"We're the Lucky Ones": A Social Network Analysis of Recovery After the Iowa Derecho

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“We’re the Lucky Ones”:
A Social Network Analysis of Recovery After the Iowa Derecho

by

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts
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Keywords: social network analysis, disaster response, meaning making, social support, derecho, communitas

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DEDICATION

This thesis is dedicated to all the people impacted by the 2020 Midwest derecho. Thank you to those who participated in this project and trusting me with your stories. To my parents, Tom and Chris, who pushed me to follow my interests when I had a wild idea in high school that I wanted to be an anthropologist. To my siblings, Bailey and Casey, for your continuous support. To Penny, my adoring cat, who sat by my feet to keep me company all those late nights.
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Thank you to the Iowa Storm Chasers Network for taking a chance on me and sharing this project with all of your followers on social media. It allowed me to exceed all my expectations and helped me connect with people I wouldn’t have been able to otherwise. Thank you to all the local news stations in Iowa who interviewed me and allowed me to share my project: Iowa News Now, KWWL, KCRG, and FOX 18 KLJB.

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ABSTRACT

On the afternoon of August 10th, 2020 a straight line windstorm, referred to as a derecho, tore across the Midwest. Derechos are often described as an “inland hurricane,” with wind gusts exceeding 58 mph. This thesis explores how Iowans relied on social networks to recover from the derecho. Personal networks were analyzed to understand how people utilized relationships for specific types of support. The relationships investigated included informal and formal sources such as family, friends, neighbors, government, volunteers, non-governmental organizations, and self-reliance. Data were collected on social networks and storm recovery through a survey and semi-structured interviews. Using anthropological theories on social networks, disasters, social support, and environmental justice, this research investigated how people relied, or not, on their relationships to access information and resources to support their recovery. Findings indicate that family, friends, and neighbors were the most frequently utilized sources of support and the labor and material/tangible resources were the most frequently mentioned support types. These findings are interpreted by understanding the persistence and reliance on what Iowans experience as “self-sufficient values” and how this interacts with experiences of stigma and perceived shame of needing help. Additionally, the construction of meaning surrounding the disaster is used to further contextualize social network activation. The findings offer insights into how disaster planning and policies could benefit from understandings how local communities engage their networks for social support and how network data could be utilized.
CHAPTER ONE:
INTRODUCTION

Participant Poem

City of Trees

Cedar Rapids, Iowa, Before Derecho.

City of Trees.
Lush green canopy wrapped around the city.
Abundant Cooling shade.
Birds singing,
Squirrels scampering up trees,
Butterflies flitting about.
Life amidst COVID-19.

Cedar Rapids, Iowa, During Derecho.

Derecho winds of 120-140 mph.
Few had even heard of derecho.
Little to no warning.
Everyone caught off guard.

Cedar Rapids, Iowa, After Derecho.

Trees downed. Homes and businesses damaged or destroyed.
Roofs torn off. Trees crushed buildings. Walls collapsed.
Leaves stripped, plastered on the remains of buildings.
Smell of gas leaking from broken gas lines all around the city.
Phones down. Internet down.

Huge debris piles, blocked roads, communication lost.
The entire city as if an atomic bomb exploded.
Mile after mile, unrelenting destruction.
Lives miraculously spared.

Families living on top of debris.
Elderly and disabled stranded.
Cut off. Alone.
Homes gone. Businesses gone.

New sounds of sirens, chainsaws, and hammers.
New sights of breathtaking sunsets, starry nights, bright moonlight,
neighbors helping neighbors.
Families come from afar to try to help.
Children, adults, and elderly all tackle cleanup together.

How do you eat an elephant?
One bite at a time.
How do you cleanup after a derecho?
One stick at a time.

Finally, Help arrived.
Linemen from across the country and Canada.
National Guard.
Big groups. Small groups. Families. Individuals All come to help.

News media ignore Iowa.
Politicians ignore the crisis.
The governor visits and leaves.
The President visits but never leaves the airport.
Politicians fail.
Anger rises.

Food and water giveaways.
Supply giveaways.
Heroes emerge.
Villains emerge.
Love emerges.
Gratitude emerges.
Citizens applaud volunteers who come to help.

