proposed purposive sampling to enhance my recruitment efforts.

There were a few circumstances that I encountered during data collection. There were long gaps between the individuals' interest and their following through to be interviewed. Also, a few individuals were concerned about being interviewed and were stuck in uncertainty mode. They were afraid to relive the experience of Hurricanes Irma and Maria. Avoidance may have been a coping strategy used for some individuals. However, the decision rested with the individual, and no follow-up with the potential participant was conducted. Therefore, I found that those individuals did not commit.

Data Analysis

Heidegger's hermeneutic phenomenology was used. Therefore, throughout the process, I employed journaling to record my biases and judgments. I had "fore-perception" as I lived through Hurricanes Irma and Maria and interacted with animals. Thus, I could make my personal biases explicit, and through journaling, I revised them (see Peoples, 2021). Each time that my preconception was revised, I was able to develop new meaning.

As data was collected, the recording was saved under password protection. Next, it was prepared for transcription. The first seven interviews were transcribed using NVIVO. This software program was selected for automatically transcribing the data. However, that program became costly, and I switched to MAXQDA to transcribe the remaining interviews. I saved all my transcripts under password protection.

After all the interviews were conducted, they were examined. Then, I summarized the interviews for review and to be used for member-check. I emailed each participant a summary of their interview and scheduled another meeting to ask follow-up questions. This was to ensure that the summary was an accurate depiction of what they communicated about their experience. Next, I conducted a member check with 10 of my 11 participants. I had one refusal due to the death of a parent. After memberchecking was completed, I transcribed those interviews using MAXQDA and prepared the data for coding. All transcripts were reexamined, and I edited them to remove filler words. It allowed the data to flow smoothly and helped create a better understanding of what the participant was communicating.

Initially, NVivo was identified to assist in examining and coding the data. However, it was not user-friendly in preparation for analysis. I tried unsuccessfully for several weeks importing information and trying to learn the program. Learning NVivo was time-consuming, and it became a frustrating and discouraging process. Therefore, I decided to switch to another software, MAXQDA.

I referred to several suggestions of data analysis as a guide in this study. I reviewed People's (2021), Saldana's (2016), and MAXQDA 2020 (VERBI Software, 2019). Throughout this process, I used the hermeneutic circle. It is a tenet of Heidegger's (1927/2011) phenomenology. As I gathered new information from my participants, it revised my understanding of the hurricane experience and interacting with animals. It is an interpretation of the process of understanding (People's, 2021). When used in data analysis, there is an understanding of the whole, which was reading the entire transcript and analyzing it. There is an understanding of the parts, which was the creation of codes and themes. The process is not linear but circular. Therefore, the entire transcript was reviewed again. This process continued until a new understanding emerged. My understanding also increased as I reinterviewed my participants and continued the use of the hermeneutic circle. Heidegger believed that interpretation is a constant revision, which is how people make sense of the phenomena (Peoples, 2021).

I used an inductive approach to coding to see what new information will emerge from my data (see Burkholder et al., 2016). Saldana (2016) described a code as a word or short phrase that symbolically assigns a summative attribute for a portion of language-based or visual data. Several inductive codes were identified. I first began using in vivo

coding to maintain the participants' own words. I conducted another round of coding and summarized those codes to be a bit more concise. Afterward, there were a couple more rounds of coding. This included condensing codes and reviewing the data to maintain the accurate meaning of what the respondents presented. There were 77 codes that emerged in the data (Figure 1).

Figure 1

Code Cloud



Thereafter, I reexamined the data and compartmentalized the codes into categories. This process took a couple of rounds to ensure that codes were properly dispersed. There were 13 categories and 13 subcategories. After the categories were formed, they were distributed into themes. A theme can be an outcome of coding, categorization, or analytic reflection, but it is not something that is, in itself, coded (MAXQDA 2020 (VERBI Software, 2019)). Four themes emerged during data analysis:

(a) Hurricane survivors had an emotional and surreal storm experience, (b) Survivors experienced distress during and after the storms, (c) Participants used a variety of ways to cope with their distress, and (d) Participants' exposure to animals and their interactions during and after the storms provided benefits. These themes helped to deepen my understanding of the participant's description. All 11 participants highlighted each of the previously mentioned themes. A few participants had some discrepant opinions that were factored into those themes. They will be discussed further in the chapter. The following are the themes and categories developed from participants responses to the interview questions:

- Hurricane survivors had an emotional and surreal storm experience.
 - Reflections
 - Post storm Awareness
 - Emotional Response
 - First-Hand Experience
 - Loss
 - Hurricane Readiness
 - Storm Perception
 - Storm Behavior
 - Hyperawareness
- Survivors experienced distress during and after the storms.
 - Caretaking
 - Pet Concerns

- Responsibility
- Disturbance
 - Discomfort
 - Instability
- Adjustment
 - Emotional Aspect
 - Temporary New Normal
- Participants used a variety of ways to cope with their distress.
 - Support
 - General Coping Skills
 - Pet Benefits
 - Relief
- Participants' exposure to animals and their interactions during and after the storms provided benefits.
 - Pet Consciousness
 - Personality
 - Pet Interactions
 - Animal Exposure

During this process, I used several methods to ensure confirmability. First, an audit trail was used. It contained what I did and sequenced activities of steps I took during the data collection process. Second, I used a reflective journal to record my

experiences, reactions to situations, and reflections on the research process. I also used member checking to authenticate the information that the participants communicated relative to their experience. The limitations encountered in the study will be acknowledged and discussed in Chapter 5.

Evidence of Trustworthiness

Credibility

As suggested in Chapter 3, credibility indicates that a study's findings were convincing based on the presented data (Burkholder et al., 2016). It determines if the results were accurate from the researcher's view, participant, and the person reading it (Creswell, 2013). It was critical to identify researcher bias introduced to the study and identify discrepant cases contrary to the theme to establish credibility. The contradicting information made the data more realistic and valid; it will be discussed later in the chapter. The discrepant cases depicted real life and added credibility to the study. As the recruitment process was revised to enhance participant involvement, there is a possibility that it may have introduced bias. For instance, the recruitment flyer was circulated through social media on two separate occasions. It increased the possibility of inviting like-minded individuals to participate in the study. Therefore, I was extremely mindful of displaying any emotions or commenting when participants shared their experiences to avoid influencing their responses. There were a couple of instances in which it was challenging. One participant said something funny, and another evoked a memory of my own. Therefore, interpreting the findings would require a careful portrayal of what the

data represents. To account for this, I made notes throughout the process in my reflective journal.

Transferability

As mentioned in the previous chapter, transferability relates to this study's findings being transferred to another situation (Burkholder et al., 2016). To ensure transferability, details are provided of the focus of the study, my role as the researcher, the process of participant selection, and the collection of data. Data was collected sequentially and analyzed. After the first interviews were completed, they were transcribed using NVivo's transcription service. The following interviews were uploaded into MAXQDA for transcription and coding. All the transcripts were reviewed prior to finding meaning units. Data was analyzed in steps to ensure that responses were captured and coded accurately. It was reviewed several times to ensure appropriate categories and themes were formed. Initially, participants were being selected from veterinary centers, animal shelter, and pet stores. However, due to COVID-19 restrictions, participants were also selected through social media advertisements.

Dependability

In Chapter 3, I discussed that dependability is the evidence of consistency in how data was collected, analyzed, and reported (Burkholder et al., 2016). I used an audit trail to track my progress in the data collection process. It describes how data was collected, how the categories were derived, and how I made decisions throughout the study (Merriam, 2009). The audit trail was used to help establish the confirmability of this study's findings. I used a reflective journal to track my progress and my experience

throughout the data collection process. Member checks were conducted to enhance dependability. Participants reviewed their interview summary and answered follow-up questions. Also, I have included examples of the codes, categories, themes, and participant responses later in the chapter.

Confirmability

As discussed in the previous chapter, confirmability is the degree to which the methods used in this study can be verified, analyzed, and concluded (Burkholder et al., 2016). If other researchers use the same procedures, they should arrive at the same conclusion. My data collection process was documented. This documentation would help uncover any errors that could potentially influence the study. The goal was to make sure that the responses generated from the interviews were examined and interpreted appropriately.

Results

Research Question

There was one research question and 11 interview questions aligned with it. The research question that guided this study was: "What were the lived experiences of hurricane survivors regarding their interaction with pets or companion animals related to the storms?" This question was answered through interviews with hurricane survivors regarding their lived experiences. Interviews were reviewed multiple times to ensure accurate coding and categorizing. Four themes emerged that described these experiences: (1) Hurricane survivors had an emotional and surreal storm experience; (2) Survivors experienced distress during and after the storms; (3) Participants used a variety of ways to

cope with their distress; and (4) Participants' exposure to animals and their interactions during and after the storms provided benefits. These themes provided insight into the experience hurricane survivors had with their animals. Each theme is explored, and excerpts from the interviews are also presented. All quotes were derived from the participants and are cited verbatim.

Theme 1: Hurricane Survivors Had an Emotional and Surreal Storm Experience.

One major theme that emerged from the data was the hurricane survivors' emotional and surreal storm experiences (Table 4). Participants spoke of what it was like living through Hurricane Irma and/or Maria. There are two categories: first-hand experience and reflections on the storm.

Table 4*Theme 1*

Categories	Theme	Participant	Excerpts
First-Hand Experience	Hurricane survivors had an emotional and surreal storm experience.	Ace	"It was my first experiencing hurricanes"
		Cam	"I experienced Hugo, Marilyn, Irma, and Maria."
		Gil	"I never had been in a hurricane before. It was my first experience,"
		Isa	"I've experienced Hurricane Hugo, I've experienced Marilyn, all the little ones in between."
		Cam	"The whole the whole roof went"
		Ely	"We lost our home."
		Gil	"Our master bedroom roof came off"
		Kim	"A little part of the ceiling had fell down."
		Des	"Terrifying."
		Ely	"Panic."
		Gil	"Unforgettable."
		Isa	"Unforgettable."
		Lyn	"Fearful"
		Bev	"That was a real eye opener of what nature could do."
		Cam	"At one point, tornado was picking me up and taking me out of the house"
		Gil	"It was like TV. I wouldn't say like news or anything but it's almost like movies. "
		Isa	"I didn't know it could go up to category five."
Reflections		Kim	"We're in a movie and a monster just came and destroyed our whole town."
		Bev	"Thankful that we still have a house."
		Cam	"I thank God for it in a way, because it's helping us to rebuild our home."
		Des	"Gratefulness because my roof was on."
		Ely	"Despite the loss of material things. We survived."
		Gil	"I was probably more grateful that we actually got through it."
		Isa	"Having a car to drive, just grateful to come out alive"
		Lyn	"It's trying to have a plan,"
		Ace	"It made me more resilient to certain things."
		Isa	"In the end, I think we're very resilient."
Jon	"I feel I was pretty efficient, and resilient"		

*Pseudonyms were used to protect the identity of the participants.

First-hand Experience

Participants shared their first-hand experience relative to Hurricane Irma. The storm was perceived similarly by all participants. It was a prolonged scary experience that wreaked havoc on the islands. There were five subcategories; hurricane readiness, hyperawareness, storm perception, storm behavior, and loss.

Hurricane Readiness. Hurricane readiness played a role in how the participants experienced the storm. They shared how prepared they were and what previous exposure they had to hurricanes. Several participants acknowledged their degree of readiness for the hurricanes. Bev admitted her lack of preparedness, "I didn't prepare myself mentally for it." Kim was caught off guard and admitted that "I did not stock up before it happened." On the contrary, other participants were a bit more prepared. Relative to the food supply, Cam indicated that "Luckily, before the storms we had stocked up on food." Des echoed the same sentiments "I was quite prepared for that storm." Lyn also concurred, "I think we was prepared because I don't think we had run out as easy." Only a few participants stocked up on animal supplies for the approaching storm. Ely stated that "I took all her food I had at home, brought it up by my parents." Ely felt accomplished talking about being prepared to handle the experience at work "It was a lot of tactical planning. I think we did good," and at home, she stated that "I foresaw some of the stuff, so I had taken down some of the pictures, our smaller pictures off the wall."

Relative to experiencing a hurricane and what to expect, there were mixed responses. A few did not have prior experience with storms. Ace stated that "it was my first experiencing hurricanes," and Gil was unprepared. "I never had been in a hurricane

before. It was my first experience." Kim shared the same sentiments. "Honestly, for a second, it didn't feel real because that was my first time experiencing a hurricane of that magnitude." A couple of participants experienced hurricanes before. Cam said, "I experienced Hugo, Marilyn, Irma, and Maria." Isa had an idea of what to expect as well, "I've experienced Hurricane Hugo, I've experienced Marilyn, all the little ones in between."

Hyperawareness. Participants shared their emotional reactions, thoughts, and what they saw and heard during the storm. Participants reacted similarly during the storm. Emotional reactions included anxiety, stress, and fearfulness about different aspects of the storm. For example, Bev's concern for her pets made her anxious about her stray cats that remained outside during the storm. "It was quite stressful because, as I said, I had other animals that did not live in the house, and they were strays, and I didn't know if they would make it out of it okay." Kim also shared, "I was scared when it first picked up, and I really heard that train." Isa explained the source of her stress because she was concerned about what life would be like after the storm. "That was, for me, traumatic." Gil agreed, "That was a traumatic experience." Lyn stated, "I was fearful." Fey was more concerned about remaining strong through that stressful moment. "I would say there was a lot of anxiety and just trying to be strong for the people who were around me."

There were thoughts of what to expect outside once it was over and about life throughout the storms. Ace admitted that "I was just wondering if I was going to make it out alive." Bev was worried about her living situation "this hurricane worse than what we

expected." Similarly, Isa felt the same way " ain't moving you, hearing these winds this rain, what are we going outside to?" Gil pondered the sight of everything. "I had never seen anything like that before. It just it just looked very chaotic. As far as all of the wind and rain."

There were different experiences yet similar experiences to what the participants saw and heard during the storm. Ace recalled that "Just hearing all the noises and all the things flying all over." Bev concurred, "but you could have heard (?) that it was really violent outside." Similarly, Cam recalled her experience as "There were times when we could hear and see tornadoes passing over us." Ely's visual perception of the storm made her aware of how serious the hurricane was, "I saw the wind start to kick up, I was like this is bad, this going to be really bad." Fey struggled to remember what exactly she heard but stated that "I can hear objects flying and things just knocking around outside." Gil recalled the sound of the hurricane "There was a lot of wind and howling and, and just things banging against stuff." Kim equated the sound of the hurricane to a train "As the wind just picked up, it sounded more and more like a train." She also recalled seeing the hurricane's impact on homes "That's when it really just got serious when you're seeing parts of people's homes just flying around." Lyn had a similar experience as to the sound of the storm happening outside her home "The trees and the one mango tree fell. Because we have rails on our windows, you could hear it hitting on the rail."

Storm Perception. Participants described their perception of Hurricane Irma. They shared their experience of the storm's length and intensity, the devastation, and what they thought of the approaching Hurricane Maria. In addition, participants summed

up their hurricane experience. Ace recalled, "it was definitely a hard experience." Five participants described their experience in one word. Des called it "terrifying," Ely said "Panic," Gil and Isa both described it as "Unforgettable." and Lyn dubbed it as "Fearful."

Relative to the intensity of the storm, participants also had several similarities in their perceptions. Ace said that "The rain got intense. "Bev recalled the increase in the storm strength and duration "it had start heating up because all kind of stuff flying outside" and "Irma had just hover for so long!" Gil noticed a change in the intensity when his windows were compromised. "Things progressively got a lot worse." Des appeared frustrated with the duration of the storm, "the storm would die down, and then it would start up again." Isa also was concerned about the duration of the storm. "I thought the storm wasn't going anywhere to me it stayed over us for a long time." Jon had a similar thought "it was just taken forever." Kim was hoping to hear silence soon. "we're just waiting it out to finally just calm down." The wind was just going and the rain." Lyn described how long she thought the storm lasted. "I would say about three, five hours, maybe six."

Participants also recalled the storm's devastation. After the storm, walking outside or perusing their home left most in awe. Ace said, "I saw cars destroyed. I saw houses destroyed." It made Bev realize, "That was a real eye-opener of what nature could do." She also spoke of how chaotic the place looked "Seeing roofs missing and galvanize all over, and it seems everything is brown, all the leaves off the trees. Boats were turned over." Ely simply stated that "It was devastating." Isa described the sight of homes around her. "I've seen homes around me totally just tear apart because of the storm."

A few participants compared the devastation to a movie or a monster and even described seeing tornados. Gil said, " It was like TV. I wouldn't say like news or anything, but it's almost like movies. It was like the actual scene of the island." Kim had a similar recollection "I was like, this is not real. We look like we're in a third-world country. We're in a movie, and a monster just came and destroyed our whole town." Two participants attested to the sight of tornadoes. Bev said that "I didn't expect it to be like a whole tornado passed through outside" Cam also concurred, "at one point, tornado was picking me up and taking me out of the house."

Some participants had strong thoughts about the second approaching storm. Ace indicated that "oh my gosh, another hurricane, are you kidding me? I can't take this." Bev was also stunned. "I wasn't nervous until I heard, okay well, we got to go through this again. That was nerve-racking." Fey had some uncertainties. "After having gone through Irma, I wasn't sure what Maria was going to bring, how hard we would get hit."

Storm Behavior. There was varied storm behavior as the storm progressed. Participants explained their sleep patterns, how they huddled with family or pets, comforted their pets, and some of the things they did to remain safe during the height of the storm. Sleep was a common utterance among participants. There was some disruption due to their emotional state. Through Jon's discomfort, he felt the storm was taking forever to end and stated, "you couldn't really sleep." Lyn similarly stated that "I don't remember sleeping until the storm was over." Des said that "I don't sleep through storms." Bev also had her sleep disrupted during Hurricane Irma "a little 10-minute shuteye." Ace said that during Hurricane Irma, "I couldn't go sleep. I was in shock." On

the contrary, during Hurricane Maria," maybe it was a coping mechanism where this time I fell asleep." For Kim. "For the most part, honestly, I slept through it." Gil similarly stated that he and his family did get some rest. "We went to sleep. But I think it wasn't probably until maybe really late."

