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## Emergency Preparedness: Perceptions of People with Disabilities

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EMERGENCY PREPAREDNESS: PERCEPTIONS  
OF PEOPLE WITH DISABILITIES

A Dissertation

by

LIDIA ADAMINA FONSECA

Submitted in Partial Fulfillment of the  
Requirements for the Degree of  
DOCTOR OF PHILOSOPHY

Major Subject: Rehabilitation Counseling

The University of Texas Rio Grande Valley

May 2022



EMERGENCY PREPAREDNESS: PERCEPTIONS  
OF PEOPLE WITH DISABILITIES

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by  
LIDIA ADAMINA FONSECA

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May 2022



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## ABSTRACT

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The prevalence of emergencies and disasters has increased over the past decade which has caused cities, states and countries to routinely develop emergency preparedness and management plans (Turk, 2016). Although these demands have increased, individuals with disabilities have been less represented in the development of the plans (Timmons, 2017; Turk, 2016). According to The World Bank Disaster Risk Management Report (2020), disasters (e.g., infectious disease outbreaks such as COVID-19, hurricanes, earthquakes, industrial accidents.) and post-disaster consequences have increased over recent years.

Although individuals with disabilities have become more aware of emergency preparedness and its importance, researchers have noted that there is a huge disparity of awareness and preparedness related to emergencies and disasters in the disability community (UNISDR Global Assessment Report, 2019). Therefore, this issue could adversely affect individuals with disabilities in essential areas of life (e.g., quality of life, employability, mobility, maintaining their home, communication) (Fox, et al., 2010; Twigg, et al., 2018). In addition, most studies seem to focus on disaster recovery and post disaster information rather than prevention and planning strategies that could help alleviate, and at times prevent, post-disaster issues for people with disabilities and elderly.



Similarly, a lack of awareness of individualized emergency planning strategies for individuals with specific healthcare needs continues to be a significant reason why individuals with disabilities and elderly are more likely to be negatively affected by emergencies than other populations (Charlton, 2000; UNISDR, 2014). The lack of access to participate in emergency preparedness teams or organizations results in persons without disabilities continuing to exclude people with disabilities in the planning efforts of proper and inclusive emergency plans in their communities at large.

The purpose of this study was to measure the self-perceptions of individuals with disabilities related to their level of emergency preparedness as well as access to emergency preparedness information. This study used purposive sampling by recruiting individuals with disabilities who have received services from their local center for independent living (CIL) and reside in the state of Texas. This study utilized the Texas Hazard Mitigation Questionnaire-Revised and a demographic survey that were developed by the researcher to help gain an understanding of general preparedness intentions and behavior as well as personal and demographic factors influencing decision making (e.g., information sources, risk perception, age, dwelling type, socioeconomic status).

## DEDICATION

I would like to dedicate this research to all of the individuals with disabilities and their families who were directly impacted by Hurricane Harvey in 2017 and COVID-19 in 2020 through today. My hope is that emergency management personnel take these findings and become proactive in including people with disabilities in preventative emergency planning.



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## CHAPTER I

### INTRODUCTION

The prevalence of emergencies and disasters has increased over the past decade resulting in a need for cities, states, and countries to routinely develop emergency preparedness and management plans (Turk, 2016). Although the demands for plans have increased, individuals with disabilities have been disproportionately underrepresented in the development of the plans (Timmons, 2017; Turk, 2016). According to The World Bank Disaster Risk Management Report (2020), disasters (infectious disease outbreaks, hurricanes, earthquakes, industrial accidents, etc.) and post-disaster consequences have increased over recent years. A study by The United Nations Millennium Project (2015) has identified that there is a high correlation between susceptibility to emergencies and poverty. The World Bank Disaster Risk Management Report (2020) suggests that even though 10 % of disasters occur in low-income countries, those areas have had at least 48 % of the fatalities. That report addressed a factor such as poverty, specifically how it correlates to higher risk for disaster occurrences, and how it can be resolved through emergency preparedness plans.

As previously noted, individuals who are low-income and who have disabilities are affected by the disasters the most. Between 1998 and 2018, 91% of storm-related deaths were from persons with disabilities (PWD) and other vulnerable populations (i.e. low income, chronic health conditions, minorities) residing in low- and middle-income countries, even though these countries experienced just 32% of storms (The World Bank, 2020). Similarly, due to Hurricane

Maria in 2017, there were 16,608 deaths and 95% were those individuals with disabilities who experienced barriers in mobility (i.e. not able to access transportation) to evacuate safely, such as the elderly, and low-income residents (i.e. not able to purchase mobility devices) (Milliken Institute School of Public Health, 2018). Although it can be considered a positive step, as previously noted, emergency management is not only evolving, but there is a lack of consideration to people with disabilities and complex healthcare needs (Turk, 2016).

Over time, the United States has developed broad emergency plans that continue to evolve due to frequent disaster occurrence and new pandemics (Turk, 2016). The U.S. has a complex plan for emergency management at the federal level, with additional state and local plans to address specific circumstances, with some more developed than others. The history of emergency management in the U.S. shows plan and organization development has been directed more by reactions to events rather than strategic planning (Haddock et al., 2015). The emergency event of September 11, 2001 (9/11), Hurricane Katrina in 2005, Hurricane Harvey in 2017, and most recently the COVID-19 Pandemic in 2020, has dramatically altered the emergency preparedness landscape (McDermot, et al., 2016; Nicola et al., 2020). The emergency management system requires continual review, refinement, and modification; specifically, one area of review should be the inclusion of people with disabilities and chronic conditions in the preparedness and response plans (Paudel et al., 2016).

## Limited Research

The National Center on Birth Defects and Developmental Disabilities funded 18 state-based programs to promote the health and quality of life of people with disabilities (Kahn, 2011). The funding supported emergency preparedness and response activities for people with disabilities. The states that received the funding have played a critical role in engaging people with disabilities and their advocates on various state and local emergency planning committees. Texas, however, was not one of the funded states therefore Texas was set as a data source for this study. Similarly, a study by Maceron and Rohrbeck (2019), analyzed the emergency preparedness self-efficacy responses and how it affected the relationship between perceived threat of disasters and emergency preparedness behaviors. The study found that perceived levels of disaster threats were related to individuals with disabilities who had higher levels of emergency preparedness self-efficacy when compared to those who had lower emergency preparedness self-efficacy (Maceron & Rohrbeck, 2019). Like the project reported by Kahn (2011), the study by Maceron and Rohrbeck (2019) only focused on other states and did not include Texas and only surveyed people within one disability group (i.e. physical disabilities).

Research on how individuals with disabilities are effected by emergency situations and natural disasters is limited even though they are one of the most vulnerable populations (National Council on Disability, 2009; Peek & Stough, 2010). There are an estimated one billion individuals living with a disability worldwide, so it is surprising that there is a lack in research (World Health Organization and The World Bank, 2011). Individuals with disabilities are two to four times more likely to sustain a critical injury or die during a disaster than people without disabilities (Timmons, 2017). This increased level of risk is due to the difficulty that individuals with disabilities have evacuating without assistance (Perry, 2017), accessing lifesaving medical

equipment during power outages (Lurie, 2014), and accessing accurate emergency information and effective emergency services (National Association for the Deaf, 2020).

Evacuation behavior is another aspect of emergency preparedness, specifically during a hurricane that is overlooked and is affected when a household member has a disability.

Evacuations were occurring less within homes that had family members with disabilities during major Hurricanes Dennis in 2005 and Katrina in 2005, when compared to households without members with disabilities (Van Willigen et al., 2006). It was determined that the most significant reason why they did not evacuate was due to the lack of both accessible transportation and lack of availability of accessible shelters. A study found that out of the 1.5 million individuals who were directed to evacuate after Hurricane Katrina hit, almost 38% were individuals with mobility issues and could not evacuate because they were caring for someone who could not leave. (Plyer, 2016).

According to the National Council on Disability (2006), during Hurricane Katrina, nursing home officials left residents behind rather than help coordinate transportation for evacuation. Their actions led to many nursing home residents drowning in their beds. Although only 15% of the population in New Orleans were people aged 60 and over before Katrina, 73% of deaths related to the hurricane were elderly with access and functional needs (National Council on Disability, 2006).

What is evident is that emergency management plans must be inclusive of people with disabilities. Advocacy is needed to increase the visibility of the specific and common needs of people with disabilities at the national and local level. There should be acknowledgment of disability-specific emergency preparedness plans, and shared experiences to promote development of plans nationwide and statewide.

## **Statement of the Problem**

Although individuals with disabilities and their service providers have become more aware of emergency preparedness and its importance, researchers have noted that there is a disparity of awareness and preparedness related to emergencies and disasters in the disability community (UNISDR Global Assessment Report, 2019). Also, researchers have found that this issue stems from the fact that emergency planning and preparedness lacks inclusivity of people with all types of abilities (Charlton, 2000; UNISDR, 2014). Therefore, the lack of awareness related to emergencies in the disability community could adversely affect individuals with disabilities in essential areas of life (i.e., quality of life, employability, mobility, maintaining their home, communication) (Fox, et al., 2010; Twigg, et al., 2011). In addition, most studies seem to focus on disaster recovery and post-disaster information rather than prevention and planning strategies that could help alleviate, and at times prevent post-disaster issues for people with disabilities.

Similarly, a lack of awareness of individualized emergency planning strategies for individuals with specific healthcare needs continues to be a significant reason why individuals with disabilities are more likely to be substantially affected by emergencies than people without disabilities (Charlton, 2000; UNISDR, 2014). The lack of access to participating in emergency preparedness teams or organizations results in persons without disabilities continuing to exclude people with disabilities in the planning efforts of proper and inclusive emergency plans in their communities at large.



## **Purpose of the Study**

The purpose of this study is to measure the perceived levels of emergency preparedness as well as perceptions of access to emergency preparedness information for people with disabilities. This study raises the following research questions:

1. Is there a difference in self-perceived levels of emergency preparedness among disability groups?

H<sub>0</sub>1: There is no difference in self-perceived levels of emergency preparedness among disability groups.

2. Is there a difference in self-perceived levels of emergency preparedness among age groups?

H<sub>0</sub>2: There is no difference in self-perceived levels of emergency preparedness among age groups.

3. Is there a relationship between levels of perceived emergency preparedness and gender, age, and socioeconomic status?

H<sub>0</sub>3: There is no relationship between levels of perceived emergency preparedness and gender, age, and socioeconomic status.

4. Is there a difference between perceived access to emergency preparedness information among disability groups?

H<sub>0</sub>4: There is no difference among perceived access to emergency preparedness information among disability groups.

\*The null hypotheses in the present study were tested with the  $F$  distribution at the .05 level of significance. The  $F$  distribution is robust, that is, it is insensitive in departures from the assumption of normality of distribution and homogeneity of variance (Box, 1953).

### **Limitations and Scope of Study**

There are several limitations to this study. First, as the participants are individuals that are served by independent living centers across the state of Texas, caution should be taken in relating the findings to other states. Second, the participants self-reported and could potentially provide socially acceptable responses. A final limitation to this study is that participants who live in rural areas that do not have access to Wi-Fi and/or a computer were not be able to access the survey online; the researcher mailed hardcopies of the survey to the individuals but the response rate was impacted.

### **Definition of Key Terminology**

*Behavioral Disability:* Psychiatric disabilities are also known as psychiatric illnesses. These are health conditions involving changes in emotion, thinking or behavior (or a combination of these). Mental illnesses are associated with distress and/or problems functioning in social, work or family activities (American Psychiatric Association, 2020).