Cedar Rapids

- Anonymous Survey Research Participant
Overview of Research

On the afternoon of August 10th, 2020, a derecho storm tore through the state of Iowa and traveling across the Midwest, leveling towns and farmlands, and disrupting life in all aspects. Derechos are defined as rare storm systems that extend more 240 miles, with wind gusts exceeding 58 mph (National Weather Service n.d.). This storm recorded wind speeds of 140 mph that destroyed houses and buildings; farm fields were flattened, people were without power from days to weeks, and four people were killed. Derechos are colloquially described as “inland hurricanes” because of the high wind speeds and the torrential rainfall that occurs. There were warnings the morning of the storm that there was a chance for severe weather, but that is typical for an Iowa summer. It was not until 30 minutes before the storm hit that the town sirens went off in the most Eastern part of Iowa, near Davenport. Weather alerts went out, warning about the threat of wind speeds of over 80 mph. Not all areas of Iowa or other states impacted received these notifications. This storm moved quickly, leaving little time for warning.

Thousands of Iowans have and still are navigating disaster recovery from the lost power, lost income, property damage and more, all during a pandemic. A federal major disaster declaration was declared on August 25th, 15 days after the storm. With this research project, I explored how Iowans used social networks for recovery after the derecho. People had to rely on others for food and water, electricity, clean-up, shelter, emotional support, and for information about resources. The research investigated how people utilized their relationships to access these types of support and resources to recover from the storm.

According to the National Oceanic and Atmospheric Administration (NOAA), the 2020 derecho resulted in $11 billion in damages, making it the costliest thunderstorm on record.
It damaged over 10 million acres of farmland across Iowa, which equates to 43% of the state’s corn and soybean crop. This damage is severe enough that it is visible from several weather satellites (Cappucci 2020). The disaster proclamation was issued by the state of Iowa’s governor, Kim Reynolds, for 20 counties immediately after the storm. A total of 11 counties were approved for individual federal assistance. While Governor Kim Reynolds and President Trump voiced their concerns about the impacts of the derecho, they faced criticism regarding the limited and slow assistance for people in Iowa following the storm (Ramm 2020; Muller 2020; Gowen and Stead Sellers 2020).

This research was inspired by my own personal experience with the derecho. I went home, to Iowa, after spring semester and was still there on August 10th. I was laying on the couch when I received a phone call from my mom telling me that I needed to go outside to secure anything that might move in 80 mph winds—which is almost everything. As my sister and I were frantically running around outside, the town sirens went off as a warning about the expected winds. My parents’ house had minimal damage, beside debris in the yard, as most of the severe weather was several miles northwest of the area. We were one of the few areas in eastern Iowa that managed to not lose power. Even though we did not experience extreme devastation, my parents own a restaurant that did not have power for three days. After the storm, my dad went to the restaurant to survey the damage while my mom and I were posting on social media and calling everyone we knew to try to get a refrigerated truck for the restaurant’s food. My dad called a friend who knew someone that had a refrigerator truck, and they gave it to my dad until the power came back on. My dad also got two generators from neighbors. After the initial shock of the storm receded, I was amazed at how many people were involved in the process of acquiring the refrigerator truck and generators, and the process of moving the food
and cleaning anything that spoiled. My parents not only received help, but were helping anyone they could as well. They plugged the restaurant ice machine into the generator, so that their employees could get ice, as well as for my brother and grandpa, who were also without power. Despite all the chaos and anxiety the storm caused in a matter of hours, I was intrigued by how the people in my network in Iowa relied on each other for recovery, specifically informal sources of support through friends and family because that was the most readily available support. It was visible how important informal support was in the context of a fast-moving disaster that had minimal warning. While the state and federal government were slow to respond and provided insufficient support, there are limits to what they can do in the immediate aftermath of a disaster. For those reasons, the importance of social networks need to be understood more thoroughly in disaster and location specific contexts. Anthropologists who study disasters have been researching the role of social networks in recovery (e.g., Casagrande, McIlvaine-Newsad, and Jones 2015; Jones et al. 2015; Faas et al. 2014; Hoffman 1999) over the past few decades. This area of study explores human interaction in response to disasters. It asks questions about the how and why people engage with a specific relationship and how it facilitates recovery.