During the storm, participants hunkered down with their loved ones or their pets. According to Fey, "I was surrounded with mostly women and children." Gil and his family huddled together in the bathroom. "Pretty much we held up in the bathroom until the storm finished." Isa had a similar experience with her family. "Everybody came on my floor because it's the middle, like a bunker, and we ride out both storms on my floor." Jon said about his parents, "I brought them over there, and we hunkered down inside the room and stayed there for a little while." Kim, her boyfriend, and their dogs snuggled together during the storm. "Trying to huddle together, just make sure we're all comfortable and good." Similarly, Lyn, along with one of her dogs, rode out the storm together. "We was in the closet together for a while."

While dealing with the storm, a few participants comforted their pets. Kim knew what calmed her dog and explained, "he was next to me, in my lap and just holding him and rubbing him. That made him feel a little bit better." Lyn also demonstrated how she calmed her dog "I was patting him trying to stop him from trembling. I was patting him on his head, rubbing his head rubbing him." and she tried to make him more comfortable "he was just trembling, and I think I put a blanket over him."

Finding a safe place during the storm was a priority, particularly as participants were experiencing damages to their homes. Gil's home was compromised, and he made

attempts to find a safe and dry area for his family, not knowing how they would fare if they remained in place. "I tried to make an attempt to go into one of our smaller apartments." Jon also moved his parents to safety during the brunt of the storm. "It was almost like survival mode. I didn't really stop to think about it." Kim was concerned about her dogs as her apartment started to flood. "We tried to move the dogs into a better area." Similarly, Lyn, her husband, and their dogs relocated to the bathroom for safety. "But I told my husband, it's best for us to go into the bathroom because they always say to be in a tight closed area."

Loss. Participants experienced some injury, power loss, personal items, and property damage. Gil got injured when the storm broke one of his windows. "I got some glass thrown in my face." "I had a couple of cuts on my face." Jon, too, was injured. "The wind picked up the louvers, slam it on my hand, and it broke."

Power loss is expected during storms. Bev pointed out that "I didn't expect the power to go off so early." Des complained that "Of course the electricity went out so early, so I wasn't able to finish washing." Kim concurred that she experienced power loss. "As soon as that thunder started that first rumble" "shortly after that, the power had went out."

Damages and loss varied among the participants. Relative to material possessions, Bev stated she lost "The only thing we lost is clothes." About the home, Ely said, "We lost our home." "I got water; I got lots of flooding, lots of rain." Fey concurred that she also had flooding "I experienced a lot of water and flooding." Gil added that he had some damages to his property. "The first signs of damage were the windows." Isa considered

herself fortunate that her home only had slight damages and flooding. "wasn't major, but water still came in." Jon appeared to be stunned at water coming in his home. "With water on the floor, I was like, what's happening?" Kim, too, was alarmed at the flooding in her home "the house started to flood." Lyn had physical damage as her roof was compromised "we start getting damaged to our roof on the left side of the house." Cam was the only participant that lost her entire roof at the height of Hurricane Irma, " the whole the whole roof went."

Reflections

Participants reflected on their experience at the time of the storms. There were two subcategories; post storm awareness and emotional response. The hurricanes were an opportunity to reflect on their lives and make changes.

Post storm Awareness. Several aspects became noticeable to participants after the storm. First, some changes were influenced by the storms, strength and/or resilience, discovery, enlightenment, or self-awareness. Ace recalled that "I became more open to communicate." Preparation was uttered among several participants. Bev stated that "for a next experience like this here I would like basically wants to be a little bit more prepared." Gil similarly felt the same about his home being prone to damage "It prepared me to know that this is what it's going to be like, if you want to stay here." Lyn was more specific as to what to consider going forward. "More aware of if a disasters gonna hit, what is our game plan for the next time? How are we going to go about doing it to keep everyone safe?" Recommitment was also noticed among a few participants. Cam and her husband recited some changes they would implement post storm. "That night, we both

made a commitment to each other, that if we made it out, we're gonna change our lives." Isa mentioned reading her Bible more regularly, " that made me recommit myself." While most participants focused on personal changes, Ely talked about a change at her job she encountered post storm. "I wasn't working in my department. I wasn't really making the money that I was making before."

Strength and resilience were recognized among a few participants. Ace said that "It made me more resilient to certain things." Isa concurred with those sentiments. "It makes you tough, it makes you stronger makes you withstand more." "In the end, I think we're very resilient." Jon also recognized this, "That I'm resilient and able to, instead of succumbing to the situation."

Relative to enlightenment, and self-discovery, the hurricane helped a few of the survivors. Ace stated that " I was able to really gain a better understanding on who I am." Isa learned some things about herself as well, "I was able to learn how to address things when it's appropriate." Jon also acknowledged self-awareness. " I learned that I could do a lot more things with my hand than I thought." He also said, " I felt more responsible and more mature." On the contrary, Des had a different perspective on discovery. She learned that incense was good for keeping mosquitos away. "That I have all this incense around my house. I burned, and it worked."

Post-Emotional Response. Following the storms, some participants expressed gratitude, acceptance, and regrets. Being grateful for life was also common among participants. Ely stated that "I became more grateful." Bev also echoed those sentiments, "... made me more thankful for life" and "thankful that we still have a house." Des was

also appreciative for her home "gratefulness because my roof was on." Isa felt the same way, "I was grateful that our house didn't experience any extreme damage. Our roof stayed on." She was also grateful for "having a car to drive, just grateful to come out alive." Cam was optimistic about her storm experience. " I thank God for it in a way because it's helping us to rebuild our home." Gil felt guilty, saying that he benefitted from the storm too "it did give us the opportunity to remodel the home, the way that we wanted to do it." However, he was appreciative of surviving the storm. "I was probably more grateful that we actually got through it."

Acceptance was another common aspect among a few of the survivors. Bev shared how she took on taking care of the stray cats in her neighborhood. "I had multiple cats. They were strays, but I normally took care of them." Gil, too showed acceptance when he welcomed a stray cat into his family post storm. " We were feeding and giving that cat water as well. And she just pretty much became a part of the family too." Cam felt that her dog was accepting of a stray dog that ventured into their yard after the storm. "a stray dog came into our yard, and they accepted the dog." Ely had a different spin on acceptance. Although, after losing her home, she finally began to accept it, " the other pastor gave a sermon about it's okay to cry, but you have to cry and let things go." "I always feel like God, God gives, and he takes away."

On the contrary, some participants expressed different forms of regret. Ace was a senior in high school who felt robbed of her senior year, "I felt there was things I were missing out on." Fey felt guilty leaving her cat alone during the storm while she was sheltered with family at a different location. "Guilt because I was not with her during the

storm, during Irma." She wished that "I would have taken her with me." Jon was upset after listening to his mother and opening a window during the brunt of the storm. In the process, he was injured. "I got a deep cut on my hand. I just band it up, and I was just so mad. Cuz I was like, I should just leave the window alone." He stated that "I was more upset that I listened to my mother."

Theme 2: Survivors Experienced Distress During and After the Storms.

The second theme is the distress that survivors experienced during the storms (Table 5). The three categories are caretaking, disturbance, and adjustment. Participants describe stressors they experienced at the time of the hurricanes.

Table 5*Theme 2*

Categories	Theme	Participant	Excerpts		
Caretaking	Survivors experienced distress during and after the storms.	Cam	"Finding them food. "		
		Des	"I had to worry about getting cat food, getting dog food,"		
		Jon	"Trying to get to the stores to try to get dog food."		
		Kim	"The hardest part was just trying to get fresh water for them "		
		Lyn	"You'd have to worry about getting dog food and not having dog food on the island."		
		Jon	"If the dog had a issue, you had to wait months or weeks, to get them to a vet."		
		Bev	"The cats, they get traumatized the most"		
		Des	"Especially my dog. Running all over wild. Scared."		
		Fey	"I could tell that my cat was very shaken up by the storm."		
		Jon	"The big one, he's a little more, he's very, I don't know what you call it, he has anxiety."		
		Kim	"My little Pitbull, he came sprinting in my bedroom, and he jumped on my face, and was freaking out."		
		Ace	"I was the only person taking care of them."		
		Fey	"I feel I am her primary caretaker at my home,"		
		Gil	"Just as the male in the family, it just had to, stuff, you have to just suck it up and do."		
		Jon	"It was difficult with them dependent on me."		
		Disturbance		Ace	"When is this gonna change? I wanted I needed to change like I'm getting like really anxious."
				Gil	"I was angry and frustrated."
Cam	"Apart from my mom, dying, this has been the longest never-ending stressor."				
Des	"During the storm, my stress level was 10 after the storm and then after the storm I went down to an 8."				
Fey	"If I had to rate it on a scale on a scale from one to 10, I'd say maybe a seven."				
Jon	"It was a nine compared to my old stressors,"				
Bev	"I still couldn't get in communication with people. That was a real stressful part."				
Ely	"I couldn't get in contact with my family, because the phone lines was jammed."				
Fey	"I had issues getting in contact with certain family members."				
Lyn	"Another thing was the communication; we didn't have no phones."				
Cam	"We didn't have a home,"				

Categories	Theme	Participant	Excerpts
Adjustment		Ely	"I was having a break down and I just needed to leave."
		Ace	"It was definitely a struggle"
		Bev	"Trying to get used to everything, lines "
		Fey	"Just the fact that we were under curfew, and there was not enough time to get things done."
		Gil	"We had to bathe in buckets"
		Isa	"No cell phone for months,"
		Jon	"Not having power, not having technology, you have to find a way to cope with just being there."
		Kim	"It's just being around everybody else who just got angry and upset and was cussing."
		Lyn	"We had to stand in long lines to get food, or everything was a line."

*Pseudonyms were used to protect the identity of the participants.

Caretaking

Participants reflected on their experience at the time of the storms. There were two subcategories; responsibility and pet concerns. Taking care of animals and family created some distress for these participants.

Responsibility. Participants demonstrated a protective side of themselves, caretaking responsibility, and role shifts during and after the storm. For example, Cam talked about her selfless attitude toward protecting her dogs through the storm even when her life was threatened. "It was more protect mode for them because they were all scared." Kim also spoke of ensuring the safety of her pets. "I went into a protective mode; I need to make sure that we're all going to be good. "Relative to ensuring the safety of family, Gil relocated his family a couple of times to safer spots around the home. "That meant that I had to move my three kids and my wife. We had to traverse over debris." He selflessly allowed his wife and kids to hide in a closet while he sat outside. "They were in behind the doors of the closet so that they could, they would be protected." Jon also

displayed a protective side as he guided his parents to safety "I brought them over there, and we hunkered down inside the room." On the other hand, Ely also displayed a sense of protection at her workplace during the storm. "I was part of the team that were transporting the patients from the wing that was destroyed to another wing and then that was destroyed."

Responsibility took a toll on several of the survivors. Ace complained about the degree of her caretaking role. "I was the only person taking care of them." Relative to her younger cousins, who were scared throughout the storm, she stated that her role was crucial. "It just came down to them being younger, and I felt I had somewhat a duty to someone older than them to comfort them even in the midst of me being scared." Bev was distressed about taking care of her petspost storm. "It was stressful trying to figure out how you will help them out in the situation." Des described her duty as more obligatory, "But I take care of them because they're here." Fey also concurred with these sentiments. "I inherited this cat. Out of my good nature, I feel I definitely continue to take care of her make sure that she got food and everything." She took her responsibility seriously in family matters. "I felt I had to remain strong and make sure things was getting done." Gil, too, was serious about his family responsibility. "But I had to get through it because, just as the male in the family, have to just suck it up and do." Jon described what responsibility was like taking care of his parents at the time of the storm. "It was difficult with them dependent on me." "When I went through the storms, my parents would have to deal with everything. But now it was me. I had to deal with

everything." Isa took her hurricane experience as a learning opportunity. "I think this is, is teaching me to be that way, be able to get through it."

Pet Concerns. Participants realized the effects the storm had on their animals. They were worried about their pets and were concerned about veterinary services and pet supplies post storm. Bev believed her cats were affected, "They were shaken up," and "The cats, they get traumatized the most." Cam also noticed a change in her dogs' behavior, "they were all clinging to me, more so than anything else." Her cat panicked and ran away during the storm." She ran out when what happened was a tree hit the window." Des agreed that her dog was affected by the storm, "Especially my dog. Running all over wild. Scared." During the storm, Ely's dog reacted "she cried nonstop during the storm," and so did Kim's dog "as soon as that thunder started that first rumble, my little Pitbull, he came sprinting in my bedroom, and he jumped on my face and was freaking out." they were trembling."

Ely shared the post storm effects on her puppy, "I really do think she went through her own depression." Like the others, Fey agreed that her pet was affected by the storm. "I could tell that my cat was very shaken up by the storm." So was Jon's dog, "the big one, he's a little more, he's very, I don't know what you call it, he has anxiety." Post storm, Lyn's dog still shows signs of trauma "when it rains, she takes a while, she don't want to go out into the rain, she don't want to get wet."

Worrying about pets was also common among the participants. Bev's concern was taking care of her pets, "we are worried about their wellbeing." Cam left her pets unattended at the damaged home since she was temporarily displaced. "That was

terrifying because the house was just completely open." Fey complained that she only worried post storm about her cat. "I wasn't as concerned about, I don't want to say not concerned for her wellbeing, but it was not a primary thought at the time. It more so came into play after the storm." Isa commented similarly, "I wasn't completely worried because I knew they were okay."

Veterinary services presented conflicting concerns. Jon was upset at the lack thereof "nobody really had things happening. If the dog had an issue, you had to wait months or weeks, to get them to a vet." Whereas Lyn's need for services was not impacted, "When the vet was open, I think my husband went to get their prevention pills, that they have to take."

Pet supplies were a conflicting occurrence among the participants. Bev stated that "All my other pets was major concerns. We getting stuff to eat, but what they going to eat?" She relied on an alternative method when she ran out of food. "After a while, when the food was running low, they ate human food." Cam was also a bit stressed finding pet supplies. "Finding them food. Because FEMA and the military and everything was giving out food for us, for the humans, but they never thought about the animals." Yet, she was generous and shared her pet food supply with neighbors who lacked it. "After the storms, we were giving away some of the food to the neighbors too, so that they had for their animals. So eventually, our stock ran out." Des ran out of pet food and was concerned as well. "I had to worry about getting cat food, getting dog food." Isa concurred about the food shortage, "just the unavailability or the challenge of getting food, getting water." Jon complained as well, "trying to get to the stores to try to get dog food." Lyn echoed the

same problem. "you'd have to worry about getting dog food and not having dog food on the island." Kim was more concerned about finding water. "The hardest part was just trying to get fresh water for them because I didn't let my dogs drink the cistern water."

Disturbance

Participants reflected on their uncomfortable experiences at the time of the storms. There were two subcategories; discomfort and instability. With devastation island-wide, it forced participants out of their comfort zone.

Discomfort. Participants described their frustration, annoyance, and level of distress. Ace was frustrated with the aftermath. "When is this gonna change? I wanted I needed to change like I'm getting like really anxious." Gil shared similar feelings about the restoration process. "Frustration. Just anger." Ely, too, was upset at work because of being randomly assigned to different departments, "I was grateful I had a job. But then it became stressful." Des had a similar nuisance " that laundry situation is the absolute horrible." Jon was dealing with many stressors at the same time. "I still upset. During that, all of this time, it's like everything was happening all at once."

Participants recalled their level of distress, and there were similar responses among the respondents. Bev described her worst stressor as death, "to me, the worst thing is death." Cam also compared death to her hurricane distress "Apart from my mom, dying, this has been the longest never-ending stressor." Isa did not think that the storms were her worst stressor, " I wouldn't say it would be the same. We know in a hurricane; we know what we gonna expect." Jon had multiple stressors at the time of the storm, so

he could not correctly describe his distress. "I didn't have time to think about one stressor. Then when I finished with one, the next one would just be right there."

The aftermath was more complicated for Gil, "What was more challenging about the hurricanes was the aftermath." Lyn concurred with the aftermath being the worst "To me, the aftermath, it does be worse." Des described the level of her distress, "During the storm, my stress level was ten after the storm, and then after the storm, I went down to an eight." Fey scaled her distress as well "If I had to rate it on a scale from one to 10, I'd say maybe a seven." Jon measured his distress as high, "it was a nine compared to my old stressors, before." On the contrary, Kim admitted that she had not experienced any stressors before the storms. "If I ever feel that way, in life again, I'd be able to compare it to that. But that's my first real trauma."

Instability. There were several areas where participants lacked stability. For instance, communication was a major issue. In addition to experiencing separation, fear of the unknown and displacement caused some distress. Bev was concerned about her loved ones because she could not communicate with them. "All of the phone lines went down, and I couldn't get to communicate." Ely shared the same concerns "I honestly didn't, I couldn't get in contact with my family, because the phone lines was jammed." Fey experienced the same issues "I had issues getting in contact with certain family members," and so did Lyn. "Another thing was the communication; we didn't have no phones."

Separation was a stressor that a couple of respondents endured. Cam explained how she felt leaving her dogs at the damaged property because she was displaced

temporarily. "We didn't have a home, so we had to leave them." Ely was working at the time of the storm, so she was away from her family and puppy. "I didn't see my family for 2 days. I didn't hear from them in 2 days." Jon was amid another stressor when the storms came. "I was going through a separation, the storms, different things." Lyn was concerned about "Being separated from my boys."