*Cognitive Disability:* Cognitive disabilities are also known as Intellectual disabilities or impairments that are developed before adulthood and can affect a person's ability to learn, communicate, retain information, and undertake work or leisure activities. An intellectual disability may be caused by genetic conditions, problems during pregnancy and birth, illness, or

environmental factors. Diagnoses include: Autism, Fragile X Syndrome, Down Syndrome, and other developmental delays (OCECD, 2021).

*Disaster/Emergency:* A natural disaster is an act of nature of such magnitude as to create a catastrophic situation in which the day-to-day patterns of life are suddenly disrupted and people are plunged into helplessness and suffering, and, as a result, need food, clothing, shelter, medical and nursing care and other necessities of life, and protection against unfavorable environmental factors and conditions. (World Health Organization, 1971). The International Federation of Red Cross and Red Crescent Societies (2022) adds that disasters can also be caused by humans and can include complex emergencies, conflicts, industrial accidents, transport accidents, environmental degradation and pollution.

*Environmental Justice Framework:* The combination of both the civil rights and the environmental movements to improve the quality of life for vulnerable populations (Bullard, 1993).

*Emergency Preparedness:* Emergency preparedness encompasses the planning and response to disasters (Puryear & Gnugnoli, 2019).

*Physical Disability:* A condition that could affect a person's mobility, physical capacity, stamina, or dexterity (GPII Developer Space, 2021). This can include brain or spinal cord injuries, multiple sclerosis, cerebral palsy, respiratory disorders, epilepsy, and more. Some persons may have hidden (non-visible) disabilities which include pulmonary disease, respiratory disorders, epilepsy and other limiting conditions.

*Sensory Disability:* Sensory disabilities, or sensory impairments, affect one or more of a person's senses: touch, hearing, sight, taste, smell, or spatial awareness. The most common

sensory disabilities include: blindness or low vision, deafness or hearing loss, and Sensory Processing Disorder, which is a neurological condition that causes people to misinterpret information they receive through one, or many of the senses (Achieve Australia, 2019).

## CHAPTER II

### LITERATURE REVIEW

The World Health Organization (2001) defines disability as a general term for impairments, restrictions in certain participations, and limits to activities of daily living. Disability represents the challenges an individual with a health condition may have as it relates to their personal and environmental factors. Previous research regarding emergency management for individuals with disabilities define disability as including physical disabilities; behavioral disabilities; intellectual or developmental disabilities, and sensory-neural disabilities (Center for American Progress, 2018).

#### **History of Disability**

##### **History of Disability Worldwide**

The World Health Organization (2022) estimates that over 1 billion people worldwide have a disability and two to four percent of those people experience significant disabilities. There are a variety of needs that people with disabilities have that include but are not limited to the need of assistive technology, and mobility devices. According to the World Health Organization, the lack of accessibility to community services directly impacts people with disabilities. Services that people with disabilities have barriers to worldwide include access in the health system, education, employment, transportation, inclusion and community space (Sabariego et al., 2015).

Literature suggests that individuals with cognitive disabilities tend to be underrepresented in the provision of community services in Europe (Martinez-Leal et al., 2011). Similarly, it was concluded that Europe has disparity of availability of services to meet the needs of people with disabilities (Martinez-Leal et al., 2011; Walsh et al., 2003; Salvador-Carulla & Saxena 2009). Also, a study in South Africa reported that individuals with cognitive disabilities are overlooked which creates a negative perception and barriers to availability of services (Ali et al., 2015; Cooney et al, 2006).

There is literature that describes the rise of disability populations and services needed due to wars in the country of Russia. According to Khwaja (2017), in March of 1921, over 775,000 prosthetics made of wood were made for soldiers with disabilities. By 1932, Russia had a population of 43% war veterans with disabilities and 32% individuals with disabilities who were either injured through work or were born with a disability (Khwaja, 2017). In 1926, for every 10,000 persons in Russia, there were 15 people who had sensory disabilities such as being blind, have a visual impairment, or were deaf or hard of hearing (Trotsky, 1959). The increase in population having a disability due to the country's war situations, caused there to be considerations not only for assistive technology but for housing reform (Trotsky, 1959). There were community services organized by charitable associations that assisted in housing over 21,000 individuals with disabilities by 1926 (Khwaja, 2017). Silyanov (2015) reported that children with disabilities in Russia experience segregation in schools and suggested that the Russian government develop policies to prevent discrimination of children with disabilities in education. As a result, the Russian government began to develop changes to laws and policies that would grant children with disabilities the access to quality education.

There are an estimated 400 million individuals with disabilities living in the Asian and Pacific region of the world (World Health Organization, 2021). According to a study by Takamine (2003), there are different types of definitions for disability among Asian regions that have led to there being a misinterpretation of measuring and comparing the prevalence of disability in Asia. The negative stigma and attitude towards individuals with disabilities in Asia continue to cause social barriers for the population (Takamine, 2003).

### **History of Disability in the United States**

There are an estimated 19.7 million people in the United States that are living with a disability (American Community Survey, 2020). In the history of the United States, individuals with disabilities have been routinely stigmatized causing a disproportionate rate of discrimination, abuse, and negligence towards that population (Baynton, 2001). Individuals who contributed to the eugenics movement in the 20th century supported the eradication of people with disabilities in order to improve the dominant race (Goddard, 1912). This movement endorsed the discrimination and segregation (physical and mental abuse in institutions, forced sterilization, etc.) of individuals with disabilities.

Consequently, over the course of 30 years, over 60,000 individuals with known cognitive disabilities were sterilized in the United States. Although laws have been created to prevent discrimination and abuse toward individuals with disabilities, the stigma, and resulting abuses, remain (Baynton, 2001). Catastrophic events have proven to claim more lives of vulnerable populations compared to others due to the lack of preventative measures for those populations. This seems to be related to individuals with disabilities being viewed as less deserving of proper protection and consideration (Longmore & Umansky, 2001).

The disability rights movement is fairly new to the United States. It was not until 1990 that the United States recognized the importance of civil rights for individuals with disabilities (Wright, 2019). The U.S. Department of Justice Civil Rights Division (2022) indicates that the Americans with Disabilities Act (ADA) was enacted in 1990 and later amended in 2008. The ADA is a federal civil rights law for persons with disabilities, and it prohibits discrimination against persons with disabilities in different areas. This law is categorized into 4 different Titles that prohibit the discrimination of people with disabilities in the following areas: (1) Title I employment; (2) Title II state and local governments; (3) Title III public accommodations and; (4) Title IV telecommunications. Since the law has been in place, and increase in Americans with disabilities are protected and should be afforded equal opportunities as people without disabilities (ADA U.S. Department of Justice Civil Rights Division, 2022).

Even though the number of people with disabilities in the United States has increased, there is still inaccessible infrastructure that has been life threatening during severe disasters (National Council on Disability, 2006). Consequently, discrimination in society and lack of accessible infrastructure has caused individuals with disabilities to increasingly experience life or death situations during natural disasters when compared to persons without disabilities.

### **History of Disability in Texas**

According to the American Community Survey report (2020), there are about 3.2 million Texans living with disabilities. In Texas, there have been continuous advocacy efforts to increase equality for people with disabilities who encounter barriers (Grenwelge, Zhang, & Landmark, 2010). One study examined disability issues that specific advocacy populations (e.g., individuals with disabilities, family members of individuals with disabilities, or employees of disability organizations) in Texas are interested in. The study resulted in identifying the experiences that



advocates with disabilities in Texas have and the impact that legislators have on policies affecting people with disabilities. The authors suggested that awareness of disability issues can be useful for policymakers to increase services available to Texans with disabilities (Landmark et al., 2017).

Efforts to establish a database of disability history in Texas to ensure all advocacy efforts and disability right movements are documented have been made (Free, 2015). The Texas Disability History Collection is unique and includes documentation that represents over 40 prominent disability rights advocates and Texans with disabilities.

A study conducted by Grenwelge & Zhang (2013) contributed to the push for disability reform in Texas by evaluating the effects of leadership training on self-advocacy for youth with disabilities. The participant sample included 68 youth with disabilities and they were divided into control and experimental groups. The researchers measured the participants' self-advocacy abilities before the training and immediately following the training. The results showed that the participants felt like they had improved their self-advocacy abilities after they completed the training.

A major milestone to the attainment of disability rights in Texas were the establishment of centers for independent living (CILs). The 1978 reauthorization of the Rehabilitation Act included funding for independent living and the establishment of centers for independent living around the country (THE REHABILITATION ACT OF 1973, AS AMENDED BY WIOA, 2014). Ten States were funded during the first of the independent living monies, and Texas was one of them (Centers for Independent Living (CIL), 2012.) Prior to the establishment of CILs, the provision of services to people with disabilities was virtually nonexistent. Texans with disabilities were denied services and opportunities to increase their independence. The purpose

of CILs are to ensure that people with disabilities have the same opportunities as anyone else in their community and focus on advocating for the removal of barriers within the community (Centers for Independent Living (CIL), 2012).

### **Emergency Preparedness and Disability**

Since 2010, there have been 12,743 disasters affecting 3.8 billion people worldwide (Centre for Research on the Epidemiology of Disasters International Disaster Database, 2021). More specifically, the United States has experienced 288 disasters, affecting over 86 million people since 2010. There is research related to the levels of emergency-preparedness among different populations, but there lacks evidence regarding the capability of emergency preparedness among vulnerable populations (DeBastiani, et al., 2015). It is noteworthy that most preparedness models have been developed in the United States and there are very few methods developed in other parts of the world (Potter et al., 2012). Due to the lack of availability of preparedness models, other nations have had to adopt models created in the United States (Stoto et al., 2013).

Khan et al., (2018) conducted a study to help public health personnel define emergency preparedness using an evidence-informed approach. The authors indicated that there is lack of research related to disaster risk reduction within communities. Based on the limited research, the approaches that have been used prior to the study are not specific and have not been accepted and used to help define preparedness within the public health system (Khan et al., 2018).

Preparing individuals who are older and/or with complex healthcare needs for emergency situations by applying safety measures and unique and detailed disaster plans specific to their needs can prevent some of the physical, social, and emotional damage that occurs during emergencies (Al-rousan et al., 2014; Kruger et al., 2018). The lack of appropriate access and

gaps in services are more common among individuals with disabilities who are also low in income (Federal Emergency Management Agency, 2014). There is a lack of information related to the preparedness of emergencies for all community members, including those who have a disability and are low income.

Similarly, a study by Fox et. al (2007) only assessed the impact of emergency preparedness for persons with mobility disabilities and did not include other disabilities groups. The study analyzed the emergency preparedness efforts made to include people with disabilities in the planning process and what policies were in place to be accessible to people with disabilities during emergency responses in 30 different disasters sites that occurred between 1998 and 2003 (Fox et. al., 2007). The researchers found that people with disabilities were underrepresented in emergency planning and only 27% of emergency management personnel completed disability awareness training, thus suggesting that the efforts to include people with disabilities in emergency planning were ineffective. The researchers recommended that developing effective disability awareness training can improve emergency response for people with disabilities (Fox et.al., 2017).

Accountability in emergency preparedness should be a collective effort by national, state, local communities, and individuals. Communities must be prepared for proper disaster response so that people with disabilities within the community receive the critical resources needed before, during, and after an emergency. (Gershon et al., 2013; Smith & Notaro, 2019). It is important to include people with disabilities in emergency planning (Kruger, 2018) because they may be at higher risk of being negatively impacted by disasters due to mobility issues, use and maintenance of medical equipment, and dependent of services (Flanagan et al., 2011).