This research topic was strategically selected because of my own experience, but I also wanted to give people impacted by the derecho an opportunity to speak directly about it. This project addressed the devastation and challenges Midwesterners have faced because of the derecho, but they are not victims. A common narrative that appeared following the derecho was that many Iowan felt ignored by the rest of the county. They felt the devastation from the storm was not talked about enough in the national media because they thought it was “just a storm” in a state with a relatively low population density. My goal with this research is not to victimize people impacted by the derecho, but to highlight how humans are creative, adaptive, and
resilient, and they show that in the variety of ways they relied on their networks for social support.

**Research Questions**

The research site included all states impacted by the derecho: South Dakota, Nebraska, Iowa, Missouri, Wisconsin, Minnesota, Illinois, Indian, and Ohio. The storm caused the most damage in Iowa, and because of that, the majority of participants reside there. While the Midwest was the research site, all research was conducted virtually due to the COVID-19 pandemic. The objective of the research was to understand how people relied on their relationships to access resources, information, and assistance after the derecho storm. The research demonstrates how social support aids in disaster recovery with gaining access to resources, information, and other types of support.

**Research Questions:**

1. What types of support (i.e. family, friends, neighbors, volunteers, government, or relying only on themselves, etc.) were utilized after the derecho?

2. How do informal networks support resource acquisition?

3. How did local resident relationships help aid in recovery after the derecho?

4. How does recovery differ between the types of social networks people rely on?

5. How do people construct meaning of the derecho and the recovery process?
   a. How does Midwest culture shape the meaning?

6. How does stigma associated with needing and receiving assistance influence how people view their own experience with the derecho?
CHAPTER TWO: 
LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Disaster Anthropology Framework

Defining Disaster, Vulnerability, and Resilience

The anthropological study of disasters is a growing field of study that emerged out of the 1970s. Anthropology also offers a necessary perspective when studying disasters, because the field often considers the physical, cultural, and environmental aspects that are not encompassed in other fields. Disaster anthropology challenges notions of how “disaster” is defined and how the spatial and temporal aspects of disasters are understood. The field of disaster anthropology, and other areas of the social sciences, confront the typically accepted understanding that disasters are natural, but are instead a result of the interactions between humans and the environment, and the historically produced vulnerability (Oliver-Smith and Hoffman 2002). They are anything but natural; they are socially constructed (Barrios 2017). A hazard, such as a derecho or hurricane, becomes a disaster when it impacts humans, such as destroying the built environment or disrupting social life, and exacerbates the existing historically produced vulnerabilities. As Barrios (2017) and Oliver-Smith (1999) note that the definition of “disaster” is contested and wide ranging. Disasters happen when there is a collision of the hazard and a human population. The disaster is not over when the immediate hazard ceases to be a threat, but instead disasters are a processual phenomena (Oliver-Smith 1999).

This definition of “disaster” is important to understand when conceptualizing recovery. Recovery is often referred to as distinct phases that people move through after a disaster.
Research such as Casagrande et al. (2015) challenge the typically accepted “stages” or “phases” of disasters and show how they are not clearly bounded and stages are not experienced chronologically, like it is often made out to be. This is critical when considering that two people might not have a similar experience during and after the same disaster. The “stages” or “phases” are not experienced at the same time or order, or people may move in and out of “recovery.”

Expanding on defining disasters, hazards also become disasters when the hazard interacts with historically and socially produced vulnerabilities. As explained by Oliver-Smith and Hoffman, “a society’s pattern of vulnerability is a core element of a disaster” (2002, 3).

Vulnerability consists of existing ideological, and the social and physical structures that produces systems of inequality. Emphasizing the “nonroutine dimensions” of disasters neglects the existing vulnerabilities that preexist the disaster. It “ignores the threat that most disasters are ultimately explainable in terms of the normal order” (Oliver-Smith 1999, 23). Disasters highlight the preexisting risks and vulnerabilities, and brings them to the forefront. Social structures, like social networks and power structures are more apparent as people rely on others for resources and it also exposes who has access to resources and who does not. Vulnerability is a widely used theory and concept in disaster studies and at times problematic, and anthropology is not without critique. Vulnerability needs to be thoughtfully conceptualized to not blame or victimize people, but conceiving it “…as assemblages of diverse subjects, institutions, materials, and meanings that are vulnerable to acts of oppression, suppression, theft, and erasure” (Marino and Faas 2020, 34). This approach to vulnerability theory questions how systems of oppression inequitably distribute risk across the population. It also shifts the perspective to analyze how people contest vulnerability and are resilient.
Meaning Making