Fear of the unknown was a common occurrence for some participants. Bev admitted, "it was just the not knowing with what going on that was just really terrifying." She was also concerned about her living situation "how it had sound; I didn't think we would have had a place to go back to." Isa shared similar thoughts "when this is over, what are we going outside to? What is our life going to be like after this?" Lyn felt the same way. "Not knowing what's gonna happen when we come out, just praying." Fey was concerned about the unknowns as well, but it was more related to normalcy. "Just not having any idea of when things would return to normal."

Displacement was an actual situation for a few of the participants. Cam had to find somewhere to live when her home was destroyed. "We live in my mom's house now." Gil was also temporarily displaced, "moved into mother in law's place for a couple of weeks." After Kim's home flooded, she briefly sought shelter with her boyfriend's brother, "I was just trying to be as respectful cuz I'm in somebody else's home." Ely's home was also destroyed, and she stayed with her sister. "I honestly didn't think we were going to be there till now." Not only was she displaced at home, but also at work. "Right after the storm, they were just pulling you anywhere." Isa too experienced displacement

at work, " displaced from our office, because the side of the hospital that we worked in got damaged."

Adjustment

Participants reflected on aspects of adjusting post storm. There were two subcategories; emotional aspect and temporary new normal. This was a difficult transition for participants.

Emotional Aspect. Adjusting to the storm was more difficult for some participants than others. Ace described her emotional impact "I was traumatized," and "I felt overwhelmed." Isa felt the same way, "It was traumatic for me, the aftermath." There were depressive feelings as well. Gil shared what contributed to him feeling that way "after you see all of the damage and all the things that the storm did, it was very depressing." Ely concurred those same feelings "I went through my own depression." She also went through a period of questioning why she lost her home, "I really loved it, we were really comfortable there. And, to see it get destroyed, God, what, why would you do this? What's next?" Jon had mixed feelings about his experience, "It was a bit overwhelming, a little bit of anxiety."

Three participants acknowledged that they had to return to work. There were also mixed feelings about returning. Bev used work to escape her situation, "my coping mechanism was work." Cam admitted that it was a positive experience for her, "going to work at that point was my release." Gil was not pleased with the notion, " I felt that I should be at home because it was really nothing that we could do." Isa was not excited

about going back to work either. "Your job is still being demanding wanting you to come in."

Temporary New Normal. The clean-up effort, traversing the road, securing daily supplies, and having limited conveniences were significant issues that participants dealt with as they tried to adjust to their new normal. In Bev's neighborhood, teamwork was exercised to clear the roads "most of the neighbors we had to come together a couple days after to get the roads unblocked, cut down the trees that were blocking the way." Lyn's neighborhood community also came together to get roads cleared. "In our area, you see, people was trying to, most of us move the trees or debris from in front of their homes." Jon assisted in clearing the roads in his neighborhood, "I took my chainsaw, we cleared the road." Maneuvering the roadways was a major challenge following the storms. Fey explained her experience, "It was hard getting back home after the storms with all the road closures and the curfews." Kim found it challenging but doable "we were just bobbing and weaving. But we weren't trapped." "It was a complete obstacle course. I was on both sides of the road. I was driving over tree branches." Relative to cleaning up the mess around the home, Ely spent a few months working at it, "it took about two or three, maybe about a month." Gil was delayed in his attempt to clean up at home. "Not until we got back over to the home from staying over my mother-in-law's."

Securing supplies was challenging for some participants, yet some expected the difficulty. Ace withstood long lines, "there was long lines" Fey recalled all the supplies she sought daily, "It was about finding food, being able to purchase food, being able to get gas for the cars." Gil also described the daily challenge, "pretty much on day to day."

Jon concurred to seeking daily items "So it's every day you buying food," and so did Lyn, "with us too, cuz we had to stand in long lines to get food, or everything was a line. For water, everything." Kim was not frustrated with the lines but with people grumbling. "Then when the stores finally open, we got there and just that whole standing in line. I'm patient; I could do it. It's just being around everybody else who just got angry and upset and was cussing. That makes me uncomfortable."

Adjusting to limited conveniences was also challenging for some participants. Ace struggled in the absence of normalcy and lack of amenities. "Just feeling I needed to get back to the normalcy that I had before." Fey was also frustrated with the aftermath, "just the fact that we were under curfew, and there was not enough time to get things done. Not having power."

On the contrary, Bev was not too stricken, but impacted as well, "we used to live in a certain life and all of a sudden you have to change." Jon was somewhat mentally prepared for the aftermath through prior experiences. "The way how I was brought up, using coal pots and outside cooking, it wasn't a problem," and "Not having power, not having technology, you have to find a way to cope with just being there." Kim knew what to expect in island living relative to the power outage with WAPA, the electrical company. She did not feel that she had to adjust too much. "I felt there wasn't much adjusting needed just because that's island life, WAPA in and out all the time."

Des admitted that she acclimated to the process. "As time passed, I began to adjust. Yeah, I don't do good with storms at all." Ely had difficulty adjusting, "And that's why I traveled because I wasn't sure if this where, this is where I wanted to be." Gil was

specific on all the changes he was living through, " We just dealt with no power.;" "We had to bathe in buckets." Gil admitted that he was not used to lacking amenities.

"Sometimes it will cause me to be upset and angry about my life here because it's just something that I've never had an experience being without certain things." Isa dealt with a lack of the essentials as well. "No electricity, no running water, not being able to have good access to food, no refrigerator to store it."

Theme 3: Participants Used a Variety of Ways to Cope With Their Distress.

The third theme shares how participants used various ways to cope with their distress (Table 6). The four categories are support, general coping skills, pet benefits, and relief. Participants benefitted from social aid, pet interaction, tapping into calming techniques, or any other aspect that led to minimizing their distress.

Table 6*Theme 3*

Categories	Theme	Participant	Excerpts
Support	Participants used a variety of ways to cope with their distress.	Ace	"I also found more comfort in being around people that I knew"
		Ely	"I was going where I had family and that was important to me"
		Fey	"For me it was a lot of family."
		Gil	"Being around good company, as far as family wise. It was definitely a good feeling."
		Jon	"I talked to my family, my sisters, sometimes."
General Coping Skills		Des	"I just had to talk to myself and say, Listen, we've been through this before."
		Gil	"I might have cornered myself off in the area to just go breathe."
		Isa	"Just quiet time thinking"
		Kim	"I had to continue to tell myself that, these aren't, I'm not in a permanent situation with this. "
		Ace	"I found board games. I was playing games with my cousins."
		Cam	"I personally threw myself into working out, to take the stress off."
		Cam	"I listen to a lot of music"
		Bev	"My coping mechanism was work, something to do from having to think of what happened."
		Fey	"After Maria, I was able to get off the island for a couple of days."
		Ely	"I prayed a lot."
		Isa	"Reading my Bible"
		Lyn	"Pray"
		Cam	"I also started therapy"
		Jon	"I started to do counseling right after the storm."
		Pet Benefits	
Fey	"I haven't really thought about her contribution to my recovery or feelings."		
Ace	"A healthy distraction"		
Jon	"I started doing a lot more exercising and walking, so I would use them to go walk with. "		
Kim	"Seeing them play with each other, felt like relief too."		
Gil	"One of the biggest benefits was that they were catching little mice,"		
Des	"The dog offered protection of people coming onto the property,"		
Lyn	"They're good protectors."		
Cam	"He's the friend or brother I never had."		
Relief			
		Bev	"Honestly, I was just thankful that it was over"
		Fey	"I was more so just happy that it was over."
		Gil	"I was probably more grateful that we actually got through it."
		Kim	"It was just relief, just to be able to talk it out to somebody who wasn't there."
		Lyn	"I was so happy, I was glad, worrying had stopped."

*Pseudonyms were used to protect the identity of the participants.

Support

Participants received different types of support: social aid, family support, and social support. Social help came through donations from the local Humane Society, local organizations, and the American Red Cross. Bev found the assistance she received to be helpful, "the Red Cross people they were really helpful. They came through with some supplies." She also received a supply of pet food, "The animal shelter had come through with food." Des also received pet food through a local organization. "Humane Society was giving out food, and then they had somebody else who was giving out food, so we were able to get food for both the cat and the dog." Lyn, too, received food for her dogs. " Then it had someone that, some places that gave out some dog food. " Cam also benefited as well "one of the firefighters brought in a trailer full of just dog food."

Family support seemed to be beneficial to the participants. Ace enjoyed the support of family, "I also found more comfort in being around people that I knew" and admitted that it "gave me this opportunity to distract myself a bit." Fey was happy about this as well. "For me, it was a lot of family." Lyn used the aftermath as a means of being with her family "after I was spending it with my family over by my mom." So did Jon, "able to chill out with my parents." He also connected with his other family members. "I talked to my family, my sisters, sometimes." The family was an essential source of support; Isa agreed, "I've always had my family, my parents, my mother, my father, even my youngest sister, we all come together and figure things out." Gil concurred, "being around good company, as far as family-wise. It was definitely a good feeling."

Outside of family, friends and others provided social support to some of the participants. Ace found comfort in talking to her friends who understood her situation. "Like, my friends who went through Irma and Maria as well" "it felt good to have that sense of understanding between people who went through the same thing." Kim was glad to talk to her friend, but unlike Ace, she found comfort in her friend being outside of the situation. Her friend provided social support. "The whole time I spoke to her more than I spoke to my family." "It was just relief, just to be able to talk it out to somebody who wasn't there." Having social support played a role in participants coping with their distress. Jon said, "I talked to people. Talked to friends of mine." Lyn shared that "I guess coworkers. You talk to your coworkers about the situation you was going through, the church family." Des also credited her support team "I have a good circle." On the contrary, Bev enjoyed providing the support. "I was more the counselor. I like listening to people" "I didn't feel I had anything to vent about." Cam had a similar experience "I balance it and put my feelings or what I going through on the backburner to just be the calm and level person."

General Coping Skills

Participants used several coping skills to minimize their distress. Respondents used distraction techniques, positive self-talk, religious coping, emotional and physical coping, finding stability, and therapy. A few participants relied on distraction techniques such as board games, conversation, humor, exercising, listening to music, and reading. Ace found relief in board games. "I found board games. I was playing games with my cousins." Lyn used this option as well "We'd be there playing board games to take our

minds off that." Having conversations was also helpful to a few. Bev shared that "the conversation" was a sense of relief for her. Kim talked with her boyfriend, which proved helpful, "we can make light conversation to distract ourselves as well. That helps having someone that you could talk to." Bev also used humor to distract herself "Our past time would be cracking jokes." Cam relied on working out to de-stress. "I personally threw myself into working out, to take the stress off." The radio provided a distraction, and so did music. Fey explained that "Listening to the radio station and just getting the updates of everything that was happening. That was helpful." Lyn concurred, "The governor comes on, and everyone will be where the radio is. We listened to that to see what's going on with that." Cam relied on music "I listen to a lot of music." Des escaped her stressors by reading, "I read a lot. I read a lot. I read a lot."

Coping internally or utilizing positive self-talk was a common experience among several of the participants. Fey said that "I just kept saying that it was gonna be okay. Just try to think positively. Everything was going to be okay." Similarly, Kim said to herself, "That it will pass." Des said, "I just had to talk to myself and say, Listen, we've been through this before." Ace used positive self-talk in combination with self-reflection. She told herself that "we're gonna move on; things are gonna get better." She acknowledged, "I tend to just self-reflect." "With self-reflecting, I can see myself go through something like this and come out alive." In contrast, Jon felt the opposite. "I didn't have to tell myself anything."

Spending time alone was also an internal coping method. Gil stated that "I might have cornered myself off in the area to just go breathe." Isa's response echoed thus. "That

time alone, for me, was an opportunity for me to think about my life." Lyn tapped into this approach "keep to myself, stay in my room." Bev had a different tactic to coping internally. She used visualization as a coping technique. "Imagining ourselves in other situations and how we overcome them."

Only a few participants used some form of religious coping. However, prayer was a top spiritual coping method. Cam acknowledged using "a lot of prayer." Ely's response was similar "I prayed a lot." Also, Isa, "what kept me sane, through that, is prayer." Lyn admitted what she did was "pray," and Jon stated, "Maybe prayer." Only Isa acknowledged "reading my Bible more."

Participants found ways to cope by tapping into emotional and physical methods. Bev stated that "my coping mechanism was work, something to do from having to think of what happened." Cam also found work to be a de-stressor. "Going to work and seeing people and being around people was helpful to me." Ely also replied, "I was just in work mode." Kim found that staying busy was helpful. "Throwing away the things that were already damaged, it felt it made me feel better, getting rid of all that stuff." Jon combined coping skills, "I used to do a little bit of fishing, or I'd go on the beach, or go on the rocks, and sit down and watch the rocks, and relax." Less helpful techniques brought some release to a couple of participants. Des said she tended to "Eat." Ely admitted that "after the storm, I tried coping, but I cried a lot." Two participants tried to exit the situation temporarily. Ely said, "I started thinking about a travel assignment." Fey tapped into an opportunity to leave the island. "After Maria, to get off the island for a couple of days."

Having a constant created some stability despite the changes that occurred in the survivors' lives. According to Ace, her dogs were a constant during that time. "Stayed constant and allow me to feel, more safe and secured." Cam had the same experience "After the storms, they just have been a constant source of comfort." Another constant for her was going to work, "that was the one constant."

Of the 11 participants, only four engaged in formal therapy. Cam admitted that "I also started therapy." Jon also stated that "I started to do counseling right after the storm." A couple of participants were already in therapy for varied reasons. Gil did not initially attend counseling to process the storm experience, but it ventured into that direction. "It started really on a marriage basis. Then it led to a more personal counseling session intertwined with the marriage counseling, to talk about some of the stresses and depressions that I might have been going through at the time." "It definitely help me manage my depression and stress a lot more." Isa also was dealing with personal matters before the storm. "I already had a therapist from before."

Participants also shared what coping skills they used before experiencing the storms. Ace said that "There was a time when I played the piano a lot. It was also a form of comfort for me." Jon relied on religious coping or venting "Maybe prayer or talk it out with a friend, that's about it." Kim also found comfort in venting, "I'd be talking to somebody I love like my mom." Bev used a couple skills as she did during the storm. "Conversations with people or coming home to pets."

Pet Benefits

There were several benefits that participants noticed as they interacted with their pets or animals. Some realized the advantage of protection, relational connection, warding off other animals, normalcy, distraction, and emotional benefits. Further, several participants described varying timeframes in which they recognized that interacting with animals provided these benefits. Ace stated that "they made me feel safe." Cam felt secured with her dogs' presence. "I know that I don't really have anything to worry about because anything goes on; they will let me know in some way, shape, or form." Des felt that way as well "The dog offered protection of people coming onto the property." Fey considered a sense of protection from her cat "She was very protective." Isa felt secure in the evenings, specifically when power was not yet restored. " Especially in the nighttime with protection." Lyn confidently explained that her dogs offered security. "They're good protectors."

Several participants felt companionship, affection, and a sense of connection. Ace stated that "they provided the regular attention and affection." Bev affectionately said, "They were like good companions," Jon's response was in agreement "They were good companions." Jon found comfort in having his dogs with him when he was alone. "After the storms, my parents left. I was the only one at the house. It was me and the dogs. They were there with me through everything." Lyn felt the same about her dogs "Dogs are good companions. They're good to be around." Cam's response was similar in that her dog provided that relationship that she didn't have "he's the friend or brother I never had." Des too enjoyed the company of her pets. "They would sit in front of the door or

just stick close by me." Ely shared the affection she receives from her puppy "she loves you the same way, just like your kids love you."

Another benefit noticed was that pets warded off other animals. Fey explained that "I feel like she kept away a lot of the neighborhood animal." Gil concurred, " one of the biggest benefits was that they were catching little mice," Jon enjoyed his dogs keeping other dogs at bay when he exercised. "Everybody dog wants to rush you, but it won't bother you when you have your dog." Participants also noticed that having their pets around created some sense of normalcy. Ace stated that " some sense of something normal going on my life." Relative to her cat, Fey concurred, stating, " taking care of her that just ease me into my new normal."

Distraction was also a welcomed benefit. Participants recalled their pets as a good distraction. Ace called it "a healthy distraction." Bev also liked being around her pets to distract her mind, "they kept my mind off of it." Des stated that "It does help in terms of, I guess, being occupied, so you're not thinking about the present situation. "Fey also realized that her cat was a good distraction. "It gave me something else to focus on." Gil agreed as well. "They helped in that way of keeping our minds away from those different things." Isa, too, understood the benefit. "I would say it's therapy, happy to see them carefree and makes you want to forget about everything going on around." Lyn admitted that taking care of her dog provided a distraction, "my attention was drawn into making sure he felt safe. That took my mind off of what was really going on in the storm."

During the participants' storm and aftermath experience, they noticed some emotional benefits that the pets offered. Ace stated that "they brought the comfort needed

for me that allowed me to breathe in." Fey found comfort as well "So, it's kind of a comfort to have her and continue to see her being around." and so did Gil "as far as comfort, she was there, too." Other participants realized a comfort they achieved with their pets. Bev stated that "once you have a companion, it's like your stress levels reduce." So did Cam. "They calm me down. Definitely." Jon agreed. "He calmed me down." Kim recognized that her pets helped her calm down. "That could be something that helped me relax after the storm. It's just seeing them be happy." Jon observed exercising with his dogs as a good emotional benefit. "I started doing a lot more exercising and walking, so I would use them to go walk with. They helped me." Lyn had similar sentiments, "They keep you calm; they keep you fit." Also, watching their pets play offered some emotional relief. According to Ace, "With that, you can't help but feel some sense of excitement seeing them all, jumpy and happy." Kim, too experienced this, "them play with each other, felt like relief too."