## **Disasters and Disability**

A great deal of the literature focusing on the impact of disasters like flooding and hurricanes emphasizes the historical context toward overlooking the experiences that people with disabilities may have had (Kahn, 2005; Turk, 2016). There is research that lacks input of the association between the effects of disasters on people with disabilities and the environmental justice framework (Belasen & Polachek, 2008; Davies & Hemmeter, 2010; National Council on Disability, 2006; Smith, 2006; Stringfield, 2010; Walsh-Walder, 2013). Literature related to emergencies excludes considerations of people with disabilities most likely due to how emergency planning lacks consideration of the needs of individuals with disabilities in disaster planning, evacuation, and recovery (Walsh-Walder, 2013; Carby et al., 2018).

### **Hurricanes & Flooding**

Among the different disability groups, individuals with physical or mental health disabilities have been found to be at increased risk of acquiring additional disabilities or health conditions as result of hurricane and/or flooding disasters (Reinhardt et al., 2011). According to case studies related to Hurricane Katrina and the Indian Ocean tsunami of 2004 (Hemingway & Priestley, 2006; Priestley & Hemingway, 2007) it was found that people with physical disabilities were at a greater disadvantage during the post-disaster process. Over 155,000 people with disabilities, or about 25% of the cities' population, were displaced. Similarly, when Hurricane Harvey in 2017 struck Texas and Louisiana, it affected over 330,000 structures, flooding over 500,000 vehicles and removing over 40,000 people from their homes (Glasse, 2018). Nearly 861,000 people with disabilities lived in areas struck by Harvey (American Community Survey, 2016).

## **Active Shooter Emergencies**

Active shooter threats have also shown to disproportionately affect people with disabilities and the elderly. The California Governor's Office of Emergency Services (Cal OES) revised the state's Active Shooter Awareness Guidance to include the access and functional needs of individuals with disabilities after the terrorist attack on the Inland Regional Center in San Bernardino, California, the (ADA National Network, 2017). The CAL OES Active Shooter Awareness Guidance (2016) is a revised guidance that is the first of its kind to integrate access and functional needs to support the safety of persons with access and functional needs before, during and after an active shooter attack. The guidance focused on specifically training three groups: 1) Workforce management; 2) Individuals with disabilities and access and functional needs (AFN); and 3) Law enforcement/first responders.

Moreover, the guidance focuses on how administration in the workplace should understand how to integrate the needs of their employees with disabilities in emergency planning (i.e., evacuations procedures, crisis communication during an emergency (CAL OES Active Shooter Awareness Guidance, 2016). The guidance also specifically looked at how persons with disabilities and AFN should ensure their individual needs are integrated into their organization's emergency evacuation plan, develop a "buddy system" for assistance evacuating or concealing themselves to avoid an attacker and think creatively about how to use personal assistive devices (e.g., canes, crutches, wheelchairs) as weapons if needed during an active shooter attack. The guidance teaches law enforcement and first responders how to move forward when encountering a person with a disability who may not be able to hear, physically comply, or cognitively understand commands among the survivors of an active shooter event.

## **Infectious Diseases & Pandemics**

Infectious diseases and pandemics have adversely affected all populations due to ineffective plans for outbreak prevention. Most recently, it has proven to affect people with disabilities and elderly at alarming rates (Hacker et al., 2021). It is recommended that support services would serve as an important environmental factor in an emergency event such as pandemic influenza, because it's continuation could help prevent infection or prevent possible death among individuals with chronic health conditions (Campbell et al., 2009). The Department of Homeland Security (2006) reviewed emergency plans in the United States and found that there were several inconsistencies and service gaps among the disability populations (Department of Homeland Security, 2006). Emergency planning teams usually delegate important tasks and accountabilities related to the needs of people with disabilities to third parties. There is an underestimation by jurisdictions of how much advance preparation and planning is required to effectively address the integration and accommodation of individuals with disabilities (Campbell et.al, 2009).

The novel virus (Coronavirus), more commonly known as COVID-19, has been the most recent infectious disease outbreak that has affected individuals worldwide. As of April 2021, there have been 535,477 deaths in the United States due to the coronavirus and 357,002 (over 67%) of those deaths were individuals with disabilities and/or complex healthcare (CDC, 2021). According to the CDC (2021) report, one can be at higher risk of severe illness and secondary effects from COVID-19 if they have serious underlying chronic medical conditions (i.e., chronic lung disease, a serious heart condition, or a weakened immune system). Adults with disabilities

are three times more likely than adults without disabilities to have heart disease, stroke, diabetes, or cancer.

It has been reported that long-term care facilities (nursing homes, state supported living centers, assisted living facilities, etc.) have been notoriously affected by COVID-19. As of April 1st 2021, there were at least 1,295 reported cases among residents at the 13 Texas state supported living centers (The Texas Tribune, 2021). As of February 2021, there were a total of 8,814 residents that have died in the United States due to COVID-19 (HHS NF Regional Report, 2021). As of March 2021, over 2,200 elderly with disabilities have contracted COVID-19 in Texas long term care facilities and 126 have died (HHS Report, 2021).

### **Disability and Barriers During a Disaster**

People with disabilities that live in larger cities more commonly face barriers related to access to emergency information, the process of evacuations, and availability of accessible shelters as opposed to persons without disabilities (Chappell et al., 2007; Cigler, 2007; Davies & Hemmeter, 2010; Lord, 2010; National Council on Disability, 2010). People with disabilities are no strangers to dealing with these types of barriers daily (National Council on Disability, 2010). During natural disasters, barriers and discrimination are exacerbated and expose the structural obstacles people with disabilities face every day (Chappell et al., 2007). A significant reason why emergencies put people with disabilities at a high risk of challenges is because they are not included in the planning and decision making process in the beginning (National Council on Disability, 2010; Carby et al., 2018; Gartrell et al., 2020; LoGiudice, 2020). Consequently, during past disasters such as Hurricane Katrina in 2005, people with disabilities did not have the opportunity to give input on how to address the barriers that could cause critical harm or death

during a disaster, which led to disproportionately high mortality rates among people with disabilities, particularly in elderly populations (National Council on Disability, 2010).

### **Emergency Information**

People with sensory disabilities (i.e., visual and auditory challenges) are usually excluded from obtaining information which is one of the earliest and most important steps in making it through a disaster (Hemingway & Priestley, 2006; Priestley & Hemingway, 2007). Although there are statutes that require information to be accessible during emergencies, usually news media and websites fail to comply, specifically during the early stages of a hurricane (National Council on Disability, 2006). Due to the lack of access to this information, people with disabilities are not aware of the extent of the storms that are coming or the appropriate evacuation procedures. In past hurricane disasters such as Hurricane Katrina and Hurricane Rita, emergency management personnel did not use the Emergency Alert System at any point during the hurricanes, which dispatches fully accessible emergency information (National Council on Disability, 2006).

According to Hemingway and Priestley (2006), many people with disabilities experience problems with access to emergency information and usually rely on their mobile phones for emergency alerts, but cell towers and power usually fails early in storms. During hurricanes, many people are left without electricity so they rely on radios to receive important disaster alerts, but individuals who have sensorineural disabilities (i.e., deafness, hearing loss, etc.) may not be able to access that information (National Council on Disability, 2006). According to Priestley and Hemingway (2007), many people could not understand the instructions officials gave in shelters, since they were rarely repeated in accessible formats to people with hearing difficulties and cognitive disabilities. The National Council on Disability (2010) reported that people with disabilities are susceptible to barriers in accessing information if federal emergency



organizations lack the accessible technology necessary for receiving emergency alerts. Limited access to crucial information during emergencies from the media is an everyday challenge for people with disabilities, but it becomes an even bigger issue when it can determine the chance a person may have of surviving an emergency.

### **Evacuation During Disasters**

The process of evacuating during a storm is also a significant factor that people with disabilities and elderly often face with challenges (McGuire et al., 2007). Even if some older adults and people with disabilities would be able to receive pertinent information regarding evacuation procedures, accessible transportation becomes another issue. The most significant challenge that people with disabilities and elderly face is the inaccessibility of public (city bus, metro, train, etc.) and private (independent taxis, Uber, Lyft, etc.) transportation (lack of wheelchair lifts, non-ADA compliant ramps, etc.) (McGuire et al., 2007; National Council on Disability, 2010). During previous hurricanes (i.e., Katrina, Rita), people with mobility issues underwent long waiting periods for public transportation which led to life-threatening challenges during the storms. (Luft, 2009; National Council on Disability, 2006). Walsh-Warder (2013) suggested that if people with disabilities were included in local emergency plans, possible struggles would have been acknowledged, preventative measures would have been discussed and provided for people with different evacuation needs during those storms.

### **Shelter During and After Disasters**

Having restricted access to accessible shelters during an evacuation is also a barrier for people with disabilities and elderly (McGuire et al., 2007). People with disabilities tend to have an increased rate of limited access to shelters than people without disabilities (Al-rousan et al., 2014). Shelters have previously not admitted people with disabilities, partly due to the organizations running the shelters confirming that they did not

have enough supplies, let alone the appropriate supplies to care for people with disabilities along with everyone else (National Council on Disability, 2006). According to McGuire et al. (2007), this represents the continuing damage that ableism creates towards people with disabilities as being burdensome. Additionally, Walsh-Warder (2013) stated that these actions influence ideas that people with disabilities are regarded as being less important than people without disabilities.

The National Council on Disability (2006) stated that policies related to shelters varied from shelter to shelter. Some officials at the shelters chose to turn individuals with disabilities away, while other directed them to shelters that were exclusively for individuals with disabilities. According to the report, these shelters were known as special needs shelters were specifically created for people with complex healthcare needs that need special medical care and not necessarily for individuals with visible disabilities (National Council on Disability, 2006). In spite of these shelters turning individuals away, they continued to fail to understand that general shelters were legally mandated to shelter people with disabilities even if there were special needs shelters in other places.

The inability to enter general shelters results in the separation of people with disabilities from their families which could further expose them to challenges during disasters (Alrousan et al., 2014). Many shelters fail to provide accessible medical services, accessible bathrooms, and food that meets their healthcare needs. There have been limited supplies that could have been the root cause of barriers to access to essential medical care for individuals with disabilities in shelters during past disasters (National Council on Disability, 2006). The lack of provisions and accessible medical care proves that emergency planners do not consider the needs people with disabilities have the right to.

## **Decision-Making Practices for Emergency Plans**

Improved emergency planning could be the difference in preventing disparities experienced by individuals with disabilities during and after disasters (Fieldman, 2007). Unfortunately, it is common for disaster preparedness and emergency response systems to not include the needs of people with disabilities or individuals with complex healthcare needs because they assume they do not truly have mobility impairments (Lord, 2010; Carby 2018; Gartrell et al., 2020). This in part is due to the fact that people with disabilities are not included in this process to both advocate for their needs and testify to the physical barriers they face. Researchers believe that if there is inclusion and opportunities for people with disabilities to be part of disaster planning, there would be less challenges in accessing information, and safe evacuations to accessible shelters before, during and after a disaster occurs (Fieldman, 2007; Lord, 2010, National Council on Disability, 2010; Walsh- Walder, 2013).