A limited but growing area of study in disaster anthropology is the symbolism of disasters. Disaster survivors use symbolism, metaphors, and other mechanisms to understand and make meaning of their disaster experience. These ways of making meaning create a reference point for understanding and coping. It both “…enables the conversation of sociocultural world, and also its transformation” (Hoffman 2002, 114). Disasters disrupt what people know at all levels, and for disaster like the derecho, it was abrupt, transforming lives with little warning. Meaning making is a coping process, used to respond and recover from traumatic events. People use religion, mythology, and other comparative frameworks to understand and describe disasters. Symbolism “implements cultural and personal survival” (Hoffman 2002, 114). The ascribed meaning orients response and makes it comprehensible. Anthropology can frame and contextualize culture responses to disasters. Analyzing how survivors make meaning is useful in a variety of ways, specifically regarding post-disaster intervention and preparation for the next disaster (Park 2016). A clear example of meaning making, is represented in the poem that is at the beginning of the thesis. It is filled with descriptive language that contrasts the before times to after the derecho, emphasizing the transformed landscape.

Social Network Analysis and Disasters

Social network analysis is an approach to studying complex human interactions and social structure. In the context of disasters, social network analyses serve to understand how relationships interact with disaster preparation, adaption, recovery, mitigation, and resilience. At the core of this conceptual approach exists vulnerability, social capital, and resilience. Social networks are particularly interesting to many scholars and practitioners because understanding how they operate can offer insight into what needs to change to improve resilience and adapt for
future disasters (Jones and Faas 2017b). Social network analyses, and other analyses in disaster anthropology and related fields, have a growing importance regarding the climate crises and the impacts it has on the increasing frequency and severity of hazards. Disasters disrupt all aspects of life, physical and social. They have far reaching impacts in the ways they effect routines, communication, infrastructure, and support (Varda 2017). Baer (2008) suggests that medical anthropology, in particular, has an important role to play in mitigating the impacts of the climate crisis and in imagining a more equitable global system.

Understanding how people rely on social networks is beneficial to building adaptive capacity to the climate crisis. This type of research can inform policy and disaster management to strengthen social networks and fill gaps in resources. A social network analysis is used to study patterns of relationships to understand how people prepare, respond, recover, and mitigate disasters. From a social science perspective, this type of analysis usually focuses on social support—how it is used and who has access to it (Jones and Faas 2017b). It can be used to research “complex patterns of social relations and human-environment entanglements” (Jones and Faas 2017, 4). A social network analysis can be completed by looking at different levels and types of networks, from personal to community level. Networks are made up of nodes, the people or organizations, and ties which are the connections between nodes such as the relationship or type of interaction.

Varda and colleagues (2009) developed the in/out seek/provider (IOSP) framework that investigates the various levels of networks. This framework helps determine the boundaries of the network because it defines the unit of analysis. It does not identify the nuances of disaster setting networks because it is a simplified approach to identify aspects of networks. For this particular project, the in seekers and in providers level will be utilized. The in seekers are
defined as individuals in the disaster area that are looking for various resources and the in/providers is defined as individuals also in the disaster area providing various resources. This looks at members within a network seeking support and providing support for others existing in the network. Identifying the network boundary includes determining the unit of analysis such as individual or groups. The level of analysis can be considered by examining the egocentric or sociocentric levels. Egocentric is focused on the nodes of a network that are a single individual or organization. It is used to understand the result of the structure of the network. The sociocentric is focused on the whole network analyzing the ties which are the relationships between individual or organizations in the network. Social networks are operationalized by identifying patterns and measures. Network analyses are not always defined clearly as egocentric or sociocentric, and can be categorized as both (Varda 2017). This particular project is focused on the personal networks. 