These benefits were perceived differently among participants. A few noticed the benefits immediately. Kim observed, "Within a couple of days." Ely said, "right after the storm." Gil stated, "Right away because the one thing, the mice, they were around, they were bringing the mice right to the door." However, he was more specific "I would say probably weeks." Lyn also had a similar response "I'd say weeks." The storms occurred in September 2017, and Ace indicated that she recognized the benefits 3 months later. "I'd say maybe December." Jon's recognition of benefits was not immediate. "I probably maybe a couple of months after the storm or something like that." Bev refused to put a timeframe and rather stated, "To me, pets always been a form of stress relief." "I

wouldn't just categorize it just for the storm." Cam similarly did not limit the noticed benefits to the storm, "I don't know if I noticed it because they always had that personality." According to Isa, "I just knew they will always be there."

On the contrary, a few participants did not recognize any benefits. Des said, "I don't really notice any benefits." However, she added that she noticed that her dog offered protection. "Maybe it could have been immediate in terms of, especially with the fencing being down." Fey struggled with the recognition as well "I haven't really thought about her contribution to my recovery or feelings."

Relief

A few participants mentioned the moment they experienced some type of relief post storm, such as reconnecting with family or others. According to Bev, "It was a feeling of relief. To know that they were okay." It was an emotional experience for Ely when she got home and saw her kids and puppy for the first time after the storm. "I was crying and so that was a sense of home and seeing them again." Lyn also agreed. "I was so happy, I was glad, worrying had stopped." After Gil ventured post storm to look for his mother-in-law, he explained, "So the meet up with mother-in-law was a happy one because we was happy to see her face." He was also relieved when he saw his coworkers, "I was glad to see a lot of the people that I work with, to not be hurt or to have any issues."

Distress was also significantly reduced in some form for a few participants. Bev was relieved when the storm passed. "Honestly, I was just thankful that it was over," and so was Fey. "I was more so just happy that it was over." Gil shared the same sentiments,

“directly after the storm, I felt very, I was relieved that it was over.” Similarly, there were elated feelings of amenities being restored. Des stated, “That was really when my stress level just like, I’ll be fine now because I have water. What I could do without electricity, but I can’t do without water.” Jon was happy to have electricity back, “We got power by a little before Thanksgiving.”

Theme 4: Participants' Exposure to Animals and Their Interactions During and After the Storms Provided Benefits.

The last theme is how participants' exposure to animals and their interactions during and after the storms provided benefits (Table 7). The four categories are pet consciousness, personality, pet interactions, and pet experience. It explains how well they are aware of their pets, their personality and how it influences pet interaction, and how much experience they have with animals.

Table 7*Theme 4*

Categories	Theme	Participant	Excerpts
Pet Consciousness	Participants' exposure to animals and their interactions during and after the storms provided benefits.	Ely	"I think she felt the change because she knew we wasn't in our space where."
		Fey	"I think she was very upset with me."
		Fey	"It made me really reach out to her to try and mend that relationship."
Isa		"I knew that they have instincts. They're animals. And they know when things are happening."	
Gil		"The first time the cat came around. I felt bad, for the cat."	
Ace		"I'm friendly."	
Bev		"Easy going. Relaxed. Just nonchalant."	
Cam		"Either I get calm, or I'm a clown."	
Des		"I'm pretty calm."	
Ely		"I'm very bubbly."	
Personality	Fey	"I consider myself to be pretty easy going for the most part."	
	Gil	"I'm calm and I would say low key."	
	Isa	"I would say calm."	
	Jon	"I'm easygoing."	
	Kim	"Fun, energetic, easygoing."	
	Lyn	"Calm, mellow personality."	
	Pet Interactions	Cam	"Just playing running up and down."
		Des	"You throw it up in the air, they try to catch it."
		Fey	"So just petting her and making sure she was fed and holding her."
		Gil	"Stare off into the distance probably while I'm petting the cat,"
		Jon	"Obedience training."
		Kim	"Hold them and cuddle them."
		Lyn	"Take them out, bring them back in, walks, small lil walks."
		Ace	"I used to be in the doghouse a lot."
		Ely	"I try to really, really connect with her on a deeper level."
		Isa	"They spent a lot of time in the house."
	Ace	"Say different words of affirmation to them."	
Bev	"Just having conversations, random conversations with them."		
Animal Preference & Experience	Ace	"About 10 years."	
	Bev	"I always been a pet owner."	
	Cam	"All my life."	
	Des	"Many years."	
	Fey	"I never grew up with animals. "	
	Gil	"My only interaction with pets in the past was some of my childhood friends had pets."	
	Isa	"We always had animals."	
	Jon	"I always had some kind of pets."	
	Kim	"I work with dogs."	
	Lyn	"We always had a dog."	
	Ace	"Oh, I love my dogs so much!"	
	Cam	"Anything! Pretty much. Except an iguana. I think I'm in love."	
	Des	"I am not the animal lover in the house. If it was up to me, I would not have animals."	
	Ely	"I am very proud to be an animal owner because I love animal."	
	Fey	"In general, I don't consider myself to be an animal lover."	
	Gil	"I like dogs. More so than I like any kind of animal."	
	Isa	"I love animals. I love cats. I love dogs."	
Jon	"I love animals."		
Kim	"Love my dogs."		

*Pseudonyms were used to protect the identity of the participants.

Pet Consciousness

All the participants were pet conscious in some aspect. They shared their recollection of their pet's whereabouts during and after the storm and their emotional responses toward them. In addition, they spoke about being attuned to their pet(s) wellbeing and their perception of animal instincts during the storm.

A few participants recalled how they emotionally reacted to their pets. Fey left her cat unattended during the storm and stated that she had "A little bit of guilt. I would say. But yeah, certainly happiness, appreciation, thankful, being thankful." Gil recalled when he initially met his cat, "The first time the cat came around. I felt bad, for the cat." Jon also described his emotional reaction when he lost his dog, "I was sad. It was a sad part, that's about it, no more real emotions."

During and after the storm, participants exhibited some type of awareness about the whereabouts of their pets. Ace stated that during the storm, "We placed the dogs inside." A few other participants brought their pets indoors prior to the hurricane. Cam said, "we had to put two dogs out in the hallway in their crates." Des similarly, "my dog was inside with us. And our cat decided to ride it out in the storage room." Jon also stated, "Before the storm really got rough, I had to bring the dogs in." On the contrary, Isa's pet was outside "They went under the house and stayed there until the storm was done." Fey was the only participant that left her cat at home alone while she sought shelter at a family member's home. "If I had to guess, maybe she took shelter in there or in and around the items around our home." After the storm, Cam left her pets in the damaged home since she was displaced, "we physically couldn't take them anywhere."

Jon, on the other hand, struggled to locate one of his dogs, "I just know that I was looking for him, couldn't find him. Then when after the storm, cleaning the yard is when I found him in the bush."

Most participants indicated how well attuned they were to their pet's health and happiness. Ely stated that "I just tried my best to make her happy in the house because she is confined to that room." "I think she felt the change because she knew we wasn't in our space." Fey sensed her cat was unhappy since she was left alone during the storm, "I think she was very upset with me." Gil was attuned to the stray cat that "adopted" him after the storm. "She just needed attention and needed food and needed water. That was it." Isa was more accommodating to her pets' post storm, "And they ever feel uncomfortable, they could always come inside." Kim was attentive to her dog's wellbeing. "What comforts him the most is just curling up in a ball. Like up under me."

A few participants were aware of their animals' instincts relative to the storm. Ace recalled what she thought when her dogs were barking during the storm. "Sometimes, when birds chirp a certain time, it could be a sign of death. In the beginning, it was like, oh my god, why are they barking so much?" Isa was more direct in her intuition "I knew that they have instincts. They're animals. And they know when things are happening, things are coming in." Kim concurred. "I'm scared too, cuz I know dogs can sense like bad weather. So, I'm just like, what is coming our way?"

Participants also recalled essential aspects of having their pets. A couple of them recalled fond memories, while a few shared that their pets are no longer with them. For example, Bev said of her puppy, "He passed." Cam said that in the height of the storm,

her cat ran off in fear, "I lost the cat during the storm." One of Jon's dogs died in a subsequent storm, "I was looking for him, couldn't find him. Then when after the storm, cleaning the yard is when I found him in the bush." Isa also lost one of her cats "she was old; she probably died, maybe a year after." Fey's cat left home one day and never came. She feared the worst. She sadly stated that "Now that she's no longer there, I find myself very sad at the thought. I miss her very much." "I just have fond memories of her now." Ely still has her puppy but reminisced on her time with her. "We have a lot of good memories with her."

Personality

Participants described their temperament. They revealed how that might have influenced their pet interaction. They also shared their perception of their pet's personality and how they thought their pets interacted with each other. Most participants described their temperament as easy-going, friendly, or calm. Bev stated, "Easy going." Des also said, "I'm pretty calm." and " Gil's response was similar, "I'm calm, and I would say low key." So was Isa. "I would say calm." Jon similarly responded, "I'm easygoing." Lyn described herself as having a "calm mellow personality." A few participants described themselves as happy-go-lucky or outgoing. Ace said, "I'm friendly." Ely described herself as "I'm very bubbly." A few participants considered themselves to have mixed temperaments. Cam said, "Either I get calm, or I'm a clown," and so did Kim. "Fun, energetic, easygoing." Fey stated, "I consider myself to be pretty easy going for the most part," and "A bit of an extrovert."

Only some participants were observant regarding their temperament and the influence on pet interactions. Ace said that "my personality did play a part in the type of interaction that I had with my dogs." Gil said, "I think it has a big influence on dealing with cats in general. As far as being low key, not moving too quickly, or not being too loud. I think that has a lot to do with how they feel around you." Isa noticed her cat's reaction to her personality, "because I'm quiet and just calm and just working, she comes next to me on the floor and rolls up in a little ball and sleeps right there." Lyn had a similar experience, "And so you being calm, also helps them to be calm." On the contrary, Kim did not notice, "I don't think so. Because they're still the same today."

There were different descriptions of animal personalities presented. Most described their pets and fun and loving. Pertaining to her dogs, Cam said, "They're hilarious. They are cuckoo birds." Ely proudly explained, "the dog I have she matches my personality so well. She's a very friendly dog. She's very loving." Of his dogs, Jon said that "they're pretty, pretty fun." On the other hand, of Kim's two dogs, one was more affectionate than the other. "The pit bull, he's very loving dog." However, she contrasts her puppy as "The terrier he is standoffish, and he'll keep to himself, and he'll mind his business."

A couple of participants shared the interactions their pets had with each other. Bev had a puppy and several cats. "We had kittens, so the kittens grew up with him." "Only when they start or play. Puppies they does nibble hard. Cats just don't really have the patience." Des also stated that "my cat and my dog get along perfectly." "Sometimes

the dog would get a little rough but not to hurt her.” Kim added that her dogs paired well.

“They all got along.”

Pet Interactions

Pet interactions among the participants varied. Some spent more time with pets, and others grew closer to them. Some interacted in different ways, whether physically or verbally. Some participants also shared their perception of pet interaction. Bev stated that spending time with her pets was ongoing, "the dog was a 24 seven thing." Cam said that "Wherever I go, they want to go." Ely concurred, "Any place I could go, I can take her with me. I take her." The storm provided an opportunity for some participants to spend more time with their animals or build a stronger bond. Fey said of her cat, "I got closer to her after the storm." Isa said, "they spent a lot of time in the house" Kim grew closer to her dog as well. "That whole experience made me grow closer to that dog." Lyn also grew closer to her dog, "I think it brought him closer to us."

Walking an animal was another form of pet interaction. About her dogs, Ace admitted that "I was walking them a lot." Jon said that "They would walk with me." Physical play also was a common occurrence of pet interaction. Ace said that "I rub them all on their backs, rub them on their stomachs." Bev also stated that "I would just pick them up, pet them." Cam said, "I have to sit on the floor with them and just rub their bellies." Ely enjoyed her interactions, "we lift her up, we kiss her up, she loves belly rubs." Fey said, "so just petting her and making sure she was fed and holding her." Gil enjoyed personal time with his cats, "we would pet them, and they would just snuggle up on the couches." The most physical interaction that Isa had with her pets was "Petting."

Similarly, Kim stated, "hold them and cuddle them." Cam again said, "just playing running up and down." Ely interacted this way as well "So we play all the time," and so did Kim. "I was running after them; they run after me." Des interacted with her pets through play. "You throw it up in the air; they try to catch it." Jon too did something similar, "I'll probably play fetch, throw the ball and go get it." Jon incorporated a unique form of interaction. He said his dogs did "obedience training."

A few participants had conversations with their pets. Ace responded that she recited "different words of affirmation to them." Bev said that with her pets, she had "random conversations with them." Jon did as well. "I talked to him a little bit."

Pet interaction was perceived differently among the participants," Ely said. "It's her interacting with me that the joy, the joyfulness her being happy to see me make me feel happy." Gil also had pleasant contact. "it's just a nice interaction of something different." In contrast, Fey said of her cat, "She was just ignoring me. She would come, she would eat, wouldn't rub up against me like she usually does."

Animal Exposure

Participants had different levels of animal exposure. They shared their type of animal, perception, feelings, animal preference, and previous experience with animals. Most participants had only dogs. Ace said, "I have six Shih Tzu dogs." Ely also spoke of her puppy, "She's Shih Tzu." Jon had two dogs, "Buster is the German Shepherd, and Chaco was the Shih Tzu." Kim stated that her two dogs were "Terrier" and "Pitbull." Lyn had two dogs, "They're blue Pitbulls." A couple of participants had cats solely. Gil stated of his cats, "we had two." Fey said, "I inherited this cat." Other participants had a mixture

of cat and dog. Bev said, "I had multiple cats. They were strays." She also had a puppy, "It was a Shih Tzu mix with a Pomeranians." Cam stated, "five dogs and a cat." Isa had a mix as well. "We had one cat and two dogs at the time." Des also stated, "both the cat and the dog." There are mixed responses of animals that lived indoors versus outdoors. Ely responded that "She became a total indoor dog." Lyn also had indoor dogs. "They're inside, for the most part." A couple of participants indicated that their pets were outdoor animals. Fey said that "She's always been an outdoor cat." Jon similarly responded, "They're outside dogs."

About feelings, only a couple of participants overall said they loved animals. Isa stated, "I love animals. I love cats. I love dogs." So did Jon, "I love animals." A few participants specifically stated how much they loved their animal. Ace explained, "Oh, I love my dogs so much!" Kim shared these sentiments about her dogs, "Love my dogs." Lyn followed this trend, "I'm really into dogs. I like animals." Ely indicated that "I am very proud to be an animal owner because I love animals." Cam was more general in her love for animals, "Anything! Pretty much. Except an iguana. I think I'm in love." Gil similarly agreed, "I like dogs. More so than I like any kind of animal because I feel like they're loyal animals." On the contrary, a few participants were not animal lovers. Des stated, "I am, was no pet lover." Further, her stance was, "if my children didn't have these animals, I wouldn't have any." Fey similarly shared, "But in general, I don't consider myself to be an animal lover." Several participants stated that they had loved animals most of their lives. Bev's response was, "I always been an animal lover from

time I was small." Kim shared that as well, "I don't think I could live my life without an animal."

Several participants perceived animals differently. Ace stated that "they're more than just dogs," and Bev's response was in agreement, "I don't really consider them pets, like little additions to the family." "The puppy thought he was a person," Cam stated that "they consider themselves to be humans and part of the family." Ely also thought of her puppy "She is part of the family. She's my third daughter." In reference to the participants' perceptions of a specific animal, Ely negatively perceives cats. "Cats kind of moody to me, so I don't like cats." Gil stated that "they really have to probably sense that they are safe with you." Jon responded that "I think cats they have their own personality. And they're too sometime-ish." "Dogs aim to please the owner."

Animal preference also varied among the participants. Cam admitted that she preferred "Anything! Pretty much. Except an iguana." Des said, "But I always love birds, parakeets, and I always had parakeets." Ely also said, "I don't really like cats, but I like dogs. I love dogs." Isa declared that "I especially love cats." Lyn preferred, "I'm definitely a dog person." Gil never had any pets before his cats but said, "I technically really wanted a dog; I always dreamed of having a dog with a family."

Animal experience or pet ownership varied among participants. A few participants have been petowners for many years. Ace has been a pet owner for "About 10 years." Bev said that "I always been a pet owner." Cam echoed the same sentiments, "all my life." Similarly, Des was a long-time pet owner, "many years." Isa always had animals too, "we always had animals," and so did Jon. "I always had some kind of pets."

Lyn also shared, "We always had a dog." Kim explained that she had her oldest dog "for 6 years," but "I work with dogs."

In contrast, a couple of participants did not have much experience with animals. Fey admitted that "I never grew up with animals. I would always just watch other people with their animals; even if I thought they were cute, they always made me very nervous." She inherited her animal, "My sister and her family lived next door to me, and they actually rescued that cat when it was a kitten. When they moved out, they left her behind for me to take care of." Gil had a comparable experience, "I never had a pet in my life." "My only interaction with pets in the past was some of my childhood friends had pets, and when I would go over to their houses, the pets were there." His first interpersonal contact was right after the storms, "I would say 3 to 6 months, somewhere in that range."

Discrepant Cases

There were a few discrepant cases identified in the coding process. They were considered discrepant because they ran contrary to the theme. Discrepant cases are identified as people or situations that do not follow a pattern or theme (Ravitch & Carl, 2016). Evidence is provided of these cases that will challenge my findings.

Acknowledging these discrepant cases adds to the credibility of the study (Creswell, 2013). The discrepancy becomes more realistic and more valid. These inconsistencies will imply if the results confirm past information or diverge from it (Creswell, 2013).

Some responses were unique and did not follow the pattern of the other replies. Pertaining to hurricane experience, only one participant stocked up on supplies early in the hurricane season. This was about 3 months before the storms hit in September 2017.