Similarly, a study by O'Meara and Mullin (2011) noted that there is a need for organizations to have people with disabilities be included in emergency management planning. The researchers state that personnel should be able to meet with organizations that serve people with disabilities as well as people with disabilities to understand their needs and to participate in the emergency management plan development. The authors also emphasized that preparedness should focus on worst-case scenario planning and should consider its effects to people with disabilities. O'Meara and Mullin (2011) stated that occasional emergency drills and practice should occur in counties and that the emergency management agencies should have legal implication awareness for their emergency management plans and how it will address and support the needs of people with disabilities.

Due to inaccessibility to both decision making before disasters and to environmental barriers (i.e., transportation, accessibility in shelters), literature has failed to communicate how disability plays a significant role in the emergency readiness experience. An extensive history of abuse and neglect of people with disabilities in the United States has made discrimination normal and has led to the barriers that people with disabilities face to be insignificant regular (Marini et al., 2018). Even though the challenges they faced became even more obvious when worsened by emergency situations, little has changed. Also, Disability Rights Online News (2007) and the National Council on Disability (2006) discussed how the even though the New Orleans government agreed to include accessibility as a criterion in its reconstruction efforts, infrastructure continued to create barriers for people with mobility issues.

According to the National Council on Disability (2006), even though the distribution of emergency information has somewhat improved (i.e., television stations providing accessible emergency information, updating the Emergency Alert System) these advances do not measure up to the changes that are required to prevent the disparity that people with disabilities face a disaster. For instance, Hurricane Sandy in 2012 revealed that changes made after Katrina were not enough. There were a total of 68 deaths in a nursing home during Katrina, and even after the changes, nearly 4,000 residents remained flooded in institutions for days as a result of Hurricane Sandy. This emphasizes the importance of evacuating early and planning ahead for institutions (DeBerry, 2012). Many nursing homes still lack emergency plans and adequate supplies for sheltering their residents during hurricanes.

### **Lack of Environmental Justice Framework**

As previously mentioned, literature related to emergency disasters fails to discuss the disproportionate impact among specific socioeconomic groups and race, it almost always leaves

out the impact on individuals with disabilities. Environmental justice generally focuses more heavily on the biased infrastructure that creates higher risks for vulnerable populations (Cable et al., 2005; Holifield, 2001). McCallum and Heming (2006) fail to examine the various impacts of Hurricanes experienced by vulnerable populations and only focused on generalizing the impacts of disaster with overall death toll statistics. Similarly, Belasen and Polachek's (2008) study on the effect of hurricanes on labor markets resulted in a broad view of people's experiences during hurricanes by only analyzing income and employment at the county level. Their study focused on comparing the effect of disasters on counties that were directly impacted by the disaster and did not include the identification of differences between people of different socioeconomic status. The limitation to that study was not considering the factors and disparities that existed before the disaster and the different levels of recovery post-disaster.

Similarly, another study failed to notice the differences and inequalities among different groups impacted by natural disasters (Kahn, 2005). A small portion of the literature related to emergency preparedness does consider the impact that disasters have on people with disabilities, but still lack to discuss and include the major role that environmental justice plays in disaster impact (Davies & Hemmeter, 2010; Kahn, 2005). The National Council on Disability's 2006 report on the impact of Hurricane Katrina in 2005 and Rita in 2005 on people with disabilities recognizes a substantial difference between the experiences of people with disabilities and those without disabilities. The differences included access to urgent information, evacuation transport, food, shelter, and medical care which caused disproportionate death rates among people with disabilities (National Council on Disability, 2006). Such inequities continue to be ignored legislatively and responses continue to be reactive (following a crisis) rather than preventative of

severe hardships among disenfranchised populations like those with disabilities who are living in poverty. This issue has once again been observed during the COVID – 19 pandemic responses.

Studies may lack the recommendations of inclusion of people with disabilities in decision-making because of the lack in reviewing structural factors that may contribute disparities for people with disabilities (Chappell et al., 2007; Cigler, 2007; Davies & Hemmeter, 2010). Unfortunately, it is common for research to focus on transportation issues, accessibility challenges, and lack of effective communication only after the disaster has struck (Chappell et al., 2007; National Council on Disability, 2006). Most of the recent research overlooks how important it is for individuals with disabilities to be able to have access to the planning and implementation of disaster response efforts. Fieldman (2007) stated that environmental justice movement would benefit from people advocating to include people with disabilities in the decision-making process in disaster planning. According to Walsh-Warder (2013), researchers should study the decision-making process leading to the actions that occur during and after disasters. Additionally, if researchers do not advocate for the inclusion of people with disabilities in disaster planning or researching the impacts of certain structures that are creating disparities, then research will continue to leave significant aspects related to the disproportionate effect on people with disabilities out of literature.

As previously noted, most research does not include infrastructure inequality concepts in their discussion of disasters, which causes the research to often overlook the importance that the disability populations' experience has. Stringfield's (2010) study recognized the relationship between variables such as race, ethnicity, and socioeconomic status had on return rates to New Orleans in the years following Hurricane Katrina. The study also referred to the historical aspects that may have contributed to susceptibilities in the varying populations. However, the study

failed to measure the return rates of people with disabilities who were displaced. People with disabilities seem to be put into susceptible positions due to the historical context of abuse, neglect and exploitation meaning that this context would by theory, lead to lower return rates.

In Smith's (2006) study on natural disasters, the author did not consider the impact the disasters had on people with disabilities. Although the study focused on how disasters impact vulnerable social and economic populations which supports key environmental justice arguments, he failed to expand on the disability population. If research continues to leave out how disability plays a significant role in post-disaster recovery, then future research will indirectly continue to support past history of excluding disability from discussions of inequities within the environment that affect emergency preparedness.

### **Theoretical Perspective**

Even though communities may be more aware of how past disasters have negatively impacted individuals with disabilities, there seems to be a continuous disregard related to helping and supporting equal community access for people with disabilities in the United States (Walsh-Warder, 2013; Carby et al., 2018; Gartrell et al., 2020; LoGiudice, 2020). Taking the environmental and infrastructure framework into consideration when planning for emergencies supports an increase awareness of the challenges that people with disabilities face (Longmore & Umansky, 2001, Rushford, 2015). The framework primarily focuses on the disparities, like death rates within the disability population during emergencies, and on the structures that influence these inequalities. This process allows for an opportunity for the needs of people with disabilities to be considered. The emphasis on appropriate access to the decision-making processes is significant to the advocacy movement of disability rights (O'Meara & Mullin, 2011). Excluding individuals with disabilities in the planning of emergency management has negatively impacted

the population and could have been prevented if they had first reached out to the disability population through advocacy organizations. By implementing an inclusive framework that includes infrastructure assessment to discuss people with disabilities' environmental experience, researchers and disability organizations could advocate for equal access in being part of a decision making group in emergency management.

The theoretical framework that was used in this study is the environmental justice framework. The concept of environmental justice within the context of vulnerable populations was originally introduced by Bullard (1993) as an awareness that regardless of ethnicity, age, gender, or SES, individuals should not be disproportionately at risk due to natural disasters or emergency situations. Toffolon-Weiss and Timmons Roberts (2004) built on the concept of discussing this framework and state that those individuals all have the right to have equal access within the community as well. Moreover, Walsh-Warder (2013) reiterated the lack of an environmental justice framework continued to exist so the disability population continued to be negatively impacted. This framework was developed as a result of the lack of research that includes infrastructure inequality concepts into their discussion of disasters and a few studies who suggest it's use but have not applied it to individuals with disabilities. Although a social justice model may be a more related to disability studies, this study used the environmental justice framework because the model focuses on the physical barriers people with disabilities have during emergencies. The environmental justice framework will be used to study levels of self-perceived emergency preparedness and effective communication in shelters for individuals with disabilities. This theory would indicate that depending on the type of disability and/or age of an individual, they may perceive different levels of emergency preparedness.

As applied to this study, the environmental justice framework holds that it would be expected that the independent variables (i.e., disability-type, age, SES, gender and ethnicity)



would influence or explain the dependent variables (i.e., perceived levels of emergency preparedness and perceived effective communication in shelters) because environmental justice factors such as barriers to understand emergency preparedness and easily obtain emergency information may be present. The following statements represent the underlying logic for designing and conducting this study. Considering the environmental justice framework, lower levels of emergency preparedness may be perceived more commonly among individuals who have sensory or cognitive disabilities may result in having lower perceptions of levels of emergency preparedness and equal access to emergency preparedness information during emergencies when compared to other disability groups.

## CHAPTER III

### METHODS AND PROCEDURES

The following section describes the research design of the study, participant selection, instrumentation, variable selection, procedures, and data analysis. The aim of the study is to measure the self-perceptions of individuals with disabilities related to emergency preparedness as well as access to effective communication in emergency situations. The study was a non-experimental descriptive survey research design. Participant selection will be discussed as well as the procedure that was used to complete the study. The main purpose of the surveys was to assess the differences in self-perceived levels of emergency preparedness among disability-types and ages and to assess the relationship among age, gender and SES and level of emergency preparedness. In addition, a detailed description of the measurements and what they contain will be discussed. As a final point, this specific section includes the variables that were used as well as details of the research design.

#### **Sample Selection**

The sampling scheme that was used is purposive. The participants were required to have received services from any of the 27 Centers for Independent Living (CIL) located around the state and reside in the state of Texas. Independent Living Center directors initially recruited participants by an email to

volunteer and disseminate the survey among their consumers at each of the respective CILs they oversee. A- priori was used as a power analyses to calculate the minimum number of participants needed for a power of at least .80 at a .05 level of significance.

## **Procedure**

This study has been approved by the author's university institutional review board. Following approval, participants for the current study were individuals with disabilities that have previously or are recently receiving services from CILs in Texas. The participants participated in the survey at one of the 27 CILs. A consent form was completed with the participants acknowledging to spend at least 20 minutes to complete the survey. Individuals with Wi-Fi were forwarded a link to take it from there home online. Those without an identifiable email, were mailed a hard copy of the survey in a self-addressed stamped envelope.

Individuals were initially contacted by the director of their respective CIL and asked if they would like to volunteer taking the survey. The author developed a memo to provide to the individuals that explains the purpose of the study and how it can be disseminated. The letter that was given to the director of the CIL explained that the purpose of the study was to survey individuals with disabilities and their self-perceived level of emergency preparedness. The process included explaining the purpose of the study to the individuals, followed by providing the individuals with access to a computer at their CIL to complete the survey. Accessible formats were available as needed (i.e., hard copy with large print or braille). The participants read and completed a consent form if they wished to move forward with the survey. Once the consent form was acknowledged, the participants were able to navigate through the survey to complete it. A reminder to complete the survey was sent after two weeks. Additional reminders were sent out every two weeks until the required participant amount was reached.

## **Instrumentation**

**Hazard Mitigation Questionnaire- Revised.** Two surveys were used to conduct this research. Hazard Mitigation Questionnaire-Revised: The instrument was revised from the original questionnaire: Hamilton County Hazard Mitigation Questionnaire. The original survey was used to analyze level of preparedness in Hamilton County in Cincinnati Ohio. The Hazard Mitigation Questionnaire was developed by Integrated Solutions Consulting (ISC) with some input from Hamilton County Emergency Management & Homeland Security Agency to address information that was specific to Hamilton county. The factors that the Hamilton County Emergency Management & Homeland Security Agency considered when developing the survey were how the survey would be promoted/publicized, who would take the survey, how the survey would support mitigation planning and what information could be collected to inform the plan, and some general preparedness information for the county.