At all stages of disasters, people rely on their social networks to access support in the forms of information, material, and emotional. Various factors impact peoples’ abilities to receive support, such as socioeconomic status (Jones et al. 2015) and gender (Faas et al. 2014). Social networks are also not stagnant but change overtime. As highlighted in the research conducted by Casagrande and colleagues (2015), participants in their research on help-seeking behavior in response to the 2008 Mississippi River flood spoke about the economic changes transforming networks and “eroded social cohesion” that is limiting network support. Families are spread out across the country and populations are smaller because of globalization and the demand for large-scale farming. This is an important consideration related to many of the things that happened in the year 2020, and how networks and social capital may have shifted. This raises questions about how networks were transformed in the United States by the COVID-19
pandemic, rising attention towards police brutality and other social injustices, and political
tension from the presidential election.

Social Capital, Support, and Recovery

Social support is central to understanding how networks operate, specifically in a disaster
setting. In the context of disasters, social support research is directed towards “…the relations
that facilitate or inhibit the access to both formal and informal resources in preparation, response,
recovery, and long-term adaptation” (Jones and Faas 2017b). Informal support is from neighbors,
devolved support is from professionals, volunteers, and the government. Social
support serves as a protective measure when resources might be scarce or not guaranteed. Social
support is not only beneficial to securing resources or various kinds of help, but there is also a
psychological benefit. Kaniasty and Norris (1995) label emergent groups that form pre- and post-
disaster as “altruistic” because the helping behavior is higher in a disaster scenario compared to
when there is not a disaster. However, access to social support is often found to not be evenly
distributed across populations. Individuals who are economically disadvantaged have been found
to have less access to social support (Norris et al. 2005) and perceive that they have less social
support than reported by wealthy individuals (Jones et al. 2011). Social support can include
“…exchange, reciprocity, help-seeking, types of support (e.g., information, emotional,
tangible/material), and types of giving support” (Jones and Faas 2017b). Studies like Casagrande
et al. (2015) study clarifies the role of family versus non-family, such as neighbors and friends,
before and after the 2008 Mississippi River flood in the Midwest. They found the participants
relied on non-family relationships for preparatory and short-term support, but focused on family
support for long-term recovery. People rely on their networks based on different types of support
that are needed. Unger and Powell (1980) explain that family members are more likely to rely on
their informal networks as opposed to going through formal channels to receive aid; however, there is variation based on the level and type of stress.

Social capital looks at bonding capital, bridging social capital, and linking social capital to distinguish between strong ties, interconnected ties between groups, and ties to “higher levels in social hierarchies” (Jones and Faas 2017b). Social capital is defined as “the ability of actors to secure benefits by virtue of membership in social networks or other social structures” (Portes 1998, 6). Strong ties are typically relationships such as family, friends, and maybe neighbors. Weaker ties are relationships that are not close or familiar. Social capital is intended to be used to look at community level resilience, and not individual resilience (Casagrande, McIlvaine-Newsad, and Jones 2015).

Communitas

Another aspect of social networks and social support in a disaster context is the concept of communitas. Research by Jencson (2001) addressed the development and purpose of communitas during and after disasters. Communitas “…serves to optimize disaster response, it also creates an expanded sense of self, community, and purpose that can leave many survivors of disaster with a sense that they have undergone a profoundly meaningful peak experience” (Jencson 2001, 46).

The experience of a disaster can bring about a range of responses from social fragmentation to social cohesion. In accounts from Hoffman (1999) and Jencson (2001) they explore the development of communitas as networks expand to include weak ties. Communitas describes the feeling of unity or community that occurs before and after disasters. It can develop differently if it is a slow-moving disaster, such as hurricanes and sometimes flooding, where
there is the opportunity to prepare, or fast onset disasters like a derecho, where there is no time to prepare.

While research and conversations about communitas are valuable, it does have the potential to alienate communities that do not unify after a disaster. It can create “…cultural hierarchies of race, class gender, and ethnicity that often inhere in “close-knit” networks” (Jones and Faas 2017b, 18). If communitas does not appear in a disaster context, it is not a failure of the community or a reflection of their adaptive capacity.
CHAPTER THREE:

METHODOLOGY

Introduction

Participant recruitment and data collection began on January 11 th and went until March 8 th, 2021. A pilot project was conducted with the same population from September to December 2020 for a research methods graduate course, at a smaller scale. The findings from the pilot project were used to inform the thesis research design, but were ultimately not included in the thesis project. My personal experience witnessing the derecho, and knowing many people that were also impacted from the storm also helped guide the research.