Des echoed the same sentiments "I was quite prepared for that storm because I started, every June, I would shop for the hurricane season, and I would store those things, all my hurricane things." While participants shared their thoughts about enlightenment or discovery and how much they learned about themselves, resiliency, becoming stronger. Des had a different perspective. She shared how mosquitos and flies were a nuisance and heard that incense was helpful. She stated, "learning that I have all this incense around my house," "I burned, and it worked." While other participants secured their pets or knew where their pets were during the storm, Fey left her home to shelter with family members. She left her cat behind and was not sure exactly where she rode out the hurricane. "If I had to guess, maybe she took shelter in there or in and around the items around our home." In addition, Cam's home was destroyed, and she had nowhere to leave her dogs post storm, so she left them at the damaged house while she looked for somewhere to live. "We couldn't take; we physically couldn't take them anywhere." Gil was the only participant that did not have a pet during the storm. He became a pet owner shortly after the storm when the first of two cats adopted him. "I never had a pet in my life." "I just ended up feeding it, and so that's pretty much how that went with meeting the cat and dealing with my first experience with her." While other participants found comfort in venting to family or others, Bev felt she did not need to vent. Instead, she was the one that provided comfort to others. "I didn't feel I had anything to vent about. It was more the listening side." Jon was the only participant that trained his dogs' post storm. He said that he took his dogs for "obedience training." Most participants described pleasant interactions with their pets. However, Fey experienced a different response from her cat

after leaving behind alone to weather the storm. "She was just ignoring me. She would come, she would eat, wouldn't rub up against me like she usually does."

Summary

Based on the research question provided, there were several responses to the lived experience of hurricane survivors and the interaction with pets or companion animals. Animal ownership ranged from a few years to lifelong experiences. Four themes emerged from the data depicting the experience survivors lived through, the distress during and after the storms, coping strategies employed to minimize distress, and the extent of their animal exposure. Participants reported any prior hurricane experience. Several participants lived through hurricanes at some point in their lives, while others had never experienced one. Storm readiness was discussed and ranged from being entirely unprepared to having hurricane items stored months before the storm. During the storm, there were similar emotional responses. It included anxiety, stress, fear, and worry. There was a fear of the home being collapsed. There was curiosity about what life would look like post storm based on what the participants saw and heard during the storm. There was a recollection of parts of homes being carried off by the wind, objects flying around and banging into stuff outside, flooding, and damages occurring while the participants waited for the storm to subside. There is a couple of injuries when glass windows buckled under the pressure of the wind. Some felt that Hurricane Irma hovered over the island for quite some time. A couple of participants witnessed tornadoes, with one directly impacted. The storm was described as unforgettable, fearful, terrifying, and panic. Post storm devastation was shocking yet depressing for some participants. Homes, cars, and boats

were destroyed, and the trees were stripped bare. A few participants described the scene as that of a movie because of how unreal the devastation was. At the thought of a second approaching Category 5 storm, some participants were dumbfounded and afraid.

During the storm, a few participants had to be proactive to keep themselves, their loved ones, and animals safe. There were several self-less acts of bravery. Some participants admitted that sleep was not possible, considering the experience they were enduring. Several participants were surrounded by family while one participant worked. Pets were comforted throughout the storm as their owners were perceptive to their behavior change. A few participants lost their homes, and a few were displaced. Several participants reflected on their storm experience and shared discovery and gratitude. Some stated that they realized how resilient they were and understanding their abilities more. Gratitude was expressed relative to having life, family, their home, a chance to rebuild their home. Yet, there was some regret about circumstances that happened before, during, and after the storm.

Participants experienced distress in several ways. Caretaking was a common factor, whether it was taking care of family or the animals. The animals' wellbeing was another concern. Some pets were affected by the storm, and maintaining their composure was a task for participants. Some of those animals had lingering effects during the aftermath. Vet services were scarce, and obtaining assistance was challenging. Finding food post storm became stressful for participants that either ran out or did not stock up on supplies pre-storm. However, organizations and individuals were distributing food for animals, so this eased the concern a bit. Participants complained about standing in long

lines for daily supplies. This included food, gas, and ice. There were mixed feelings of participants returning to work. It was a form of release for a couple of participants yet a burden to a few. Stress levels were assessed, and most participants described high levels of distress. They compared their former stressors to the storms. For some, the storm was a major source of stress, while for others, death or an unexpected life event was worst. The aftermath was especially challenging. Participants had to get used to limited amenities such as no electricity, running water, entertainment, and phone service. This was a significant struggle as participants tried to get used to their new temporary normal. Worry was prevalent during and immediately after the storms when there was a lack of communication. However, this was curtailed once individuals were able to connect with their families and loved ones. Displacement was experienced by a few respondents, either in living arrangements or their workspace. What was also frustrating was limited time to do anything because of curfew or long lines. Cleanup was common, either on the community level or the individual level. Participants appeared proactive and diligent in unblocking roadways to make travel easier.

Distressed was reduced in several ways as per the participants' experiences. Some were fortunate to have family support, social support, or social aid. Other coping methods included religious forms, distraction methods, positive self-talk or coping internally, emotional and physical coping strategies. Interestingly, a few participants acknowledged that they received therapy; a couple of those resulted from the storm. The others already had therapists they were working with before the storm. Relief was experienced in other

ways: the conclusion of the storm, when electricity and/or water were restored, and reconnecting with family.

All the participants reported some type of interaction with their pets. Participants were keen on their pets' whereabouts during/after the storms, their pets' wellbeing, health, and happiness. A few spoke of how they were aware that animals have instincts and sensed that the animals knew the storm was approaching. Some participants lost their pets after the storm, and one participant lost one of her pets at the height of the hurricane. Yet, they shared memories of their pet and displayed a sense of fondness.

Participants' personalities were either easy-going, happy-go-lucky, or a mixture of both. They spoke of their pets' personalities and what influences their temperament may have had on their pets. Considering that most people were home with their pets while the island slowly restored, they reported spending more time with their pets. This helped them to grow a closer bond.

Participants explained their animal preferences, with the majority choosing cats or dogs. All participants interacted with pets but in different forms. It ranged from having conversations with them, playing, belly rubs, petting, cuddling, or walking them. Of all 11 participants, only a couple were not truly aware of their pets' benefits. Pets offered protection, companionship, love, affection, normalcy, and distraction. For the participants that noticed benefits, the period ranged from right away to months later.

Love of animals, reasons why the interest was there, and animal preferences were major factors in how the participants interacted with the pets or animals. Some participants perceived their pets similarly, such as a friend, brother, family member, or

another child. Overall, pet ownership ranged from a few years to an entire lifetime. A couple of participants has never experienced a storm.

Discrepant cases were identified. This was realized while reviewing and coding the data. The discrepancy pertained to hurricane experience, social support, pet ownership, and pets' whereabouts during the storm.

In Chapter 4, I described the findings from this study. Eleven participants shared their experience of Hurricanes Irma and Maria and their experience of animal interaction at the time of those 2017 storms. The interviews were conducted by telephone or Zoom videoconferencing. There was one research question and 11 interview questions. The data were analyzed, and four themes emerged. An interpretation of the findings will be presented in Chapter 5.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to explore the lived experience of hurricane survivors' attitudes toward their companion animals or other animals they interacted with during the event of a natural disaster. To accomplish this, I used a hermeneutic phenomenological qualitative approach. The intent was to personally interview Virgin Islanders on their experience following hurricanes Irma and Maria, which impacted the Virgin Islands between September 6 to 21, 2017. The study probed the survivors' perception of their interaction with animals during their experience of hurricanes.

Though research existed on the benefits of animal-assisted interventions, research was lacking on the lived experience of hurricane survivors and their attitudes toward their pets and other animals as they process their traumatic experiences. Even though the human-animal relationship has a history of reducing distress and improving mental health, there was not enough supporting evidence.

Participants responded to their lived experiences of the hurricane and their interaction with pets or animals after the storm. The themes that emerged were (a) hurricane survivors had an emotional and surreal storm experience, (b) survivors experienced distress during and after the storms, (c) participants used a variety of ways to cope with their distress, and (d) participants' exposure to animals and their interactions during and after the storms provided benefits.

The findings indicated that some participants were prepared for the storms while the majority were not. A few participants have lived through prior hurricanes and had

some idea of what to expect. Three of the 11 participants had never experienced a storm, so it was a new experience. The storm perception was similar as respondents spoke of the devastation they saw in progress and what they heard during the storm. Participants reflected on their behavior during the storm, with many operating in survival mode to remain safe. The respondents shared the experience of trying to keep the pets safe and calm throughout this ordeal. Sleep was an issue, as fright kept the participants vigilant. There were thoughts of worry and fear as the storm hovered over the islands. It was agreed that the storm persisted for an extended period. Once the storm subsided, the surrounding areas were surveyed. The devastation was equated by a few participants as a monster that tore up the island. Some participants were concerned and displayed emotional reactions when they heard of the second approaching Category 5 hurricane. There were several losses. A couple of participants lost their pets due to the storms; most homes were damaged and flooded, and a couple of homes were destroyed. A couple of respondents got injured by broken glass in their pursuit to remain safe or relocate to a safer area during the storm. The hurricane experience was described as “fearful,” “terrifying,” “panic,” and “unforgettable.” Several participants implemented changes due to the storm. There were instances of recommitment to personal situations and lifestyle changes. Most participants recognized that they were resilient, stronger than they thought, and developed awareness of themselves.

Distress was another finding that was common among participants. They worried about their pets' wellbeing, supplies, services, and the storm's effect on their animal. Respondents also were concerned about keeping themselves and their families safe.

There was frustration and annoyance as participants tried to adjust to life in the aftermath. The level of distress was high and considered one of the worst stressors encountered. Cleanup efforts occurred at home, in neighborhoods, and island-wide. There was instability as participants had to seek daily supplies, live without power and amenities, stand in long lines, and manage with limited communication. Displacement was experienced by a few participants relative to finding a place to live and returning to a damaged worksite, and having to work outside their familiar spaces. Returning to work was experienced differently. A couple of participants appreciated it as a distraction, and others perceived it as an annoyance.

Participants used general coping skills to get through this ordeal. Some distracted themselves, coped internally, spoke positively to themselves, used religious coping, left the island, exercised, and a few tapped into therapy. Participants found comfort in connecting with family, talking to friends, and receiving social aid. Pets also served as a source of relief for participants. They recognized that their pets reduced stress, provided affection and normalcy. Their pets also served as a distraction, protection, and companion.

Animal experience varied among the participants. A few participants were lifelong pet owners. Some had pets for many years, and one participant became a pet owner right after the storms. There were preferences in animal types and positive feelings expressed for their pets. Some of the participants perceived their animals more as family members or human beings.

Pet interactions also varied. There was physical play, walking, time spent together, and some verbal exchanges as well. Participants described their personalities which were either easygoing or happy-go-lucky. Their temperament positively influenced the interactions pet owners had with their animals. They also described their pets' personalities, which seemed aligned with theirs. A few participants reflected on their time with pets and expressed fond memories. Five participants no longer have a pet that they had during the time of the hurricane.

Interpretation of the Findings

Theme 1: Hurricane Survivors Had an Emotional and Surreal Storm Experience.

All participants reported that they were physically exposed to Hurricanes Irma and Maria in September 2017 and experienced psychological distress. This finding strengthens the findings of King et al.'s (2016) study, which revealed that persons who are exposed to trauma are more likely to develop PTSD. King et al. reported that fewer than 10% of the participants in their study met the symptom criteria for disaster-related PTSD, and one-fourth met the criteria for MDD.

In addition, the findings were similar to Tracy et al. (2011), which highlighted that hurricane experiences had a direct relationship with PTSD symptoms. Lifetime stressors, storm exposure, and hurricane-related stressors were all linked to depression. Both PTSD and depression were correlated to the loss or damage of treasured objects. The participants in my research experienced loss and damage of sentimental items.

Participants in this study also described varying emotions during the storm, such as feeling scared, terrified, upset, or worried. These emotions were not surprising to hear,

considering that these survivors went through both Hurricanes Irma and Maria, which were Category 5 storms. The participants' reactions confirm Matthews' (2006) study findings, which emphasized that hurricane survivors were likely to develop emotional distress before, during, or after a storm. Matthews reported that flood victims expressed helplessness, overwhelm, and confusion. Emotional discomfort was more common among self-employed people than among government or private-sector employees.

Most participants either experienced some type of damage to their homes or had their homes destroyed. A few participants relocated their families during the storm as their homes were experiencing damage. A couple of participants were injured from debris during the storm. These factors were traumatic for the participants and confirmed King et al.'s (2016) study. King et al. presented that being physically exposed to disaster, witnessing injury, evacuating, or having their home destroyed contributes to an individual developing PTSD. Being displaced makes a person more prone to MDD (King et al., 2016). Four participants were displaced after the storms, with two participants permanently displaced because their homes were not livable. This finding confirms Paul et al.'s (2014) research. Sustained losses and hurricane exposure were a couple of variables associated with PTSD and depression.

Based on my research findings, it is not surprising that experiencing a disaster, suffering injuries, having damaged homes, or destroyed homes contributed to PTSD and depressive symptoms. In comparison with the literature reviewed in Chapter 2, the findings of this study suggest that experiencing a hurricane makes a person more likely to develop PTSD and MDD. These hurricane survivors were directly exposed to the storms

(King et al., 2016; Tracy et al., 2011), experienced emotional distress (Matthews 2006), and increased their chances of developing PTSD and MDD. Some participants suffered a loss (Tracy et al., 2011). A few were displaced due to damaged or unlivable homes (King et al., 2016), which raised the likelihood of having MDD symptoms. The findings of this study also extend knowledge on the subjective survivors' experience who lived through the storm, including their thoughts and emotional responses.

Theme 2: Survivors Experienced Distress During and After the Storms.

During and after the hurricanes, participants found themselves experiencing stress based on their situation. Some participants reported the lack of communication, taking care of family members, being the primary caretaker of their pets, finding food for their pets post storm, and adjusting to life with limited resources. These factors lead to mental health issues and confirm Matthews' (2006) study. The findings specified that some flood survivors described feeling overwhelmed, powerless, and perplexed because of the flood, which caused considerable psychological stress. They suffered from psychological suffering, and some of them had been traumatized.

Several participants also expressed that their pets experienced stress during the hurricanes. This aligns with Dale et al.'s (2010) study, which mentioned that owners were aware of their pets' responses to situations. Dale et al.'s study reported that owners noticed that their animals displayed a fear of fireworks. Dog owners identified a significantly higher fear response than cat owners. However, the duration of fear responses was the same. This information can add to existing studies by furthering research to explore the extent of the storm's effect on animals.

Theme 3: Participants Used a Variety of Ways to Cope With Their Distress.

Storm-related stressors are likely to impact a person's ability to cope with stressful disasters (Cherry et al., 2017). Cherry et al. found that such stressors and lifetime traumatic experiences predicted how a person might cope. Avoidant emotional coping was associated with increased symptoms of depression and PTSD. It implies that traumatic experiences in the past and present may impede healthy coping.

As suggested in Thompson et al.'s (2018) study, people likely use coping strategies to serve as a mediator after a traumatic event. The findings of Thompson et al.'s research suggest that resilience at 1-monthpost storm had a positive relationship with most active coping skills. However, resilience was negatively associated with most of the avoidant coping strategies.

The findings of my study match with Cherry et al.'s (2017) and Thompson et al.'s (2018) research. In my research, there were similar and varied forms of coping strategies that were used among the participants. Some used positive self-talk or humor. This is considered active emotional coping, where the individual cognitively reframes their situation or uses humor to cope (Cherry et al., 2017). Distraction was also used, which included listening to music, playing board games, traveling, exercising, talking to other people, or interacting with pets. Cherry et al. (2017) considered this avoidant emotional coping where individuals tend to be in denial and use self-distraction.

In Stratta et al. (2015), problem-focused coping pertained to the individual finding solutions to help them overcome their situation. The findings of my study confirm what Stratta et al. (2015) found in their research. These researchers found that resilience acts as

a barrier against the development of stress symptoms. When problem-focused coping is used, resilience allows it to buffer the individual's stressor or even direct the situation toward a more successful end. A few participants used therapy to help them process their situation and minimize their distress healthily. When problem-focused coping was used, it allowed the participants to be more resilient or work towards a successful conclusion. In addition, mental health services after a disaster improved a person's wellbeing, according to Dass-Brailsford and Hage Thomley's (2015) study. Their research found that six months after the disaster, depression, anxiety, and trauma symptoms were reduced significantly for participants who used the walk-in counseling service. The findings in my study confirm Dass-Brailsford and Hage Thomley's findings. In my research, a few participants reported that therapy was helpful in their recovery.

Several participants used social support. About eight participants admitted to relying on friends or their support system to minimize their stressful feelings. Most of them also relied on the family as their source of support. Social support was considered an active coping strategy (Thompson et al., 2018). My findings support Thompson et al.'s (2018) study, in which active coping strategies were positively related to resilience, which was predictive of social support.

In my research, participants benefited from having social support, which may have enhanced their ability to feel resilient. Social aid is considered a resource on the community level. This supports Lowe et al.'s (2015) research. They observed that collective efficacy at the community level is a valuable resource for improving post-disaster mental health and general wellness. It works together to shape post

disasterresilience. Some participants received pet food from donations such as the Humane Society and personal effects from the American Red Cross.

The findings in this study revealed a range of coping skills that I did not expect to uncover. The results of my study showed that some participants might have found stress relief as they comforted their animals. Therefore, this finding can extend knowledge to the body of literature that exists and can be explored in future studies. It could investigate the participants' experience in comforting their animals and to what extent they found relief.

Theme 4: Participants' Exposure to Animals and Their Interactions During and After the Storms Provided Benefits.