In addition, for Hamilton County, the survey was only used once, just for mitigation plan development. However, the survey has been used by other jurisdictions working with ISC. The developers of the survey reviewed the reliability by using internal consistency and test-retest as estimators. Cronbach's alpha was computed for 64% of the variance which included general preparedness; disaster experience; functional and access needs. Although the reliability of the coefficients was acceptable for their study, the researchers indicated some limitations. First, the researchers stated that they first conducted a pilot study and collected a convenience sample of residents in only three different zip codes in Hamilton County. They indicated that it does not represent variation of all the county population and therefore suggested that for future research, the questionnaire should be used with larger samples across the targeted county of the study (Hamilton County Emergency Management & Homeland Security Agency, 2018).

The survey had a total of 31 questions and it was a combination of multiple choice, 6 point Likert-scale rating (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, do not know), and open-ended questions.

There was a lack of instruments related to perceptions of emergency preparedness and access to emergency preparedness information. After thorough research of instruments related to the two dependent variables in question for this study, the Hamilton County Hazard Mitigation questionnaire was considered the instrument that was used in a revised format.

For the purpose of this study, the Hamilton County Hazard Mitigation Questionnaire was modified to generalize the county areas in the state of Texas that the participants reside in and to focus on disability related questions. This was accomplished by having respondents indicate the Texas county that they reside in. The survey was a combination of multiple choice and Likert-scale rating. The survey instrument utilized only descriptive questions to understand perceptions of general preparedness behavior for people with disabilities as well as demographic factors influencing decision making (age, gender, and socioeconomic status). There was a total of 25 questions; respondents would take about an average of 20 minutes to complete the questionnaire. The survey instrument contained questions that fall into a number of broad categories: perception of preparedness; disaster experience; evacuation; functional and access needs; and demographics.

**Demographics Survey.** Demographic questions were developed for the purpose of this study as well. There was a total of 8 questions. Items include gender, education, ethnicity, age, dwelling-type, socioeconomic status, and disability-type. These variables were selected after a thorough literature review that identified questions relevant to demographics within disability populations. One of the research questions will specifically assess the relationship among age, gender and socioeconomic status and level of emergency preparedness. According to Noel

(2018), it was reported in the U.S. Bureau of Labor Statistics that educational attainment and ethnicity can be significant contributors to the level of socioeconomic status of the individuals. The two primary population focus of the study are individuals with disabilities and age. Therefore, disability-type and age were chosen as demographic questions to assess.

### **Variable Selection and Analyses Utilized**

The independent variables in this study include: gender identity (i.e., male, female, and other) which are nominal and categorical; education level (i.e., high school diploma/GED, undergraduate, graduate, and other) which is also considered nominal and categorical variable; ethnicity (i.e., white, Hispanic, black, other) which are nominal and categorical variable types; age and these variables are nominal variables; dwelling-type (i.e., apartment, mobile home, brick home, other), nominal and categorical; socioeconomic status (i.e., household income levels), also categorical and interval variables; and disability-type (i.e., physical, cognitive, behavioral, sensory, other) is measured as categorical.

The dependent variables chosen for this study are perceived levels of emergency preparedness (i.e., previously developed a plan, medical supplies, medication) and perceived access to emergency preparedness information (i.e., accessible formats, ease of obtaining information during a disaster). These variables were selected after conducting a review of literature related to emergency preparedness and outcomes related to people with disabilities post-disasters. According to UNISDR Global Assessment Report (2019), people with disabilities lack of access to participate in emergency preparedness within their communities. Therefore, assessing their level of perceived readiness could contribute to improved planning efforts for emergency management teams (Twigg et al., 2018).

The quantitative data set was processed through descriptive statistics by using the International Business Machines Corporation's Statistical Package for the Social Sciences (IBM – SPSS Statistics 27.0). The demographic questions were reviewed using descriptive statistics to measure frequencies for variables such as age, ethnicity, county, education level, and income levels. One-way analysis of variance (ANOVA) was conducted to determine if there was a difference in self-perceived levels of emergency preparedness among specific independent variables (i.e., disability groups and age groups). A One-way analyses of variance was also conducted to determine if there was a difference in perceived access to emergency preparedness information among disability groups. Multiple linear regression analyses were used to measure the relationship between the perceived levels of emergency preparedness and specific predictor variables (i.e. age, gender, and socioeconomic status).

## CHAPTER IV

### ANALYSES AND RESULTS

The purpose of the present study was to analyze the differences between perceived levels of Emergency Preparedness among disability groups, gender, age, and SES as well as to evaluate the relationship between perceived access to Emergency Preparedness Information among disability types. Existing research shows a lack of studies specifically related to relationship between levels of perceived Emergency Preparedness among individuals with disabilities (Marceron & Rohrbeck, 2019).

#### **Demographic Information**

A total of 275 participants, out of 319 that were contacted, returned surveys. After adjusting for and omitting incomplete surveys, 272 surveys remained. After further removal of participants that didn't indicate that they had a disability, 267 remained. A total of 267 participants were included for analysis (N=267).

Descriptive statistics were utilized to determine means and frequencies for the participants' demographic information. Level of Emergency Preparedness and Access to Emergency Preparedness Information were the dependent variables analyzed for the present study. The sample consisted of 267 participants (N=267) whose ages ranged from 21-78 with an average age of 46.37 years. The sample population consisted of four different disability-type groups which included: 12.4% of Behavioral Disability, 37.1% of Physical Disability, 28.1% of



Sensory Disability, and 22.5% Cognitive Disability in the sample population. Participants were geographically represented across the state of Texas with 64 counties represented (see Table 1).

Table 1

*Demographic Information on Age Groups, Disability Groups, and Counties*

	Frequency	% of Sample Represented
<i>Age Group:</i>		
18-29	27	10.1%
30-39	61	22.8%
40-49	71	26.6%
50-59	68	25.5%
60+	40	15.0%
<i>Disability Group:</i>		
Behavioral	33	12.4%
Physical	99	37.1%
Sensory	75	28.1%
Cognitive	60	22.5%
<i>Counties:</i>		
Aransas	6	2.2%
Armstrong	2	0.7%
Austin	4	1.5%
Bailey	4	1.5%
Bastrop	5	1.9%
Baylor	1	0.4%
Bexar	6	2.2%
Brazoria	12	4.5%
Brazos	4	1.5%
Brooks	4	1.5%
Burnet	1	0.4%
Cameron	13	4.9%
Carson	1	0.4%
Comal	5	1.9%
Crockett	5	1.9%
Dallas	4	1.5%
Denton	5	1.9%
Duval	1	0.4%
El Paso	8	3.0%
Ellis	3	1.1%
Fort Bend	11	4.1%

Table 1 cont.

Frio	2	0.7%
Galveston	9	3.4%
Gray	1	0.4%
Grimes	2	0.7%
Hamilton	2	0.7%
Harris	10	3.7%
Hidalgo	23	8.6%
Hockley	1	0.4%
Hudspeth	1	0.4%
Hutchinson	1	0.4%
Jackson	2	0.7%
Jefferson	4	1.5%
Jim Hogg	1	0.4%
Johnson	1	0.4%
Kendall	4	1.5%
Kenedy	2	0.7%
Lubbock	7	2.6%
Lynn	4	1.5%
McLennan	1	0.4%
Medina	1	0.4%
Midland	2	0.7%
Moore	1	0.4%
Navarro	1	0.4%
Nueces	8	3.0%
Parker	1	0.4%
Pecos	1	0.4%
Potter	4	1.5%
Presidio	3	1.1%
Randall	3	1.1%
Reeves	3	1.1%
Refugio	5	1.9%
San Patricio	5	1.9%
Starr	7	2.6%
Tarrant	2	0.7%
Terry	1	0.4%
Travis	13	4.9%
Uvalde	4	1.5%
Victoria	2	0.7%
Webb	2	0.7%
Wharton	2	0.7%
Willacy	8	3.0%
Williamson	1	0.4%
Zapata	3	1.1%

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*Note:* Percentages displayed are representative of what was observed in the population sample.

Females comprised 49.4% of the sample and males 50.6%. The sample was predominately Hispanic or Latino with 41.0% of the sample identifying as Hispanic/Latino, while 33.2% identified as White/Caucasian, 19.0% identifying as Black or African American, 0.7% identifying as Native American or American Indian, and 5.6% identifying as Asian/Pacific Islander (see Table 2). Fifteen point four percent of the participants reported having less than High School diploma. The majority of participants held a high school diploma with 47.9% reporting a High School Diploma, 16.1% reporting having some college but no degree, 5.6% reporting having a 2 year Associate’s degree, 12.4% a Bachelor’s Degree, and 2.6% reporting as having a Master’s Degree or higher (see Table 2).

Table 2

*Demographic Information on Gender, Ethnicity, and Level of Education*

	% of Sample Represented
<i>Gender:</i>	
Male	50.6%
Female	49.4%
<i>Ethnicity:</i>	
White/Caucasian	33.2%
Hispanic or Latino	41.0%
Black or African American	19.0%
Native American or American Indian	0.7%
Asian/Pacific Islander	5.6%
<i>Level of Education:</i>	
Less than High School	15.4%
High School Diploma	47.9%
Some College but no degree	16.1%
2-year Associates Degree	5.6%
Bachelor’s Degree	12.4%
Master’s Degree or Higher	2.6%

*Note:* Percentages displayed are representative of what was observed in the population sample.

The Hazard Mitigation Questionnaire- Revised (HMQ-R) consists of 25 questions that include Likert scale questions and multiple choice questions. The perceived Levels of Emergency Preparedness (LEP) was measure through multiple choice questions that related to the activities that have been done to prepare for an emergency, where and how many places they go to obtain emergency information, and their perception on how prepared they are for emergencies. Almost 23.2% of the participants in the sample population scored in the lower range of levels of preparedness (see Table 3). The LEP was also assessed via multiple choice questions. In one of the questions, participants were asked to indicate activities they have done to prepare for emergencies and disasters. Only 14.5% of participants in this sample population reported they have done 3 or more activities which included activities such as putting together a 72-hour kit/Disaster supply kit, visited local government web site(s) for emergency preparedness information, prepared an evacuation plan, obtained a weather radio, signed up for emergency alerts in their county, and/or have obtained flood insurance. Twenty-three point two percent of the participants in this sample population reported that they have done nothing or don't know where to go to obtain emergency and disaster preparedness information (see Table 3).

Table 3

*Hazard Mitigation Questionnaire- Revised (HMQ-R)- Levels of Emergency Preparedness (LEP)*

LEP Multiple Choice Questions (with 1 indicating "Done nothing" or "Don't Know," 2 indicating up to 2 of any of the other responses, 3 indicating 3 or more of any of the other responses)	<u>N</u>	<u>% of Participant Response</u>
Indicate those activities you have done to Prepare for emergencies and disasters		
Done nothing/Don't know	136	50.9%
Up to 2 activities indicated	92	34.5%

Table 3 cont.		
3 or more activities indicated	39	14.5%
<hr/>		
Indicate where you go to obtain emergency and disaster preparedness related information.		
Done nothing/Don't know	62	23.2%
Up to 2 activities indicated	83	31.1%
3 or more activities indicated	122	45.7%
<hr/>		
If a disaster (i.e. hurricane) impacted your area, knocking out electricity and running water, would your household be able to manage on its own for at least three (3) days? (with 1= indicating "No/Don't know," 2 indicating "Maybe", and 3 indicating "Yes").		
No/Don't Know	158	59.2%
Maybe	39	14.6%
Yes	70	26.2%
<hr/>		

The HMQR also measured Access to Emergency Preparedness Information (AEPI). This dependent variable was assessed on a 5-point Likert Scale with 1 indicating they strongly agree, 2 as agree, 3 as neither agree or disagree, 4 as disagree, and 5 and strongly disagree in the following four different statements: 1) The county I live in is providing the services necessary to prepare me for a disaster, 2) I am familiar with my county's web site and can easily obtain information about emergencies and disasters, 3) During times of emergency, information is provided in a language or format I can understand, and 4) I can easily obtain emergency information in times of crisis (see Table 4). Only nine out 267 participants in this sample population reported that they strongly agree across all four statements.