Seeing how my parents relied on their connections they had to access limited resources initially sparked my interest in this project. If my parents would not have been able to get the refrigerated trailer and the generator for their restaurant, it would have devasted them financially on top of the existing struggles they have faced owning a restaurant during the COVID-19 pandemic. The pandemic has impacted the food chain-supply already and then the storm also impacted the food distributor services in Iowa because many of the facilities where the food is stored were also impacted by the storm. Saving a portion of the food made it possible for my dad to open the restaurant as soon as power was restored.

My experience helped guide the questions I asked in the survey and interviews. I had insight into the fear that this storm caused. This was a traumatic experience for many Iowans. A month after the storm, I was back in Florida for school, and I saw a weather alert on social media that Iowa was going to experience severe storms that day. I immediately thought back to the
derecho and the devastation it caused. While it was unlikely to happen again, I called my parents and sister to make sure they knew about it and to be aware.

Data collection methods included both qualitative and quantitative methods. A combination of the COVID-19 pandemic and living in Florida shaped the data collection process, mainly that I was not able to do participant observation. Instead, an online survey and semi-structured telephone interviews served as the two main methods.

**Research Design**

The research was approached with both qualitative and quantitative methods to collect narratives about the derecho and data on how people used networks after the storm. The main research method was a social network analysis conducted through a survey and semi-structured interviews. This research took an exploratory approach to studying social networks after a disaster, understanding the ways people relied on particular relationships for various types of social support, and on how people construct meaning around the disaster.

**Site**

All research was conducted virtually. Participants completed the survey online through Qualtrics and interviews were conducted over the phone due to the COVID-19 pandemic and because I was not near the research site.

**Sample**

The study population of 1470 survey completions and 20 semi-structured interviews included individuals 18 years of age or older that were impacted by the derecho, that could include individuals from South Dakota, Nebraska, Iowa, Illinois, Indiana, Ohio, Minnesota, or Wisconsin. Because of my own personal connection and it being the state most impacted by the
derecho, the sample only includes people from Iowa. The term “impacted” was broadly defined as emotionally, financially, physically affected in anyway.

Participants were only excluded if they were not over 18, if they did not experience the derecho, and if they were not a resident from the states impacted by the derecho. Convenience and snowball sampling were utilized for participant recruitment. Convenience sampling is a methodology used to recruit eligible participants who are willing to participate. Snowball sampling is a referral-based recruitment methodology that relies on people to identify those they know who might be eligible. Both of these sampling methodologies are non-probability techniques (Bernard 2011). These sampling methods were ideal for this project, and the current circumstance regarding the pandemic, because recruitment was completed virtually and relied on word of mouth. With these sampling methods, there are limitations. The non-probability sampling methods are biased in that the samples are not representative of the population. It is biased towards people who share social networks and those who have similar perceptions of the event. Participants were recruited for the survey mainly through social media, resource pages on Facebook, and via local news broadcast stations. The survey was used to recruit participants who were interested in completing an interview. If people did not want to or were not able to complete the survey, but were interested in doing an interview, they could still contact me stating their interest. The study was determined exempt by the University of South Florida Institutional Review Board (IRB) (Appendix A).

**Methodology**

**Survey**

The survey was designed to collect information on demographics, storm impacts, network and social support data, and recovery details. The survey was deployed online through
Qualtrics and took 5-10 minutes to complete. The demographic data included questions on race/ethnicity, age, gender, education, marital status, number of people living in the household, and household income. There was a question to assess how participants were impacted by the storm (i.e., financially, physical damage, emotionally, childcare interruption, etc.). For the network data collection, the survey had a select all answers question asking what relationships (i.e., family, neighbors, government, etc.) they relied on. Open-ended questions were utilized to capture data on the specifics on how those relationships were used after the derecho. Likert-type scale questions addressed opinions about recovery (i.e., “I’m successfully recovered from the derecho” and “I still feel like I’m recovering from the derecho”), connectedness to their community (i.e., “I’m well connected to my community”), network support (i.e., “my network adequately supported me after the derecho with recovery”), communitas (i.e., “I feel more connected to my community after the storm”), and about how recovery was impacted by COVID-19 (i.e., “The COVID-19 pandemic impacted by ability to recover from the derecho”).