According to Fine (2015), individuals who experienced trauma have used animal-assisted interventions as a coping mechanism and emotional support. Some participants in my study noticed that their pets showed companionship, affection, and reduced loneliness. There were a few instances where participants sat quietly with their pets and engaged with them through touch, allowing them to destress. Though these pets were not official therapy pets, they did seem to offer stress reduction after these participants' ordeal. The results of Lass-Hennemann et al.'s (2018) study indicated that therapy dogs were able to reduce stress and anxiety symptoms following a traumatic situation.

Compared to Lass-Hennemann et al. (2018), the participants in my study reported that they experienced some relief after interacting with their animals. This also supports similar findings of Yarborough et al.'s (2018) research. Service dogs, according to veterans, lowered hypervigilance and nightmares and increased sleep quality and length.

Service dogs also helped the veterans redirect their attention away from intrusive trauma-related thoughts, improve emotional relationships with others, become more involved in their communities, and get more exercise.

Peacock et al.'s (2012) study found that the attachment relationship to a companion animal was predictive of psychological distress, such as depression and anxiety. Attachment to a companion animal was discovered to be a more significant predictor of psychological distress than gender, marital status, age, and the number of people in the home. The findings of my study support Peacock et al.'s (2012) results. One participant in my study felt depressed because her pet was having intermittent health issues after the storm. "I couldn't take it. I was so emotional. I couldn't eat." (Ely). Another participant felt guilty because she left her pet unattended during the storm. "Guilt because I was not with her during the storm, during Irma, and we left her at home." (Fey).

Though research exists on an individual's personality and pet type, the findings from my study offer a different perspective. The outcome of Gosling et al.'s (2010) research stated that dog people were more likely to be extroverted than cat people. In contrast to Gosling et al., my study revealed diversity among dog people. About five participants considered themselves as dog people. Two were extroverted, two were easygoing, and one respondent considered herself a mixture of both. My research findings add an alternative perspective to the literature and extend knowledge on personality differences between cat and dog people. Therefore, this finding could be explored further to assess the nature of an individual's personality and animal type.

Transactional Theory of Stress and Coping

The finding of this study aligned with the transactional theory of stress and coping. As mentioned in Chapter 2, this framework appraised the process of dealing with stressful events (Lazarus & Folkman, 1984). This theory embodied this study and displayed how most participants appraised their stress and used coping skills to minimize it. Participants appraised their stressors, namely the hurricanes, and tapped into coping strategies to reduce their discomfort. Such techniques included distraction (e.g., music, reading, conversation), positive-self talk or coping internally (e.g., time alone, visualization), religious coping (e.g., prayer, Bible), coping emotionally (e.g., eating, throwing away items, working), and interacting with their pets or animals (e.g., cuddling, playing, walking).

Relative to pet interactions, there were some benefits noticed. The following are excerpts from several participants. "They made me feel comforted after those times I felt so stressed out." (Ace) "To me pets always been a form of stress relief." (Bev) "They calm me down. Definitely." (Cam) "He calmed me down." (Jon) "It helped me, that nurturing thing, in keeping them calm helped me to keep positive instead of I worrying about myself and what's going on." (Lyn) "Seeing them play with each other, felt like relief too. That could be something that helped me relax after the storm." (Kim) "I would say it's therapy, happy to see them carefree and makes you want to forget about everything going on around you." (Isa) "It took my mind off of certain things I would come home and pet the cat." (Gil)

Pets and animals offered stress relief to those participants who were trying to cope with their traumatic event. This aligns with Lazarus and Folkman's (1984) transactional model of stress and coping theory. People use strategies to help them manage their emotions or eliminate the stressor. In this case, it would be pets. Humans seek out social support from animals as a means of coping with difficult situations (Fine, 2015). In most instances, interacting with the animal was a distraction from dealing with the hurricane (Crossman, 2016; Jau & Hodgson, 2018; Maharaj, Kazanjian, & Haney, 2016). The transactional theory of stress and coping supported these hurricane survivors' lived experience and their effort to cope after the storms.

Interestingly, the findings of my study presented that those participants also coped by comforting their pets. This gave them meaning and a purpose. Taking care of their pets helped them to deal with their distress. While the literature review does not offer any studies that support this, this specific finding can add to research on coping with pets.

Constructivism

An individual's perception of events portrays how they think, feel, and behave. Chapter 2 presented the concept of constructivism. It is a relativist perspective that asserted that people could interpret events in unlimited ways (Burkholder et al., 2016). It emphasized that the ways people interpret a situation are limitless. How they view an event portrays how they think, feel, and behave (Burkholder et al., 2016). That notion was reflected in this study. As participants depicted their hurricane experience and interacting with animals, it provided how they thought, felt, and behaved. Their perception and interpretation were presented in different ways. Yet, the participants'

thoughts and emotions relative to the storm were similar. There were expressions of fright, fear, and concern. Their responses displayed a shared meaning of what it was like to live through a Category 5 hurricane, survive the aftermath, the restoration process, managing limited conveniences, coping, and how they perceived pet benefits. There was no single truth, as each participant's experience was valid (see Burkholder et al., 2016).

Phenomenology

Phenomenology relies on an individual's perspective to gain insight into the significance of a phenomenon (Ravitch & Carl, 2016), presuming that knowledge comes directly from the person who experiences it. Also, it creates the chance to understand why an individual reacted the way they did to the situation. According to Heidegger (1927/2011, p. 58), phenomenology lets that which shows itself be seen from itself in the same way it shows itself from itself. He describes a “phenomenon” as showing-itself-in-itself signifying a distinctive way in which something can be encountered. Therefore, the “phenomena” is the totality of what lies in the light of day or can be brought to the light. He also described "hermeneutic" as an interpretation of *Dasein's* Being.

For my study, I used the hermeneutic phenomenological approach, based on Heidegger’s philosophy. This approach was appropriate as I also experienced Hurricanes Irma and Maria. Heidegger created hermeneutic phenomenology as he believed that we are always in the world and there is no way to bracket experiences, contrary to Husserl (Peoples, 2021). In this qualitative study, it is impossible to separate myself from being in the world. *Dasein* is “being there,” one of the tenets of Heidegger’s philosophy. The self is referred to as *Dasein*. Another principle is fore-sight or fore-conception, which is the

preconceived knowledge about a phenomenon. The experience with Hurricanes Irma and Maria was familiar to me.

Researcher's Process Within a Hermeneutic Theoretical Framework

Before collecting data, I expected that participants were prepared for the storm, secured their pets, had an emotional reaction, had an idea of what to expect during the storm, and anticipated damages and loss because both hurricanes were Category 5. I also anticipated that the participants had stressors, a survival strategy in place, had prior experience living in the aftermath and obtained some type of aid due to limited supplies. I also expected that some participants would find comfort in having their pets, observed their pet interaction and stress reduction, yet experience some type of stressor in taking care of their pets.

What I learned during the interviews was that some participants did not prepare for the storm, and one pet owner left her pet outdoors to fend for itself. At the same time, she retreated to another home for safety reasons. Pets were also emotionally and behaviorally disturbed. It was the first hurricane experience for some participants, and most participants were surprised at the devastation the storms caused. I also learned that not all participants relied on social aid. Not all participants were conscious of the benefits while interacting with their animals.

I used Heidegger's hermeneutic circle as I gathered new data. Each time it revised my understanding of their experience (Peoples, 2021). I read and reread each transcript to make meaning of what the participants were communicating. This occurred through the

entire data analysis, a circular process, including the emergent codes, categories, and themes. Eventually, I gained a better understanding of the phenomena.

Participants' Experiences Within a Hermeneutic Theoretical Framework

Relative to the participants' experience of "being-in-the-world" (People's, 2021), with others, they found themselves in a prolonged adjusted living situation with limited conveniences. Some returned to work despite the devastation, further causing frustration or, for some, relieving stress. Other participants tried to make out the best way they could. As it pertains to fore-conception, for the participants with hurricane experience, they knew what to expect and how to adjust even if it was uncomfortable. Of the participants who lacked experience, a couple struggled and were anxious for some normalcy, including the accustomed amenities. Several coping skills were used to help reduce stress as they tried to adjust to their temporary living situation. As the participants' shared their stories, most reflected on what they learned from their hurricane experience and what they will do differently for subsequent storms.

Revising Conceptual Assumptions

There were several assumptions that I had about this study. My first assumption was that participants shared their honest experiences, reducing favorable responses, and minimizing bias. Based on the participants' responses, it seemingly was a realistic depiction of what they experienced during Hurricanes Irma and Maria and the aftermath. Most participants were interviewed at least twice, and the information received was consistent, but with added details in subsequent interviews. My second assumption was that participants were aware of the therapeutic benefits of their interaction with animals.

This was validated as most participants acknowledged their awareness of the benefits they recognized. My third assumption was that participants could identify at least one therapeutic benefit they received from their animal. Most of the participants described some type of stress relief from their animal interaction. My final assumption was that respondents were attentive to their companion animals during or after the trauma. Most of the participants displayed concern about their pets' wellbeing during and after the hurricanes.

Limitations of the Study

There were limitations to this study. First, participants were interviewed by telephone or on Zoom's videoconference platform. Initially, the goal was to use the face-to-face format as an option. However, COVID-19 regulations in my community and the lack of available public spaces prevented this from occurring. During the first round of interviewing, individuals that used the virtual platform opted to leave their cameras off. It was impossible to read nonverbal behavior that may have added value to my research. Using the telephone option also created that barrier. Therefore, in both interview options, important nonverbal information could not be observed. Second, all my participants were African Americans. Although the 2010 U.S. Census presented that the Virgin Islands population is comprised of 76% Black or African Americans (University of the Virgin Islands, 2020), it would have been of value to capture the perspective of other ethnicities. Perhaps, it could uncover any additional coping methods and if there were a difference in coping with animals among different ethnic groups. Further, incorporating other ethnicities can enhance the findings of my study. Within the sample of Kalof et al.

(2016), participants were of diverse ethnic backgrounds and was a strength in their study. They assessed individual perceptions, attitudes, and emotional responses toward animals using visual depictions of animals. Lastly, I had lived experience like the participants whom I studied. As a sole researcher, it restricted my perspective-taking, which may limit this study's dependability. As the sole research instrument, it was also possible that information may have been misinterpreted, the most salient points inadvertently overlooked, and insufficient details recorded.

Recommendations

There are several recommendations based on a need to explore this phenomenon further and address the limitations of this study. Besides, there is more to be uncovered relevant to animal interactions and coping during and after storms. In my study, I learned of animals responding to the storm emotionally and behaviorally. Further research using a qualitative approach can explore the extent of the storm's effect on animals. Future research, using a quantitative approach, would help to learn about any additional ways people cope or adjust after disasters in the Virgin Islands. I also found several coping styles and strategies that the participants used. Future research using a qualitative approach could assess a person's coping style along with the value of animal-assisted interventions. In this study, the findings indicate that participants found relief in comforting their pets during the storm. Future qualitative studies could explore more on this experience and to what extent individuals found relief. Further studies can employ a qualitative approach to assess the length of time participants felt stress relief from interacting with their pets.

A qualitative study would be helpful to explore other forms of social support the individuals experienced. Several participants in this study tapped into social support and received social aid, which seemed helpful. In addition, numerous studies imply a positive relationship between social support and enhanced human wellbeing and survival (Esterling et al., 1994; House et al., 1998; Sherbourne et al., 1992). Therefore, learning more about social support by close others, aid, or service may provide more insight into how individuals buffer their distress. Potential qualitative studies, with in-depth interviews, can explore the availability of community-level resources and if they had any influence on minimizing stress. Most participants were aware of the benefits of interacting with their animals, while a couple of participants were not. Future qualitative research could focus on what distinct characteristics between individuals may exist to explain that phenomenon.

It will be interesting to determine any difference in an older person's interaction with an animal versus a younger person after a disaster with a quantitative study. My research findings present an alternate viewpoint to the literature on personality differences between cat and dog people. Future quantitative studies can further assess the nature of an individual's personality and animal types. Finally, all participants in my study were African Americans. Future phenomenological research could interview islanders of other ethnicities to compare the findings of this study. It can help enhance this specifically as research is lacking on the lived experiences of hurricane survivors and animal interaction at the time of the storms.

Implications

Positive Social Change Implications

Research was lacking on the lived experience of hurricane survivors and their attitudes toward their pets and other animals as they process their traumatic experiences. The findings of this study help to address the gap in the literature. It presents the subjective experience of hurricane survivors as they interacted with animals after Hurricanes Irma and Maria. It also offers the opportunity for positive social change in my community. As this study suggests, animal interaction can be valuable and helpful to people who face natural disasters. This study raises the possibility that animal interaction may be a therapeutic intervention. It confirms that there are emotional and psychological advantages of interacting with animals after a disaster. There are possible approaches that can create awareness and introduce using animal-assisted interventions in my community.

On an individual level, this study can educate people on the connection between animal ownership and interacting with animals to help cope after a disaster. Infographics can be circulated on social media and posted in public places (e.g., schools, libraries, digital billboards, gas stations) to create this awareness. The infographic would be a brief presentation of the research findings.

On the organizational level, this study's findings can expose the benefits of animals in healing trauma. Specifically, it can be a viable healing mechanism in my community, which is seasonally prone to hurricanes. As it stands, there are no known animal-assisted interventions that exist within the Virgin Islands. This void can be an

appeal to clinicians to consider this option in the therapeutic process. In addition, it can be an attraction for individuals open to interacting with animals in a therapeutic setting.

Community-wide recovery efforts can also consider including interventions in the wake of a disaster or traumatic events. These interventions can provide additional options for the broader community who may be hesitant in seeking traditional therapy. In my observation, Virgin Islanders tend to be discreet in talking about their difficulties and may not seek talk therapy after being exposed to a disaster. Therefore, through recovery efforts, promoting the advantages of animals relative to wellbeing can benefit these groups of people. Perhaps task forces charged with assisting in mental health recovery can collaborate with the local Humane Society. Persons can be invited to interact with animals onsite to promote positive wellbeing and mental health. With this approach, people will not have to express their feelings with another individual. Yet, they may find relief in interacting with the animal.

Theoretical Implications

The transactional theory of stress and coping by Lazarus and Folkman (1984) was used to provide a foundation for the current research to explore how hurricane survivors appraised their stressors and used strategies and resources to minimize their distress. Participants in my study lived through two Category 5 storms, Hurricanes Irma and Maria. They stated that they were emotionally distressed by these storms. I found that each of the participants subjectively appraised their stressor in similar ways using words such as “terrifying,” “fearful,” “traumatic,” “chaotic,” and “devastating.” I discovered that participants provided unique ways of tapping into strategies to help them reduce their

agony. Identified methods included but were not limited to distraction techniques, positive self-talk, religious coping methods, therapy, pet interaction, and social support.

Lazarus and Folkman's (1984) transactional theory of stress and coping applied to my research. It confirms that people appraise their stressors and use available resources to lessen their distress. The findings of this research add to this theory, specifying that hurricane survivors appraised the disaster as a threat and used accessible resources to cope.

Methodological Implications

Selecting persons that experienced Hurricanes Irma and/or Maria was intentional. I aimed to explore survivors' hurricane experiences and their attitudes regarding the therapeutic benefits of animals. I used semistructured interviews to capture their stories. Interviewing these participants assisted me in investigating, obtaining extensive information, and developing a good understanding of the phenomenon. It helped me to understand the subjective meanings and interpretations that the participants placed on their experiences. Using semistructured interviews allowed me to capture what the survivors encountered during the storm, life in the aftermath, and how their interactions with animals played a role in their recovery. Therefore, the results from this study offer awareness on how individuals might receive therapeutic advantages from interacting with animals following a disaster.

Recommendations for Practice

The results of the current study can be used as a starting point for clinicians in my community to consider using animals in the therapeutic process. These providers can

become educated and trained on using therapy animals to help draw a population of people who would otherwise oppose traditional therapy. Mental health providers can offer awareness to their clients and the general public on the healing benefits of animals. Using animals in treatment can help bridge the gap and begin a therapeutic relationship. Clinicians should be made aware that they can be influential in the restorative process of persons by introducing animals as an available option in therapy. The need also exists for pet owners and anyone who engages with animals to be informed on the therapeutic benefits of interacting with animals. Future studies can inquire if individuals that oppose talk therapy will be more open to therapy if animals are included.

Conclusion

In previous research, it was suggested that animal-assisted interventions' provided benefits and was helpful for trauma survivors in providing stress relief and improving mental health (Earles et al., 2015; Jau & Hodgson, 2018; Lessard et al., 2018; Mims & Waddell, 2016; Serpell et al., 2017). However, research was lacking on hurricane survivors' lived experience and their interaction with pets and other animals as they process their traumatic experiences. To address this gap in the literature, I conducted this hermeneutic qualitative study, which helped interpret and add meaning to the participants' lived experiences.

Conducting this study provided different perspectives on the human-animal relationship. It was enlightening to capture the lived experience of hurricane survivors and animal interaction following storms in the Virgin Islands, specifically after researching the human-animal bond and the possible therapeutic benefits of animals.

After compiling and analyzing the data, three themes emerged: (a) Hurricane survivors had an emotional and surreal storm experience, (b) Survivors experienced distress during and after the storms, (c) Participants used a variety of ways to cope with their distress, and (d) Participants' exposure to animals and their interactions during and after the storms provided benefits.

This phenomenon revealed living through the brunt of a Category 5 hurricane is a nerve-racking ordeal. In its wake, there is devastation, fear, concern, questions, frustration, and anger. Survivors were forced to face their new normal in the aftermath of the storm. From fetching daily supplies, gas, and returning to work, there was still the task of caring for loved ones. Their pets were no exception. It was an added responsibility to have to care for their pet's needs in the face of limited supplies and services. Despite all the stressors these hurricane survivors faced, they found the ability to tap into some source to help them cope. Most took advantage of having a pet to distract themselves, spend more time with, or grow closer to their pet. In retrospect, they benefitted from that interaction or relationship, which provided some sort of release. They experienced companionship, protection, normalcy, comfort, and a healthy distraction. Recalling their horrifying experience, these survivors recognized strength, maturity, self-awareness, and resilience. The participants also reflected on what they can do better going forward to ensure that they are better prepared to handle such a disaster.