Table 4

*Hazard Mitigation Questionnaire- Revised (HMQR)- Access to Emergency Preparedness*

*Information (AEPI)*

AEPI 5-point Likert Scale (with 1 indicating they strongly agree, 2 as agree, 3 as neither agree or disagree, 4 as disagree, and 5 and strongly disagree)	<u>N</u>	<u>% of Participant Response</u>
<hr/>		
The county I live in is providing the services necessary to prepare me for a disaster.		
Strongly Disagree	45	16.9%
Disagree	69	25.8%
Neither Agree nor Disagree	18	06.7%
Agree	80	30.0%
Strongly Agree	55	20.6%
<hr/>		
I am familiar with my county's web site and can easily obtain information about emergencies and disasters.		
Strongly Disagree	60	22.5%
Disagree	70	26.2%
Neither Agree nor Disagree	13	04.9%
Agree	89	33.3%
Strongly Agree	35	13.1%
<hr/>		
During times of emergency, information is provided in a language or format I can understand.		
Strongly Disagree	57	21.3%
Disagree	62	23.2%
Neither Agree nor Disagree	24	09.0%
Agree	90	33.7%
Strongly Agree	34	12.7%

Table 4 cont.  
I can easily obtain emergency information in times of crisis.

Strongly Disagree	64	23.9%
Disagree	75	28.0%
Neither Agree nor Disagree	27	10.1%
Agree	66	24.6%
Strongly Agree	36	13.4%

## Analyses

### Research Hypothesis 1

H<sub>1</sub>: There is a difference in self-perceived levels of emergency preparedness among disability-types. A One-Way Analysis of Variance for four disability groups which include behavioral, physical, sensory, and cognitive were analyzed on the dependent variable of Levels of Emergency Preparedness (LEP) (see Table 5).

Table 5

*One-Way Analysis of Variance Between Disability Groups' Levels of Emergency Preparedness*

Source of Variation	SS	df	MS	F	Partial Eta Squared
Between Disability Groups	246.72	3	82.24	26.06*	.23
Error b	830.02	263	3.156		
Total	1076.742	266			

\* $p < .05$ ; \*\* $p < .01$

The null hypothesis for among disability groups' Level of Emergency Preparedness was rejected ( $p < .05$ ). The obtained means for the four disability groups' Level of Emergency Preparedness are shown in Table 6. The Scheffe test was utilized to make the pairwise group comparison as shown in Table 7.

Table 6

*Means for Disability Groups' Levels of Emergency Preparedness*

Disability Groups	Mean	SD	N
Behavioral	5.97	2.054	33
Physical	6.39	1.937	99
Sensory	5.44	1.695	75
Cognitive	3.87	1.396	60

The physical disability group's mean of 6.39 is greater than the sensory disability group's mean of 5.44 and the cognitive disability group's mean of 3.87. There is a statistical difference among the physical, sensory, and cognitive disability groups. There is also a statistical difference between the behavioral disability group mean of 5.97 and the cognitive disability group mean of 3.87. However, there is no statistical difference among the behavioral, physical, and sensory group means (See Table 7).

Table 7

*Scheffe Test Pairwise Multiple Comparisons Among the Four Disability Groups' Level of Emergency Preparedness Means*

	Behavioral	Physical	Sensory	Cognitive
Behavioral	—			
Physical		—		
Sensory		**	—	
Cognitive	**	**	**	—

\*\*  $p < .01$



## Research Hypothesis 2

H<sub>2</sub>: There is a difference in self-perceived Levels of Emergency Preparedness among age groups (see Table 8). A one-way analysis of variance was utilized to compare the five age groups which include 18-29 age group, 30-39 age group, 40-49 age group, 50-59 age group, and 60+ age group for the dependent variable of Levels of Emergency Preparedness (LEP) (see Table 8).

Table 8

### *One-Way Analysis of Variance Between Age Groups' Levels of Emergency Preparedness*

Source of Variation	SS	df	MS	F	Partial Eta Squared
Between Age Groups	8.97	4	2.24	.56	.01
Error	1067.78	262	4.08		
Corrected Total	1076.74	266			

The data failed to reject the null hypothesis for among age groups' Levels of Emergency Preparedness ( $p > .05$ ). There was no statistical difference among the age groups' Levels of Emergency Preparedness.

## Research Hypothesis 3

H<sub>3</sub>: There is a relationship between levels of perceived emergency preparedness and gender, age, and socioeconomic status. (see Table 9). A multiple linear regression analysis was utilized to analyze the relationship between Levels of Emergency Preparedness and three independent variables gender, age, and socioeconomic status (SES).

The null hypothesis for the rejected ( $p < .05$ ). The obtained multiple regression coefficient between Levels of Emergency Preparedness and gender, age, and SES was  $R = .58$  ( $F = 43.31$ ; 3,

263 ( $p < .01$ ). The R squared was .33 and thus, 33 % of the total variance in Levels of Emergency Preparedness is accounted for or explained by gender, age, and SES. The adjusted R squared was .32.

Table 9

*Standardized/Beta Coefficients Obtained from the Regression Analysis Between Levels of Emergency Preparedness and Age, Gender, and SES*

Predictor/Independent Variable	Standardized/Beta Coefficient	<i>t</i>
Gender	-.54	-10.61**
Age Group	.04	.80
SES	.18	3.48**

\* $p < .05$ ; \*\*  $p < .1$ ; \*\*\*  $p < .001$

#### Research Hypothesis 4

There is there a difference between perceived Access to Emergency Preparedness Information among disability-type. (see Table 10). A One-Way Analysis of Variance for four Disability groups which include Behavioral, Physical, Sensory, and Cognitive were analyzed on the dependent variable of Access to Emergency Preparedness Information (AEPI) (see Table 10).

Table 10

*One-Way Analysis of Variance Between Disability Groups' Access to Emergency Preparedness Information*

Source of Variation	SS	df	MS	<i>F</i>	Partial Eta Squared
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Table 10 cont.

Between Disability Groups	1456.18	3	485.39	26.71*	.23
Error b	4778.82	263	18.17		
Total	6234.996	266			

\* $p < .05$ ; \*\* $p < .01$

The null hypothesis for among disability groups was rejected for the Access to Emergency Preparedness Information (AEPI) ( $p < .05$ ;  $p < .01$ ) (See table 10). Thus the pairwise group comparison is shown in Table 12. The obtained means for the four disability groups' Access to Emergency Preparedness Information are shown in Table 11.

Table 11

*Means for Disability Groups' Access to Emergency Preparedness Information*

Disability Groups	Mean	SD	N
Behavioral	13.12	4.998	33
Physical	13.86	4.293	99
Sensory	11.24	4.450	75
Cognitive	7.80	3.463	60

Table 12

*Scheffe Test Pairwise Multiple Comparisons Among the Four Disability Groups' Access to Emergency Preparedness Information*

	Behavioral	Physical	Sensory	Cognitive
Behavioral	—			
Physical		—		
Sensory		**	—	

Table 12 cont.

Cognitive

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\*\*  $p < .01$

### Summary of Results

In conclusion, three of the four research hypotheses were supported at the .05 level of significance. Regarding H<sub>1</sub>: Is there a difference in self-perceived levels of emergency preparedness among disability-types? H<sub>1</sub> was supported the Behavioral, Physical, Sensory, and Cognitive disability groups ( $p < .05$ ;  $p < .01$ ;  $p < .001$ ). The null hypothesis was rejected indicating support for the research hypothesis. There is a difference in self-perceived levels of emergency preparedness among disability-types.

Regarding H<sub>2</sub>: Is there a difference in self-perceived levels of emergency preparedness among age groups? H<sub>2</sub> was not supported at the .05 level of significance for age groups ( $p > .05$ ). The data failed to reject the null hypothesis and thus the research hypothesis was not supported. There is not a difference in self-perceived levels of emergency preparedness among differing ages.

Regarding H<sub>3</sub>: Is there a relationship between levels of perceived emergency preparedness and gender, age, and socioeconomic status? H<sub>3</sub> was supported at the .05 level of significance for gender and SES ( $p < .05$ ;  $p < .001$ ). The null hypothesis was rejected and thus indicating support for the research hypothesis. There is a relationship between the levels of perceived emergency preparedness and gender, age, and SES.

Regarding H<sub>4</sub>: Is there a difference between perceived Access to Emergency Preparedness Information among disability-type? H<sub>4</sub> was supported at the .05 level of significance for individuals with cognitive disabilities ( $p < .05$ ;  $p < .001$ ). The null hypothesis

was rejected and thus indicating support for the research hypothesis. There is a difference in self-perceived access to emergency preparedness information among disability-types.

## CHAPTER V

### DISCUSSION

The purpose of this study was to measure the perceived levels of emergency preparedness and perceived access to emergency preparedness information of people with disabilities in Texas. To assess the demographic factors that represented the sample population that was surveyed, a demographic survey instrument was developed based on a comprehensive review of the literature that identified questions relevant to demographics within disability populations. An additional instrument was used, the Hazard Mitigation Questionnaire- Revised (HMQ-R). The original Hazard Mitigation Questionnaire survey was used to analyze perceived level of emergency preparedness and access to emergency preparedness information in only one county in Cincinnati Ohio. The HMQ-R used for the present study was revised so that any county in the state of Texas can be analyzed based on levels of emergency preparedness and access to emergency preparedness information and to focus on questions related to disability populations.

#### **Summary of Findings**

Three of the four research questions and hypotheses of the present study were supported indicating that there is a difference among disability groups' levels of emergency preparedness, there is a difference among disability groups' access to emergency preparedness information and that there is a relationship between perceived levels of emergency preparedness and gender, age, and socioeconomic status of people with disabilities.

## **Levels of Emergency Preparedness**

There is literature that supports the relevance of perceived levels of emergency preparedness for individuals but very few measure the perceptions of people with disabilities and the differences among different disability groups. Maceron and Rohrbeck (2019), analyzed the emergency preparedness self-efficacy responses and how it affected the relationship between perceived threat of disasters and emergency preparedness behaviors but only focused on persons with physical disabilities.

Similarly, a study by Fox et. al (2007) assessed the impact of emergency preparedness for persons with mobility disabilities and did not include other disabilities groups. The study specifically analyzed the emergency preparedness efforts made by the Federal Emergency Management Agency (FEMA) in including people with disabilities in the planning process and what policies were in place to allow accessibility for people with disabilities during emergency responses in 30 different disasters sites that occurred between 1998 and 2003 (Fox et. al., 2007). The study did not directly assess people with disabilities but rather evaluated the efforts made by FEMA. Literature suggests that emergency preparedness and emergency response systems fail to include the needs of people with disabilities or individuals with complex healthcare needs because they don't consider revising their policies to accommodate the needs of persons with mobility impairments and they have a lack of disability awareness (Lord, 2010; Carby 2018; Gartrell et al., 2020).