Semi-Structured Interviews

A total of 20 semi-structured interviews were conducted with people who were impacted by the derecho. The survey asked participants if they were interested in completing an interview and then asked for their contact information. Participants were randomly selected for the interviews. The interviews addressed the experiences of the derecho and how they were doing six months later, the nuances of storm recovery, and how and who they relied on for help.

The interviews were anonymous, and this was mentioned to the participants multiple times. After consent was given, willing participants were asked if they wanted to pick their pseudonym to maintain anonymity. Interview data were deidentified. Permission was also asked to audio record the interviews. Everyone gave permission. I explained that the recording would
be transcribed for the purposes of data analysis. Additionally, notes were taken during the interviews to record questions that arose during the interview and important quotes or details. Interviews took approximately 30 to 75 minutes.

Interviews began with asking the participant what county they lived in and how old they were. Participants were then asked to talk about the day of the derecho, walking me through their experience that day and the time after, starting before the storm. Asking this question helped guide the remainder of the interview. Questions were also asked about recovery, their relationships (i.e., neighbors, family, friends, etc.) and if they relied on the government or and other organizations for help, if they felt supported by their network, how they engaged their network, and if they learned anything. I emphasized at the beginning of the interview that they should talk about what was important to them regarding their experience.

**Data Analysis**

Analysis began at the start of data collection to inform the progression of the project. A combination of grounded theory and content analysis were used during the qualitative data analysis process. Grounded theory is a method of analysis that is used for coding text for themes, connecting themes to theoretical frameworks, and validating models. This research approach allows for themes to emerge throughout the research process (Bernard 2011). In conjunction with grounded theory, qualitative data were coded using “relationship” and “social support” as sensitizing concepts. Sensitizing concepts are beneficial as a framework to approach data analysis at the beginning of the process (Bowen 2006). The sensitizing concepts were used to identify broad categories of data, that were analyzed more in-depth as themes emerged and developed. Content analysis is a systematic way for coding and analyzing data. It was used to determine the frequency of overlap between the relationship and social support (Bernard 2011).
The qualitative data was thematically coded using MAXQDA software. For the social network analysis data, codes were based on types of social support such as tangible/material, emotional, informational, labor, and financial from the existing literature on disasters and social network analyses (Jones and Faas 2017b), as well as relationships such as friends, family, neighbors, government, volunteers, non-governmental organizations, and yourself (Casagrande, McIlvaine-Newsad, and Jones 2015). Additional codes were developed from themes of communitas, meaning making, and help-seeking behavior that helped contextualize the social network analysis data. Quantitative survey data was explored through SPSS software. Descriptive statistics were used for the closed-ended survey questions to determine response frequencies.

**Positionality**

My positionality granted me access to this population because of my familiarity with the Midwest, living there the majority of my life. I utilized my contacts, friends, and family in the initial stages of the research to review the survey and to recruit participants. Participants initially commented that it was strange that a Florida university was doing research on the Midwest, but quickly became excited to hear I am originally from Iowa. My positionality and experience was beneficial for the initial development of the project. Trust was easily built after I introduced myself to people who shared my research and/or participated.
CHAPTER FOUR:

RESULTS

Introduction

A total of 1506 participants completed the online survey. The final survey sample was 1470; surveys were excluded in the analysis if participants were not from Iowa. Some others were excluded based on the quality of the responses.

Demographic Data

The participants were majority women, white, and non-Hispanic. Additionally, the majority were from Linn County, Iowa, one of the counties most significantly impacted by the derecho.

State

100% (n = 1470) of the participants listed Iowa as their state of residence.