This research adds to the existing literature on the role of animal contact during and after exposure to extreme stressors. In this study, individuals could specifically link their contact with cats and dogs to their experience during and after Hurricanes Maria and

Irma. Future studies might also link coping style with pet contact relevant to exposure to extreme stressors such as natural disasters. The findings of this study were necessary to add value to existing studies that explored the therapeutic benefits of animals. It also has social implications that can be of use to the people of my community. The lived experiences of the hurricane survivors may help researchers and clinicians understand how individuals receive value from animals after a hurricane. My research findings could present alternative interventions to talk therapy to people who usually would not seek mental health treatment after a disaster.

References

- Ader, R., & Cohen, N. (1995). Psychoneuroimmunology: Interactions between the nervous system and the immune system. *Lancet*, 345(8942), 99.
[https://doi.org/10.1016/S0140-6736\(95\)90066-7](https://doi.org/10.1016/S0140-6736(95)90066-7)
- Alba, B., & Haslam, N. (n.d.). Dog people and cat people differ on dominance-related traits. *Anthrozoos*, 28(1), 37–44.
<https://doi.org/10.2752/089279315X14129350721858>
- American Veterinary Medical Association. (2020, April). The human-animal interaction and human-animal bond. <https://www.avma.org/policies/human-animal-interaction-and-human-animal-bond>
- Amiot, C. E., & Bastian, B. (2016). Solidarity with animals: Assessing a relevant dimension of social identification with animals. *PLOS One*, 12(1), e0168184.
<https://doi.org/10.1371/journal.pone.0168184>
- Anisman, H. (2015). *Stress and your health: From vulnerability to resilience*. John Wiley & Sons.
- Antonacopoulos, N. M. D., & Pychyl, T. A. (2010). An examination of the potential role of pet ownership, human social support and pet attachment in the psychological health of individuals living alone. *Anthrozoös*, 23(1), 37-54.
<https://doi.org/10.2752/175303710X12627079939143>
- Bao, K. J., & Schreer, G. (2016). Pets and happiness: Examining the association between pet ownership and wellbeing. *Anthrozoös*, 29(2), 283-296.
<https://doi.org/10.1080/08927936.2016.1152721>

Barker, S. B., Barker, R. T., McCain, N. L., & Schubert, C. M. (2016). A randomized cross-over exploratory study of the effect of visiting therapy dogs on college student stress before final exams. *Anthrozoös*, 29(1), 35-46.

<https://doi.org/10.1080/08927936.2015.1069988>

Barker, S. B., Barker, R. T., McCain, N. L., & Schubert, C. M. (2017). The effect of a canine-assisted activity on college student perceptions of family supports and current stressors. *Anthrozoös*, 30(4), 595–606.

<https://doi.org/10.1080/08927936.2017.1370227>

Bevilacqua, K., Schneider, S., Rasul, R., Taioli, E., & Schwartz, R. M. (2019). Engagement in linkage to mental health care program in the Rockaways after Hurricane Sandy. *Journal of Community Psychology*, 47(4), 743-756.

<https://dx.doi.org/10.1002%2Fjcop.22150>

Binfet, J. T., & Passmore, H. A. (2016). Hounds and homesickness: The effects of an animal-assisted therapeutic intervention for first-year university students. *Anthrozoös*, 29(3), 441-454.

<https://doi.org/10.1080/08927936.2016.1181364>

Briere, J. N., & Scott, C. (2014). *Principles of trauma therapy: A guide to symptoms, evaluation, and treatment* (DSM-5 update). SAGE Publications, Inc.

Brooks, H. L., Rushton, K., Lovell, K., Bee, P., Walker, L., Grant, L., & Rogers, A. (2018). The power of support from companion animals for people living with mental health problems: A systematic review and narrative synthesis of the evidence. *BMC Psychiatry*, 18. <https://doi.org/10.1186/s12888-018-1613-2>

- Burkholder, G. J., Cox, K. A., Crawford, L. M. (2016). *The scholar-practitioner's guide to research design*. Laureate Publishing., Inc.
- Carver, C. S., and Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology*, 61, 679–704. <https://doi.org/10.3389/fpsyg.2019.02969>
- Chan, C. S., & Rhodes, J. E. (2014). Measuring exposure in Hurricane Katrina: A meta-analysis and an integrative data analysis. *PLOS One*, 9(4).
<https://dx.doi.org/10.1371%2Fjournal.pone.0092899>
- Chan, C. S., Lowe, S. R., Weber, E., & Rhodes, J. E. (2015). The contribution of pre- and post-disaster social support to short- and long-term mental health after Hurricanes Katrina: A longitudinal study of low-income survivors. *Social Science & Medicine*, 138, 38–43.
<https://doi.org/10.1016/j.socscimed.2015.05.037>
- Cherry, K. E., Lyon, B. A., Sampson, L., Galea, S., Nezat, P. F., & Marks, L. D. (2017). Prior hurricane and other lifetime trauma predict coping style in older commercial fishers after the bp deep water horizon oil spill. *Journal of Applied Biobehavioral Research*, 22(2), n/a-N.PAG. <https://doi.org/10.1111/jabr.12058>
- Chipangura, P., Dewald, V. N., & Gerrit Van, D. W. (2016). An exploration of objectivism and social constructivism within the context of disaster risk. *Disaster Prevention and Management*, 25(2), 261-274.
<http://dx.doi.org/10.1108/DPM-09-2015-0210>

- Cline, K. M. (2010). Psychological effects of dog ownership: Role strain, role enhancement, and depression. *Journal of Social Psychology, 150*(2), 117-131.
<https://doi.org/10.1080/00224540903368533>
- Conrad, D., Wilker, S., Pfeiffer, A., Lingenfelder, B., Ebalu, T., Lanzinger, H., Elbert, T., Kolassa, I., & Kolassa, S. (2017). Does trauma event type matter in the assessment of traumatic load? *European Journal of Psychotraumatology, 8*(1).
<https://dx.doi.org/10.1080%2F20008198.2017.1344079>
- Creswell, J. W. (2013). *Research design: qualitative, quantitative, and mixed methods approaches* (4th Ed.) SAGE Publications, Inc.
- Crossman, M. K. & Kazdin, A. E. (2017). Perceptions of animal-assisted interventions: The influence of attitudes toward companion animals. *Journal of Clinical Psychology, 74*(4), 566-578. <https://doi.org/10.1002/jclp.22548>
- Crossman, M. K. (2016). Effects of interactions with animals on human psychological distress. *Journal of Clinical Psychology, 73*(7), 761-784.
<https://doi.org/10.1002/jclp.22410>
- Crossman, M. K., Kazdin, A. E., & Knudson, K. (2015). Brief unstructured interaction with a dog reduces distress. *Anthrozoös, 28*(4), 649-659.
<https://psycnet.apa.org/doi/10.1080/08927936.2015.1070008>
- Dale, A. R., Walker, J. K., Farnworth, M. J., Morrissey, S. V., & Waran, N. K. (2010). A survey of owners' perceptions of fear of fireworks in a sample of dogs and cats in New Zealand. *New Zealand Veterinary Journal, 58*(6), 286-291.
<https://doi.org/10.1080/00480169.2010.69403>

- Dass-Brailsford, P., & Thomley, R. S. H. (2015). Using walk-in counseling services after Hurricane Katrina: A program evaluation. *Journal of Aggression, Maltreatment & Trauma, 24*(4), 419-432.
<https://doi.org/10.1080/10926771.2015.1022287>
- Dell, C. A., Chalmers, D., Bresette, N., Swain, S., Rankin, D., & Hopkins, C. (2011). A healing space: The experiences of first nations and Inuit youth with equine-assisted learning (EAL). *Child & Youth Care Forum, 40*(4), 319-336.
<http://dx.doi.org/10.1007/s10566-011-9140-z>
- Dudley-Grant, R. (2016). *Innovations in clinical psychology with Caribbean peoples*. In J. L. Roopnarine & D. Chadee (Eds.), *Caribbean psychology: Indigenous contributions to a global discipline*. (pp. 357–386). American Psychological Association. <https://doi.org/10.1037/14753-015>
- Earles, J. L., Vernon, L. L., & Yetz, J. P. (2015). Equine-assisted therapy for anxiety and posttraumatic stress symptoms. *Journal of Traumatic Stress, 28*(2), 149–152.
<https://doi.org/10.1002/jts.21990>
- Ehrlich, M., Harville, E., Xiong, X., Buekens, P., Pridjian, G., & Elkind-Hirsch, K. (2010). Loss of resources and hurricane experience as predictors of postpartum depression among women in Southern Louisiana. *Journal of Women's Health, 19*(5), 877–884. <https://doi.org/10.1089/jwh.2009.1693>
- Elliott, D. E., Bjelajac, P., Fallot, R. D., Markoff, L. S., & Reed, B. G. (2005). Trauma-informed or trauma-denied: Principles and implementation of

- trauma-informed services for women. *Journal of Community Psychology*, 33(4), 461-477. <http://dx.doi.org/10.1002/jcop.20063>
- Eraser (2020). *Advanced security tools for windows*. <https://eraser.heidi.ie/>
- Esterling, B. A., Kiecolt-Glaser, J., Bodnar, J. C., & Glaser, R. (1994). Chronic stress, social support, and persistent alterations in the natural killer cell response to cytokines in older adults. *Health Psychology*, 13, 291–298. <https://doi.org/10.1037//0278-6133.13.4.291>
- Favali, V., & Milton, M. (2010). Disabled horse-rider's experience of horse-riding: A phenomenological analysis of the benefits of contact with animals. *Existential Analysis*, 21(2), 251–262.
- FEMA P-2021. (2018). *Hurricanes Irma and Maria in the U.S. Virgin Islands building performance observations, recommendations, and technical guidance*. U.S. Department of Homeland Security. https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-irma-maria_virgin-islands.pdf
- Fine, A. H. (Ed.). (2015). *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions*. Academic Press.
- Folkman, S. (1997). Positive psychological states and coping with severe stress. *Social Science and Medicine*, 45(8), 1207–1221. [https://doi.org/10.1016/s0277-9536\(97\)00040-3](https://doi.org/10.1016/s0277-9536(97)00040-3)
- Folkman, S. (2008). The case for positive emotions in the stress process. *Anxiety, Stress, and Coping*, 21(1), 3–14. <https://doi.org/10.1080/10615800701740457>

- Fox, R., & Gee, N. R. (2019). Great expectations: Changing social, spatial and emotional understandings of the companion animal-human relationship. *Social & Cultural Geography*, 20(1), 43–63.
<http://dx.doi.org/10.1080/14649365.2017.1347954>
- Freiwald, A., Litster, A., & Weng, H. Y. (2014). Survey to investigate pet ownership and attitudes to pet care in metropolitan Chicago dog and/or cat owners. *Preventive Veterinary Medicine*, 115(3-4), 198-204.
<https://doi.org/10.1016/j.prevetmed.2014.03.025>
- Friedmann, E., & Krause-Parello, C. A. (2018). Companion animals and human health: Benefits, challenges, and the road ahead for human-animal interaction. *Revue Scientifique Et Technique (International Office of Epizootics)*, 37(1), 71–82.
<https://doi.org/10.20506/rst.37.1.2741>
- Friedmann, E., Son, H., & Saleem, M. (2015). The animal–human bond: Health and wellness. In Fine, A. H. (Ed.), *Handbook on animal-assisted therapy: Foundation and guidelines for animal-assisted interventions*. Academic Press.
- Gieselmann, A., Elberich, N., Mathes, J., & Pietrowsky, R. (2020). Nightmare distress revisited: Cognitive appraisal of nightmares according to Lazarus’ transactional model of stress. *Journal of Behavior Therapy and Experimental Psychiatry*, 68.
<https://doi.org/10.1016/j.jbtep.2019.101517>
- Glanz, K., & Schwartz, M. D. (2015). Stress, coping, and behavior. In Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). *Health behavior: Theory, research, and practice*. John Wiley & Sons.

- Gleason, M. E. J., & Iida, M. (2015). *Social support*. In APA handbook of personality and social psychology, Volume 3: Interpersonal relations. (pp. 351–370). Washington, DC: American Psychological Association.
- <https://doi.org/10.1037/14344-013>
- Gorczyca, K. & Fine, A. H. (2015). Pets bring comfort and health: the evolution of the paws model in San Francisco and the safe pet guidelines. In Fine, A. H. (Ed.), *Handbook on animal-assisted therapy: Foundation and guidelines for animal-assisted interventions*. Academic Press.
- Gosling, S. D., Sandy, C. J., & Potter, J. (2010). Personalities of self-identified “dog people” and “cat people”. *Anthrozoös*, 23(3), 213-222.
- <http://dx.doi.org/10.2752/175303710X12750451258850>
- Grajfoner, D., Harte, E., Potter, L. M., & McGuigan, N. (2017). The effect of dog-assisted intervention on student well-being, mood, and anxiety. *International Journal of Environmental Research and Public Health*, 14(5), 483.
- <https://dx.doi.org/10.3390%2Fijerph14050483>
- Guthrie, M. F., Marshall, P. H., Hendrick, S. S., Hendrick, C., & Logue, E. (2018). Human love styles and attitudes toward pets. *Anthrozoos*, 31(1), 41–60.
- <https://doi.org/10.1080/08927936.2018.1406200>
- Hare, B., & Woods, V. (2013). *The genius of dogs: How dogs are smarter than you think*. Penguin.
- Harville, E. W., Jacobs, M. & Boynton-Jarrett, R. (2015). When is exposure to a natural disaster traumatic? Comparison of a trauma questionnaire and disaster exposure

inventory. *PLOS One*, 10(4),

e0123632. <https://dx.doi.org/10.1371/journal.pone.0123632>

Heidegger, M. (1927/2011). *Being and Time* (J. Macquarrie & E. Robinson, Trans.).

Harper & Row. (Original work published 1927)

Herman, J. (1997). *Trauma and recovery*. Basic Books.

Hjemdal, O., Friborg, O., Stiles, T. C., Martinussen, M., & Rosenvinge, J. H. (2006). A

new scale for adolescent resilience: Grasping the central protective resources

behind healthy development. *Measurement and evaluation in Counseling and*

Development, 39(2), 84-96. <http://dx.doi.org/10.1080/07481756.2006.11909791>

House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health.

Science, 241, 540–545. <https://doi.org/10.1126/science.3399889>

Jau, J., & Hodgson, D. (2018). How interaction with animals can benefit mental health:

A phenomenological study. *Social Work in Mental Health*, 16(1), 20–33.

<https://doi.org/10.1080/15332985.2017.1302037>

Jegatheesan, B., Beetz, A., Choi, G., Dudzik, C., Fine, A., Garcia, R. M., ... &

Yamazaki, K. (2014). *The IAHAIO definitions for animal-assisted intervention*

and animal-assisted activity and guidelines for wellness of animals involved.

In meeting of the International Association of Human-Animal Interaction

Organizations. [https://petpartners.org/wp-](https://petpartners.org/wp-content/uploads/2015/07/8000IAHAIO-WHITE-PAPER-TASK-FORCE-FINAL-REPORT-070714.pdf)

[content/uploads/2015/07/8000IAHAIO-WHITE-PAPER-TASK-FORCE-](https://petpartners.org/wp-content/uploads/2015/07/8000IAHAIO-WHITE-PAPER-TASK-FORCE-FINAL-REPORT-070714.pdf)

[FINAL-REPORT-070714.pdf](https://petpartners.org/wp-content/uploads/2015/07/8000IAHAIO-WHITE-PAPER-TASK-FORCE-FINAL-REPORT-070714.pdf)

- Johannesson, K. B., Arinell, H., & Arnberg, F. K. (2015). Six years after the wave. Trajectories of posttraumatic stress following a natural disaster. *Journal Of Anxiety Disorders, 36*, 15–24. <https://doi.org/10.1016/j.janxdis.2015.07.007>
- Kalof, L., Zammit-Lucia, J., Bell, J., & Granter, G. (2016). Fostering kinship with animals: animal portraiture in humane education. *Environmental Education Research, 22*(2), 203–228. <https://doi.org/10.1080/13504622.2014.999226>
- Kantor, V., Knefel, M., & Lueger-Schuster, B. (2017). Perceived barriers and facilitators of mental health service utilization in adult trauma survivors: A systematic review. *Clinical Psychology Review, 52*, 52-68. <https://doi.org/10.1016/j.cpr.2016.12.001>
- Kelly, D. (2009). *Heidegger's Being and Time*. William Large.
- Kelly, M. A., & Cozzolino, C. A. (2015). Helping at-risk youth overcome trauma and substance abuse through animal-assisted therapy. *Contemporary Justice Review, 18*(4), 421–434. <https://doi.org/10.1080/10282580.2015.1093686>
- Kern-Godal, A., Brenna, I. H., Kogstad, N., Arnevik, E. A., & Ravndal, E. (2016). Contribution of the patient–horse relationship to substance use disorder treatment: Patients’ experiences. *International Journal of Qualitative Studies on Health & Well-Being, 11*(0), 1–12. <https://dx.doi.org/10.3402%2Fqhw.v11.31636>
- King, R., Polatin, P., Hogan, D., Downs, D., & North, C. (2016). Needs assessment of hurricane Katrina evacuees residing temporarily in Dallas. *Community Mental Health Journal, 52*(1), 18–24. <https://doi.org/10.1007/s10597-015-9938-5>

- Kloep, M. L., Hunter, R. H., & Kertz, S. J. (2017). Examining the effects of a novel training program and use of psychiatric service dogs for military-related PTSD and associated symptoms. *American Journal of Orthopsychiatry*, 87(4), 425. <https://doi.org/10.1037/ort0000254>
- Krause-Parello, C. A., & Morales, K. A. (2018). Military veterans and service dogs: A qualitative inquiry using interpretive phenomenological analysis. *Anthrozoös*, 31(1), 61-75. <https://doi.org/10.1080/08927936.2018.1406201>
- Lai, B., Beaulieu, B., Ogokeh, C., Self-Brown, S., & Kelley, M. (2015). Mother and child reports of hurricane related stressors: Data from a sample of families exposed to hurricane Katrina. *Child & Youth Care Forum*, 44(4), 549–565. <https://dx.doi.org/10.1007%2Fs10566-014-9289-3>
- Lass-Hennemann, J. Schäfer, S. K., Römer, S., Holz, E. Streb, M. & Michael, T. (2018). Therapy dogs as a crisis intervention after traumatic events? – An experimental study. *Frontiers in Psychology*. <https://dx.doi.org/10.3389%2Ffpsyg.2018.01627>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lee, P., & Makela, C. (2018). Mental health practitioners' strategies in equine-assisted psychotherapy: implications for social work. *Social Work Education*., 37(1), 119–135. <https://doi.org/10.1080/02615479.2017.1378318>
- Lessard, G., Vincent, C., Gagnon, D. H., Belleville, G., Auger, É., Lavoie, V., Besemann, M., Champagne, N., Dumont, F., & Béland, E. (2018). Psychiatric service dogs as a tertiary prevention modality for veterans living with post-

traumatic stress disorder. *Mental Health & Prevention*, 10, 42–49.