**Age, Gender, and Socioeconomic Status.** There is also literature that supports the significance of the relationship between emergency preparedness and gender, age, and socioeconomic status but those studies fail to report on the relationship within the disability populations. Stringfield (2010) analyzed the relationship between variables such as race, ethnicity, and socioeconomic status and the return rates after hurricane displacement but failed to

include the return rates of people with disabilities. In Smith's (2006) study on natural disasters, the author did not consider the impact the disasters had on people with disabilities. Although the study focused on how disasters impact vulnerable social and economic populations, he failed to expand to the disability population.

Similarly, Belasen and Polachek (2008) failed to include significant variables such as gender, age and disability when measuring the effect of emergencies and employment and only analyzed socioeconomic status of the general public in one county. If research continues to leave out how disability, age, and gender plays a significant role during emergencies, then future research will indirectly continue to support past history of excluding disability and important independent demographic variables from discussions of inequities within the environment that affect emergency preparedness. Although the results in the present study suggest the relevance of including and identifying that there is a relationship between gender, age, and socioeconomic status among people with disabilities, current research fails to be inclusive in the consideration of how gender and socioeconomic status of people with disabilities relates to the perception of emergency preparedness.

### **Access to Emergency Preparedness Information**

There is a plethora of research that focuses on the difficulties that people with disabilities have in accessing emergency preparedness information when compared to those without disabilities (Chappell et al., 2007; Cigler, 2007; Davies & Hemmeter, 2010; Lord, 2010; National Council on Disability, 2010). The present study expanded this research to measure the variance in perceptions related to accessing emergency preparedness information among four different disability groups (i.e. behavioral, physical, sensory, and cognitive disabilities). There was a dissimilarity between the present study's findings when compared to



previous research that has previously reported that usually people with sensory disabilities (i.e., visual and auditory challenges) are the disability group that is mostly limited to access emergency preparedness information (Hemingway & Priestley, 2006; Priestley & Hemingway, 2007). The difference that was noted was that the present study reported that people with cognitive disabilities reported higher rates of having barriers to accessing and understanding vital emergency preparedness information during emergencies when compared to the other disability groups (i.e. sensory disabilities, physical disabilities, and behavioral disabilities).

### **Implications of Findings**

**Service Providers.** These findings are determinants of perceived levels of emergency preparedness among different disability groups. Based on the results that suggest that there is a difference among disability groups' perceived level of emergency preparedness, specifically people with cognitive disabilities, the findings can be used by service providers to consider creating more inclusive and accessible emergency preparedness efforts that meet the needs of individuals within that population. There is research that suggests that disability awareness trainings to professionals can be significant in increasing their knowledge related to people with disabilities in their respective communities as well as removing attitudinal barriers toward people with disabilities (Hunt & Hunt, 2004; Fox et.al., 2007; Rutkow et.al., 2015; Qi & Hu, 2020).

Villeneuve et al. (2018) stated that due to the unique need that people with disabilities may have in receiving resources during emergencies, emergency management personnel should consider collaborating with community-based service providers (i.e., healthcare providers and disability and rehabilitation organizations) that already work with the different disability populations to increase the effectiveness of emergency preparedness service provision among different disability groups. It is important to recognize that these service providers can serve as a link between the

disability population and the community at large (WHO, 2011; Wyte-Lake et al., 2014). The service providers would be able to advocate for the inclusion of people with disabilities in planning efforts and equal access to emergency preparedness information among different disability groups.

O'Meara and Mullin (2011) indicated that there is a need for emergency management organizations to have people with disabilities be included in emergency management planning. Emergency management personnel would benefit from meeting with community-based organizations that serve people with disabilities and their families to understand their unique needs based on the type of disability they identify with and to participate in the emergency management plan development (Rushford, 2015).

**Environmental Justice Framework.** Similar to the environmental justice framework that is discussed and used in the present study, the aforementioned approach should include emergency personnel to consider important factors such as the recognition of inclusiveness and equality for all, supporting the rights of people with disabilities by providing opportunities for people with disabilities to engage in meaningful participation related to disasters, and recognizing that there are differences and unique needs among different disability populations by avoiding a broad disability perspective on emergency preparedness policies. By implementing an inclusive environmental justice framework that includes infrastructure assessment to discuss with people with disabilities' environmental experience, researchers and disability organizations could advocate for equal access in being part of a decision making group in emergency management (Bullard, 1999; Toffolon-Weiss & Timmons Roberts, 2004; Walsh-Warder, 2013).

As a result of the applied environmental justice framework in the present study, the independent variables (i.e., disability-type, SES, gender and ethnicity) did contribute to the variance in the dependent variables (i.e., perceived levels of emergency preparedness and

perceived access to emergency preparedness information). This may be attributed to the comprehension barriers that people with cognitive disabilities may have in understanding and easily obtaining emergency preparedness information (Stoel-Gammon, 2001; Burgevin et. al., 2021; Kalayci & Diken, 2022). The findings in the present study did support that there were differences among disability groups and that lower levels of emergency preparedness and difficulty accessing emergency preparedness information may be perceived more commonly among individuals who have cognitive disabilities when compared to other disability groups.

### **Limitations**

Several limitations can be noted for this study. Primarily, a purposive sample was used in the state of Texas which is comprised of 254 counties. The majority of participants (41.0%) identified as Hispanic or Latino, 33.2% identified as White/Caucasian, 19.0% identified as Black or African American, 0.7% identified as Native American or American Indian, and 5.6% identified as Asian/Pacific Islander. Participant responses are, therefore, representative of primarily the Hispanic, White/Caucasian, and Black or African American populations in Texas and may not be generalizable to those ethnicity categories in other regions in the United States.

Similarly, a requirement was that the participants in the sample population were individuals that were served by independent living centers across the state of Texas. Therefore, caution should be taken in relating the findings to the general disability population that has not been served by a center for independent living within Texas and other states.

Another limitation is that participants in the sample population may have provided responses that they perceive to be socially acceptable due to the notion that persons with

disabilities in this specific sample population have received independent living services and supports.

A final limitation to consider would be that participants who lived in rural areas that did not have access to Wi-Fi and/or a computer requested a hard copy of the survey and the time for returning the responses took longer than those who completed the survey online.

### **Implications for Further Research**

Further research that includes a larger sample population with variance in ages is recommended to further test if the perceived levels of emergency preparedness and access to emergency preparedness information makes a difference in age groups within the disability populations.

As noted in the limitations of the present study, the sample population was limited to only analyzing the perceived levels of emergency preparedness and access to emergency preparedness information of people with disabilities who have received services from centers for independent living. Individuals who have received services through centers for independent living may have a different perception of independent living and preparedness in activities of daily living and in life in general. The results of the present study may be understated and not showing a higher impact in the differences of perceived level of emergency preparedness among disability and age groups due to this requirement. Therefore, considerations for future research should include a comparison between individuals who receive services by centers for independent living and individuals with disabilities who have never received services by centers for independent living or other community-based organizations.

Future research should consider replicating this present study in other regions in the United States and in other countries to see if results are similar. Additionally, further research

within the state of Texas should be considered related to analyzing the perceptions of emergency personnel related to persons with disabilities within their communities. These types of studies would help researchers determine the attitudinal barriers related to people with disabilities that may be in place within the different emergency management municipalities.

It was also noted that age was not determined to be statistically significant. However, it is recommended that future research examines and includes a larger sample of elderly individuals in this research concept.

Results of future research focusing on assessing emergency management department efficacy and inclusiveness of people with disabilities within the planning efforts can also benefit people with disabilities and their families in terms of knowing what factors need to be improved within the emergency planning efforts. The results of that research could help support the development of toolkits and best practices to be implemented based on the unique needs of the disability population for that community.

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## APPENDIX A



## APPENDIX A

### RECRUITMENT LETTER

Hello CIL Director,

My name is Lidia Fonseca and I am a student at the University of Texas Rio Grande Valley. I am conducting a research study as partial fulfillment of a Doctoral degree program. The title of the survey is Emergency Preparedness: Perceptions of Individuals with Disabilities. The purpose of this study is to measure the self-perceptions of individuals with disabilities related to emergency preparedness as well as attitudes towards established disaster planning policies in the state of Texas. This study will use purposive sampling by recruiting individuals with disabilities who have received services from their local center for independent living (CIL) and reside in the state of Texas. This study will utilize a questionnaire and a demographic survey that will help gain an understanding of general preparedness intentions and behavior as well as personal and demographic factors influencing decision making (e.g., information sources, risk perception, age, dwelling type, socioeconomic status). I am writing to you to ask that you disseminate this questionnaire to your consumers. Please note that the survey should only be forwarded to potential participants who are able to legally consent to participate. This survey will be available on-line in English and in Spanish through the following links:

English version: [https://utrgv.co1.qualtrics.com/jfe/form/SV\\_efEj6ghwwSqrzbzT](https://utrgv.co1.qualtrics.com/jfe/form/SV_efEj6ghwwSqrzbzT)

Spanish version: [https://utrgv.co1.qualtrics.com/jfe/form/SV\\_1GFbdWQ08W3bLsa](https://utrgv.co1.qualtrics.com/jfe/form/SV_1GFbdWQ08W3bLsa)

The participant can also request the survey in the following accessible formats: Hard copy, Large print hard copy and Braille. If the participants request the aforementioned formats, please let me know the quantity your center needs, and I will mail them to you so you can send that directly to them via correspondence. Thank you for your assistance in disseminating this survey to your consumers. You may reach me at (956)789-3637 or via email at [lidia.teran01@utrgv.edu](mailto:lidia.teran01@utrgv.edu).

Thank you,

Lidia Fonseca Ph.D Student  
School of Rehabilitation Services and Counseling



## APPENDIX B

## APPENDIX B

### INFORMED CONSENT FORM

Title: Emergency Preparedness: Perceptions of Individuals with Disabilities

Investigators: Lidia Fonseca, MS

Background: I am conducting a research study as partial fulfillment of a Doctoral degree program. Lidia Fonseca, MS.

Procedure: You will be asked to complete a questionnaire pertaining to Emergency Preparedness. It will ask you to complete the questionnaire to the best of your ability. The survey will take approximately 20 minutes to complete. Please be advised that you may refuse to answer any question that you do not want to answer, or that you may withdraw from the study at any time without penalty. You should not write your name or any identifying information on the survey. All information will be kept strictly confidential.

Voluntary Participation: Your participation in this study is voluntary; you may discontinue your participation at any time without penalty. If for any reason you decide that you would like to discontinue your participation, simply tell the researcher that you wish to stop.

Anonymity and/or Confidentiality: You should not write your name or any identifying information on the survey. All information will be kept strictly confidential this will be completing an informed consent form, destruction of identifying information once all data has been collected, use of coded data with a code book stored separately to link participants with their coded data. Data will be kept securely until the completion of the study. If it is anticipated that data may reveal illegal behavior that must be reported according to state law.

**Who to Contact for Research Related Questions:** For questions about the research itself, or to report any adverse effects during or following participation, contact the researcher, Lidia Fonseca, MS (lidia.teran01@utrgv.edu).

**Who to Contact Regarding Your Rights as a Participant:** This research has been reviewed and approved by the Institutional Review Board for Human Subjects Protection (IRB). If you have any questions about your rights as a participant, or if you feel that your rights as a participant were not adequately met by the researcher, please contact the IRB at (956) 665-2093 or irb@utrgv.edu.

**Significant New Findings:** If any new significant findings result from the completion of the survey, the researchers will follow up with you, requesting a written statement for your willingness to continue participating.

**Acknowledgement:** By giving consent below, you indicate that you are voluntarily agreeing to participate in this study and that the procedures involved have been described to your satisfaction. The researcher will provide you with a copy of this form for your own reference if you request it. To participate, you must be at least 18 years of age and only individuals able to legally consent should participate.

## APPENDIX C

APPENDIX C

SURVEY INSTRUMENTS

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Do you live in Texas?

Yes (1)

No (4)

---

Which Texas county do you currently live in?

▼ Anderson (1) ... Zavala (261)

---

Have you ever received services from a Center for Independent Living in Texas?

Yes (1)

No (2)

---

What is your age?

---

---

What ethnicity/race do you most identify with?

- Asian/Pacific Islander (1)
  - Black/African American (2)
  - Hispanic/Latino (3)
  - Native American/Alaskan Native (4)
  - White (non-Hispanic) (5)
  - Other (6)
- 

What is your gender?

- Male (1)
  - Female (2)
  - Other (3) \_\_\_\_\_
- 

What type of disability do you have? (please check primary disability)

- Behavioral Disability (5)
- Physical Disability (6)
- Sensory Disability (visual, hearing) (8)
- Cognitive Disability (9)
- Other (10)

---

What are your healthcare needs?

- require interpreters/communication boards (1)
  - require use of durable medical equipment (i.e., walker, wheelchair, ventilator, oxygen, etc) (2)
  - require provider services (i.e., care taker, nurse, counseling, at home therapy, etc) (3)
  - Other (please specify) (4) \_\_\_\_\_
- 

Living Status

- Living Alone (1)
  - Living with family (2)
  - Living with a friend (3)
  - Living with caretaker (4)
-

What type of structure do you live in?

- Detached single family home (1)
  - Duplex, triplex, quadruple home (4)
  - Multi family building 2 stories or more (apartment/condo) (5)
  - Mobile home (6)
  - Manufactured home (7)
  - Recreational vehicle (RV) (8)
  - Other (please specify) (9) \_\_\_\_\_
- 

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree (1)
  - High school graduate (high school diploma or equivalent including GED) (2)
  - Some college but no degree (3)
  - Associate degree in college (2-year) (4)
  - Bachelor's degree in college (4-year) (5)
  - Master's degree (6)
  - Doctoral degree (7)
  - Professional degree (JD, MD) (8)
-



Please indicate the answer that includes your entire household income.

- less than \$20,000 per year (1)
  - \$21,000 – \$34,000 (13)
  - \$35,000 – \$48,000 (14)
  - \$49,000 – \$62,000 (15)
  - + \$63,000 per year (16)
- 

Please indicate what type of device(s) you use to access the internet. Select ALL that apply:

- Computer/laptop at home (1)
  - Computer/laptop at work/office (4)
  - iPad/tablet (5)
  - Cell phone (6)
  - Public computer (i.e. library) (7)
  - I do not have access to the Internet (8)
  - Other (please specify) (9) \_\_\_\_\_
  - I don't know (10)
  - Not applicable (11)
-

Have any of the reasons below prevented you from pursuing emergency preparedness activities? Please select ALL that apply.

don't think it will make a difference. (1)

I don't know what to do. (4)

I don't have the time. (5)

It costs too much. (6)

Negative past experiences (10)

I don't need to prepare because emergency responders (fire, police, etc.) will help me during an emergency. (7)

None of the above apply to me. (8)

Other (please describe) (9) \_\_\_\_\_

Not applicable (11) \_\_\_\_\_

Please indicate those activities you have done to prepare for emergencies and disasters.  
Please select ALL that apply. I have...

- an emergency preparedness plan (1)
- flood Insurance (4)
- a 72-hour kit/Disaster supply kit (5)
- visited local government web site(s) for emergency preparedness information (6)
- an evacuation plan (7)
- a weather radio (8)
- signed up for emergency alerts for my county (from any source) (9)
- done nothing (10)
- Other (please specify) (11) \_\_\_\_\_
- Don't know (12)
- Not applicable (13) \_\_\_\_\_

Please indicate where you go to obtain emergency and disaster preparedness related information? Please select ALL that apply.

- Municipal government web sites (1)
- County government web site (4)
- State government web site (5)
- Federal government web sites (6)
- Web search (example: bing.com, google.com) (7)
- Social media (example: facebook, twitter) (8)
- Voluntary organizations (example: American Red Cross) (9)
- Religious Organization (10)
- Local English-speaking television (11)
- Local English-speaking radio (12)
- Local Spanish-speaking radio (13)
- National News (Radio and Television) (14)
- Print Media - English (example: newspapers) (15)
- Brochures and Newsletters (16)
- Word of Mouth (example: friends, family, co-workers) (17)
- Other (please specify) (18) \_\_\_\_\_
- Don't Know (19)

Not applicable (20)

---

Please indicate how you expect to receive alerts and information during an emergency. Please select ALL that apply.

A weather radio (1)

Private Weather Apps (ex. Weather Channel, Wunderground, Weather Bug, AccuWeather, etc.) (4)

Preparedness Apps (ex. Hidalgo County EMA, FEMA, Red Cross, etc.) (5)

Local Media Apps (6)

Local County Emergency Management website (7)

Local Media (Television broadcast and/or smartphone app) (8)

Radio (9)

Social Media (10)

Outdoor warning sirens (11)

Word of Mouth (12)

I do not know (13)

Other (please describe) (14)

---

**Would you agree or disagree with the following statements?**

	Strongly Agree (1)	Agree (2)	Neither Agree nor Disagree (3)	Disagree (4)	Strongly Disagree (5)	Do Not Know (6)
The county I live in is providing the services necessary to prepare me for a disaster. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am familiar with my county's web site and can easily obtain information about emergencies and disasters. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During times of emergency, information is provided in a language or format I can understand. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can easily obtain emergency information in times of crisis. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

If a disaster (i.e. hurricane) impacted your area, knocking out electricity and running water, would your household be able to manage on its own for at least three (3) days?

- Yes (1)
  - Maybe (4)
  - No (5)
  - Do Not Know (6)
- 

Do you believe that your household and/or place of business might ever be threatened by the following hazards? Please rate what hazards present the greatest risk.

Low Risk = Low impact on threat to life and property damage Medium Risk = Medium impact on

threat to life and property damage High Risk = High impact on threat to life and property damage

	Low Risk (1)	Medium Risk (2)	High Risk (3)
Hurricane (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flash Flooding (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hazardous Materials Release (example: Chemical Spill) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flooding: Riverine (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public Health Emergency (example: Pandemic) (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe Winter Storm/Heavy Snowfall/Ice Storm (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thunderstorms (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tornado and High Winds (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utility Failure (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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**Please select the answer that best describes your experience.**

- I have never experienced property damage or loss from a disaster(s) (1)
  - I have experienced minor property damage and loss from a disaster(s) (5)
  - I have experienced major property damage and loss from a disaster(s) (6)
  - I have experienced catastrophic property damage and loss from a disaster(s) (7)
- 

If you have experienced any damage(s) or injury(ies) from a disaster, please check the hazard(s) that caused the damages/losses and/or injuries

- Hurricane (1)
  - Flash Flooding (2)
  - Hazardous Materials Release (example: Chemical Spill) (3)
  - Flooding: Riverine (4)
  - Public Health Emergency (example: Pandemic) (25)
  - Severe Winter Storm/Heavy Snowfall/Ice Storm (27)
  - Thunderstorms (31)
  - Tornado and High Winds (32)
  - Utility Failure (33)
-

If you have experienced any damage(s) or injury(ies) from a disaster, please indicate where this occurred (Example: my home, on a roadway or intersection, at work, on vacation, etc.)

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If you have experienced any damage(s) or injury(ies) from a disaster, please describe the damages and/or injuries. (Example: basement flooded, roof was damaged, vehicle was damaged, broken bones, lacerations, etc.)

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Based on YOUR PERCEPTION of your jurisdiction's hazards, to what degree of emphasis would you expect your jurisdiction to mitigate the following hazards?

Mitigation definition: The purpose of mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.

No Mitigation Needed = No mitigation on this hazard is expected or needed

Low Priority = This hazard should be mitigated, but is not a high priority compared to other hazards

Medium Priority = It is important to mitigate this hazard

High Priority = It is a high priority to emphasize mitigation for this hazard

	No Mitigation Needed (1)	Low Priority (2)	Medium Priority (3)	High Priority (4)
Hurricane (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flash Flooding (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flooding: Riverine (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hazardous Materials Release (example: Chemical Spill) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public Health Emergency (example: Pandemic) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe Winter Storm/Heavy Snowfall/Ice Storm (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thunderstorms (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tornado and High Winds (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utility Failure (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If an evacuation was ordered for your area, please indicate how likely you would be to do the following.

	Not Likely at All (1)	Not Very Likely (2)	Somewhat likely (4)	Very Likely (5)	Don't know (3)
Immediately evacuate as instructed. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would first consult with family and friends outside my household before making a decision to evacuate. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wait and see how bad the situation is going to be before deciding to evacuate. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refuse to evacuate no matter what. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What might prevent you from leaving your place of residence if there was an evacuation order?  
Please select ALL that apply.

- Shelter is not pet friendly (Service animal) (1)
- Need to care for another person (4)
- Spouse/Significant Other won't leave (5)
- Need to stay and protect property (6)
- Lack of money (7)
- No accessible place to go (physical barriers in shelters, lack of interpreters/they don't provide alternate format materials, etc). (8)
- No accessible transportation (9)
- Disability/Health Issues (10)
- Other (please specify) (11) \_\_\_\_\_
- No obstacles would prevent me from evacuating (12)
- I would refuse to evacuate no matter what (13) \_\_\_\_\_

If you were to evacuate, where would you most likely stay? Please select the best answer.

- Shelter/evacuation center (1)
  - Church or place of worship (4)
  - Workplace (5)
  - Home of a friend or relative (6)
  - Hotel/motel (7)
  - Do not know (8)
  - Other (please specify) (9) \_\_\_\_\_
- 

In an evacuation, would you or anyone in your household require special assistance?

- Yes (1)
  - No (4)
  - Maybe (5)
  - Do not know (6)
  - Not applicable (7)
  - Other (please specify) \_\_\_\_\_ (8)
-

If yes, would that assistance be provided by someone within your household, by an outside agency, or by a friend or relative outside your household?

- Within household (1)
  - Friend/Relative (outside household) (5)
  - Outside Agency (8)
  - Do not know (9)
  - Not applicable (10)
  - Other (11) \_\_\_\_\_
-

## BIOGRAPHICAL SKETCH

Lidia Adamina Fonseca earned a Bachelor's degree in Rehabilitative Services from The University of Texas Pan-American in 2012, a Master's Degree in Rehabilitation Counseling from Texas Tech University in 2015 and a Doctorate Degree in Rehabilitation Counseling from The University of Texas Rio Grande Valley in 2022.

She has over 10 years of experience in the disability field which include advocacy efforts for people with physical, Intellectual, developmental, and substance abuse disabilities. Her focus is on independent living and public policy changes that promote disability rights. Her interests are in emergency management and planning for persons with disabilities, training on leadership, advocacy, and disability policy, and promoting employment services that follow the American Disabilities Act guidelines for all persons with disabilities. Her permanent email address is [lidia.fonseca01@yahoo.com](mailto:lidia.fonseca01@yahoo.com).