<https://doi.org/10.1016/j.mhp.2018.01.002>

Little, S. G., & Akin-Little, A. (2019). Trauma-focused cognitive behavior therapy. In S. G. Little & A. Akin-Little (Eds.), *Behavioral interventions in schools: Evidence-based positive strategies* (pp. 393–402). American Psychological Association.

<https://doi.org/10.1037/0000126-021>

Lowe, S. R., Joshi, S., Pietrzak, R. H., Galea, S., & Cerdá, M. (2015a). Mental health and general wellness in the aftermath of Hurricane Ike. *Social Science & Medicine*, 124, 162-170. <https://doi.org/10.1016/j.socscimed.2014.11.032>

Lowe, S. R., Sampson, L., Gruebner, O., & Galea, S. (2015b). Psychological resilience after Hurricane Sandy: the influence of individual- and community-level factors on mental health after a large-scale natural disaster. *PLOS One*, 10(5), e0125761.

<https://doi.org/10.1371/journal.pone.0125761>

MacKay, J. R. D., Moore, J., & Huntingford, F. (2016). Characterizing the data in online companion-dog obituaries to assess their usefulness as a source of information about human–animal bonds. *Anthrozoös*, 29(3), 431–440.

<https://doi.org/10.1080/08927936.2016.1181374>

Maharaj, N., Kazanjian, A., & Haney, C. J. (2016). The human–canine bond: A sacred relationship. *Journal of Spirituality in Mental Health*, 18(1), 76–89.

<http://dx.doi.org/10.1080/19349637.2015.1047922>

- Martens, P., Enders-Slegers, M. J., & Walker, J. K. (2016). The emotional lives of companion animals: Attachment and subjective claims by owners of cats and dogs. *Anthrozoös*, 29(1), 73-88. <https://doi.org/10.1080/08927936.2015.1075299>
- Martens, P., Hansart, C., & Su, B. (2019). Attitudes of young adults toward animals-the case of high school students in Belgium and the Netherlands. *Animals*, 9(3). <https://dx.doi.org/10.3390%2Fani9030088>
- Matthews, L. (2006). Caribbean natural disasters. *Caribbean Journal of Social Work*, 5, 40–60.
- May, C. L., & Wisco, B. E. (2016). Defining trauma: How level of exposure and proximity affect risk for posttraumatic stress disorder. *Psychological Trauma: Theory, Research, Practice, And Policy*, 8(2), 233. <https://doi.org/10.1037/tra0000077>
- Merola, I., Prato-Previde, E., & Marshall-Pescini, S. (2012). Social referencing in dog-owner dyads? *Animal Cognition*, 15(2), 175–185. <https://doi.org/10.1007/s10071-011-0443-0>
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. Jossey-Bass.
- Mims, D., & Waddell, R. (2016). Animal-assisted therapy and trauma survivors. *Journal of Evidence-Informed Social Work*, 13(5), 452-457. <https://doi.org/10.1080/23761407.2016.1166841>
- Mueller, M. K., Fine, A. H., & O’Haire, M. E. (2015). Understanding the role of human-animal in the family context. In Fine, A. H. (Ed.), *Handbook on animal-assisted*

therapy: Foundation and guidelines for animal-assisted interventions. Academic Press.

Mueller, M. K., Gee, N. R., & Bures, R. M. (2018). Human-animal interaction as a social determinant of health: descriptive findings from the health and retirement study. *BMC Public Health*, *18*(1), 305.

<https://bmcpublikealth.biomedcentral.com/articles/10.1186/s12889-018-5188-0>

Neria, Y., Nandi, A., & Galea, S. (2008). Post-traumatic stress disorder following disasters: A systematic review. *Psychological Medicine*, *38*(4), 467-480.

<https://doi:10.1017/S0033291707001353>

O'haire, M. E., Guérin, N. A., & Kirkham, A. C. (2015). Animal-Assisted Intervention for trauma: a systematic literature review. *Frontiers in Psychology*, *6*.

<https://doi.org/10.1017/s0033291707001353>

Osofsky, H. J., Hansel, T. C., Osofsky, J. D., & Speier, A. (2015). Factors contributing to mental and physical health care in a disaster-prone environment. *Behavioral Medicine*, *41*(3), 131–137. <https://doi.org/10.1080/08964289.2015.1032201>

Oyama, M. A., Citron, L., Shults, J., Cimino Brown, D., Serpell, J. A., & Farrar, J. T. (2017). Measuring quality of life in owners of companion dogs: Development and validation of a dog owner-specific quality of life questionnaire. *Anthrozoös*, *30*(1), 61–75.

<https://doi.org/10.1080/08927936.2016.1228774>

Parslow, R., Jorm, A., Christensen, H., Rodgers, B., & Jacomb, P. (2005). Pet ownership and health in older adults: Findings from a survey of 2,551

community-based Australians aged 60-64. *Gerontology*, 51(1), 40–47.

<https://doi.org/10.1159/000081433>

- Paul, L. A., Price, M., Gros, D. F., Gros, K. S., McCauley, J. L., Resnick, H. S., Acierno, R., & Ruggiero, K. J. (2014). The associations between loss and posttraumatic stress and depressive symptoms following hurricane Ike. *Journal of Clinical Psychology*, 70(4), 322–332. <https://doi.org/10.1002/jclp.22026>
- Payne, E., Bennett, P. C., & McGreevy, P. D. (2015). Current perspectives on attachment and bonding in the dog–human dyad. *Psychology Research and Behavior Management*, 8, 71. <https://dx.doi.org/10.2147%2FPRBM.S74972>
- Peacock, J., Chur-Hansen, A., & Winefield, H. (2012). Mental health implications of human attachment to companion animals. *Journal of Clinical Psychology*, 68(3), 292-303. <https://doi.org/10.1002/jclp.20866>
- Peoples, K. (2020). *How to write a phenomenological dissertation: A step-by-step guide* (Vol. 56). SAGE Publications, Inc.
- Phillips, A. (2015). The human–animal relationship in context of the juvenile and criminal justice systems. In Fine, A. H. (Ed.), *Handbook on animal-assisted therapy: Foundation and guidelines for animal-assisted interventions*. Academic Press.
- Pole, N., Fields, L., & D'Andrea, W. (2016). Stress and trauma disorders. In *APA handbook of clinical psychology: Psychopathology and health*, Vol. 4. (pp. 97–133). American Psychological Association. <https://doi.org/10.1037/14862-004>

- Prokop, P., & Randler, C. (2018). Chapter 23 - Biological Predispositions and Individual Differences in Human Attitudes Toward Animals. *Ethnozoology*, 447–466. <https://doi.org/10.1016/B978-0-12-809913-1.00023-5>
- QSR International (2020, April). NVIVO Qualitative data analysis software. Retrieved from <https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>
- Ravitch, S. M., & Carl, N. M. (2016). *Qualitative research: Bridging the conceptual, theoretical, and methodological*. SAGE Publications, Inc.
- Reevy, G. M., & Delgado, M. M. (2015). Are emotionally attached companion animal caregivers conscientious and neurotic? Factors that affect the human–companion animal relationship. *Journal of Applied Animal Welfare Science*, 18(3), 239–258. <https://doi.org/10.1080/10888705.2014.988333>
- Romaniuk, M., Evans, J., & Kidd, C. (2018). Evaluation of an equine-assisted therapy program for veterans who identify as “wounded, injured or ill” and their partners. *PLOS One*, 13(9), e0203943. <https://doi.org/10.1371/journal.pone.0203943>
- Rubin, H., & Rubin, I. (2011). *Qualitative interviewing: The art of hearing data* (3rd ed.). SAGE Publications, Inc.
- Sattler, J. (2008). *Assessment of children: Cognitive foundations* (5th ed.). John M. Sattler, Publishing Inc.

- Scholtes, V. A., Terwee, C. B., & Poolman, R. W. (2011). What makes a measurement instrument valid and reliable? *Injury, 42*(3), 236-240.
<https://doi.org/10.1016/j.injury.2010.11.042>
- Serpell, J., McCune, S., Gee, N., & Griffin, J. A. (2017). Current challenges to research on animal-assisted interventions. *Applied Developmental Science, 21*(3), 223-233.
- Sherbourne, C. D., Meredith, L. S., Rogers, W., & Ware, J. E. (1992). Social support and stressful life events: age differences in their effects on health-related quality of life among the chronically ill. *Quality of Life Research, 1*, 235–246.
<https://doi.org/10.1007/bf00435632>
- Sherman, M. D., Fischer, E. P., Owen, R. R., Jr., Lu, L., & Han, X. (2015). Multifamily group treatment for veterans with mood disorders: A pilot study. *Couple and Family Psychology: Research and Practice, 4*(3), 136–149.
<https://doi.org/10.1037/cfp0000040>
- Shuwiekh, H., Kira, I. A., & Ashby, J. S. (2018). What are the personality and trauma dynamics that contribute to posttraumatic growth? *International Journal of Stress Management, 25*(2), 181. <https://psycnet.apa.org/doi/10.1037/str0000054>
- Spanos, W. V. (1976). Heidegger, Kierkegaard, and the hermeneutic circle: Towards a postmodern theory of interpretation as dis-closure. *Boundary 2, 455-488*.
<https://doi.org/10.2307/302146>

- Spinka, M. (2012). Social dimension of emotions and its implication for animal welfare. *Applied Animal Behaviour Science*, *138*(3–4), 170–181.
<https://doi.org/10.1016/j.applanim.2012.02.005>
- Stewart, L. A., Bruneau, L., & Elliott, A. (2016). The role of animal-assisted interventions in addressing trauma-informed care. *ACA Vistas, Spring*, *15*.
- Stratta, P., Capanna, C., Dell, O. L., Carmassi, C., Patriarca, S., Di Emidio, G., ... Rossi, A. (2015). Resilience and coping in trauma spectrum symptoms prediction: A structural equation modeling approach. *Personality & Individual Differences*, *77*, 55–61. <https://doi.org/10.1016/j.paid.2014.12.035>
- Su, B., Koda, N., & Martens, P. (2018). How Japanese companion dog and cat owners' degree of attachment relates to the attribution of emotions to their animals. *PLOS One*, *13*(1), e0190781. <https://doi.org/10.1371/journal.pone.0190781>
- Tedeschi, P. Sisa, M. L., Olmert, M. D., Parish-Plass, N., & Yount, R. (2015). Treating human trauma with the help of animals: Trauma informed intervention for child maltreatment and adult post-traumatic stress. In Fine, A. H. (Ed.), *Handbook on animal-assisted therapy: Foundation and guidelines for animal-assisted interventions*. Academic Press.
- Thompson, K., Every, D., Rainbird, S., Cornell, V., Smith, B., & Trigg, J. (2014). No pet or their person left behind: Increasing the disaster resilience of vulnerable groups through animal attachment, activities and networks. *Animals*, *4*(2), 214–240. <https://doi.org/10.3390/ani4020214>

- Thompson, N. J., Fiorillo, D., Rothbaum, B. O., Ressler, K. J., & Michopoulos, V. (2018). Coping strategies as mediators in relation to resilience and posttraumatic stress disorder. *Journal of Affective Disorders*, *225*, 153-159. <https://dx.doi.org/10.1016%2Fj.jad.2017.08.049>
- Tracy, M., Norris, F. H., & Galea, S. (2011). Differences in the determinants of posttraumatic stress disorder and depression after a mass traumatic event. *Depression and Anxiety*, *28*(8), 666–675. <https://doi.org/10.1002/da.20838>
- Trigg, J., Thompson, K., Smith, B., & Bennett, P. (2016). An animal just like me: The importance of preserving the identities of companion-animal owners in disaster contexts. *Social & Personality Psychology Compass*, *10*(1), 26–40. <https://doi.org/10.1111/spc3.12233>
- University of the Virgin Islands (2020, October). *Census Reports*. <https://www.uvi.edu/research/eastern-caribbean-center/social-research-institute/census-reports.aspx>
- VERBI Software. (2019). MAXQDA 2020 [computer software]. Berlin, Germany: VERBI Software. Available from maxqda.com.
- Wang, G., Zhai, W., Yang, H., Fan, R., Cao, X., Zhong, L., Wang, L., et al. (2013). The genomics of selection in dogs and the parallel evolution between dogs and humans. *Nature Communications*, *4*. <https://doi.org/10.1038/ncomms2814>
- Wang, P., Gruber, M., Powers, R., Schoenbaum, M., Speier, A., Wells, K., & Kessler, R. (2009). Mental health service use among hurricane Katrina survivors in the

eight months after the disaster. *Focus: Journal of Lifelong Learning in Psychiatry*, 7(2), 243–253. <https://doi.org/10.1176/foc.7.2.foc243>

Wasserman, R. (2013). Ethical issues and guidelines for conducting data analysis in psychological research. *Ethics & Behavior*, 23(1), 3-15.
<https://doi.org/10.1080/10508422.2012.728472>

Wharton, T., Whitworth, J., Macauley, E., & Malone, M. (2019). Pilot testing a manualized equine-facilitated Cognitive Processing Therapy (EF-CPT) Intervention for PTSD in veterans. *Psychiatric Rehabilitation Journal*, 42(3), 268–276. <https://doi.org/10.1037/prj0000359>

Wilson, E. O. (1984). *Biophilia*. Harvard University Press.

Wilson-Genderson, M., Heid, A. R., & Pruchno, R. (2018). Long-term effects of disaster on depressive symptoms: Type of exposure matters. *Social Science & Medicine*, 217, 84-91. <https://doi.org/10.1016/j.socscimed.2018.09.062>

Yamasaki, J. (2018). The communicative role of companion pets in patient-centered critical care. *Patient Education and Counseling*, 101(5), 830–835.
<https://doi.org/10.1016/j.pec.2017.12.014>

Yarborough, B. J. H., Stumbo, S. P., Yarborough, M. T., Owen-Smith, A., & Green, C. A. (2018). Benefits and challenges of using service dogs for veterans with posttraumatic stress disorder. *Psychiatric Rehabilitation Journal*, 41(2), 118.
<https://psycnet.apa.org/doi/10.1037/prj0000294>

Zamawe, F. C. (2015). The implication of using NVivo software in qualitative data analysis: Evidence-based reflections. *Malawi Medical Journal*, 27(1), 13-15.

<http://dx.doi.org/10.4314/mmj.v27i1.4>

Zelt, S., Recker, J., Schmiedel, T., & vomBrocke, J. (2018). Development and validation of an instrument to measure and manage organizational process variety. *PLOS One*, 13(10). <https://doi.org/10.1371/journal.pone.0206198>

Zhou, X., Zhen, R., & Wu, X. (2019). Shared and unique mechanisms underlying the association of trauma exposure with posttraumatic stress symptoms and growth among adolescents following the Jiuzhaigou earthquake. *Psychological Trauma: Theory, Research, Practice, and Policy*. <https://doi.org/10.1037/tra0000526>

Appendix A: Recruitment Flyer

Did you have an animal during Hurricanes Irma and/or Maria?

Each participant
will receive a \$10
gift card for their
participation.

If so, I would like to
hear your story for a
research study.

Inclusion Requirements:

- Be a hurricane survivor of Hurricanes Irma or Maria
- Had a companion animal or interacted with an animal during the time of the hurricane
- Self-identify or have been clinically diagnosed with trauma
- Be a consenting adult, age 18 or older



Appendix B: Study Participation and Interview Questions

To determine study participation eligibility, the researcher will use the following questions when contacted by those of interest:

Did you experience Hurricanes Irma and/or Maria?

Did you own an animal at the time of Hurricanes Irma and/or Maria?

At what point (during, after)?

How long did you have the animal?

Did you experience trauma after the hurricanes? Was it self-identified or clinically diagnosed?

Interview Questions

The following questions were used to guide the individual interviews.

What was your experience during the hurricanes?

Can you describe the level of your distress?

In what ways did you cope during that time?

What kind of animal did you have at the time of the hurricane?

How did you interact with your pet at the time of the storm?

What was your general attitude towards animals?

How would you describe your temperament at the time of the storm?

Did your temperament influence your interaction with your animal?

Did your pet play a role in your recovery from distress?

Did having the animal cause you any stress?

When did you notice any benefits from your companion animal?