County

Survey participants were from 37 counties from Iowa. The majority of the participants were from Linn county (n = 948, 64.5%).
# Table 1: County Residence

<table>
<thead>
<tr>
<th>Iowa County of Residence</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audubon</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Benton</td>
<td>34</td>
<td>2.3</td>
</tr>
<tr>
<td>Black Hawk</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Boone</td>
<td>13</td>
<td>0.9</td>
</tr>
<tr>
<td>Carroll</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Cedar</td>
<td>16</td>
<td>1.1</td>
</tr>
<tr>
<td>Clinton</td>
<td>18</td>
<td>1.2</td>
</tr>
<tr>
<td>Crawford</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Dallas</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Greene</td>
<td>6</td>
<td>0.4</td>
</tr>
<tr>
<td>Grundy</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Guthrie</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Hamilton</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Hardin</td>
<td>5</td>
<td>0.3</td>
</tr>
<tr>
<td>Henry</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Iowa</td>
<td>4</td>
<td>0.3</td>
</tr>
<tr>
<td>Jackson</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Jasper</td>
<td>26</td>
<td>1.8</td>
</tr>
<tr>
<td>Johnson</td>
<td>62</td>
<td>4.2</td>
</tr>
<tr>
<td>Jones</td>
<td>8</td>
<td>0.5</td>
</tr>
<tr>
<td>Keokuk</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Lee</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Linn</td>
<td>948</td>
<td>64.5</td>
</tr>
<tr>
<td>Madison</td>
<td>3</td>
<td>0.2</td>
</tr>
<tr>
<td>Marion</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Marshall</td>
<td>74</td>
<td>5</td>
</tr>
<tr>
<td>Muscatine</td>
<td>3</td>
<td>0.2</td>
</tr>
<tr>
<td>Polk</td>
<td>92</td>
<td>6.3</td>
</tr>
<tr>
<td>Poweshiek</td>
<td>11</td>
<td>0.7</td>
</tr>
<tr>
<td>Robins</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Scott</td>
<td>32</td>
<td>2.2</td>
</tr>
<tr>
<td>Story</td>
<td>34</td>
<td>2.3</td>
</tr>
<tr>
<td>Tama</td>
<td>22</td>
<td>1.5</td>
</tr>
<tr>
<td>Union</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Wapello</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Warren</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Washington</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>County Not Listed</td>
<td>20</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1470</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
**Age Range**

Of the 1470 survey respondents, there were 107 (7.3%) between the ages 18-24, 283 (19.3%) between the ages 25-34, 417 (28.4%) between the ages 35-44, 285 (19.4%) between the ages 45-54, 255 (17.3%) between the ages 55-64, and 123 (8.4%) over the age of 65.

![Figure 1: Age Range](image)

**Gender**

Of the 1470 survey participants, there were 284 (19.3%) men, 1172 (79.7%) women, 6 (0.1%) nonbinary/agender/gender-fluid/gender-queer, and 8 (0.5%) participants who preferred not to say.

**Race/Ethnicity**

Respondents were able to select multiple racial/ethnic categories. Of the total respondents, 1424 (96.9%) selected white, 19 (1.3%) selected Black/African/American, 7 (0.5%) selected Asian, 22 (1.5%) selected Latino, 8 (0.5%) selected American Indian/Alaskan Native, 2
(0.1\%) selected Native Hawaiian/Pacific Islander, and 19 (1.3\%) selected prefer not to answer. 

When asked if they were Hispanic, 29 (2\%) responded yes, 1416 (96.3\%) responded no, and 25 (1.7\%) selected prefer not to answer.

\textit{Table 2: Race/Ethnicity}

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Responses</th>
<th>Percent of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percent</td>
</tr>
<tr>
<td>White</td>
<td>1424</td>
<td>94.90%</td>
</tr>
<tr>
<td>Black or African-American</td>
<td>19</td>
<td>1.30%</td>
</tr>
<tr>
<td>Asian</td>
<td>7</td>
<td>0.50%</td>
</tr>
<tr>
<td>Latino</td>
<td>22</td>
<td>1.50%</td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
<td>8</td>
<td>0.50%</td>
</tr>
<tr>
<td>Native Hawaiian or Pacific Islander</td>
<td>2</td>
<td>0.10%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>19</td>
<td>1.30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1501</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

\textit{Income Range}

Regarding annual household income, 94 (6.4\%) make less than $25,000, 265 (18\%) make $25,000 to $49,999, 329 (22.4\%) make $50,000 to $74,999, 265 (18\%) make $75,000 to $100,000, 376 (25.6\%) make more than $100,000, and 141 (9.6\%) either did not answer or selected prefer not to say.
Highest Degree or Level of Education

For the survey question regarding highest degree or level of education, 10 (0.7%) selected some high school, 141 (9.6%) selected high school, 311 (21.2%) selected some college, 240 (16.3%) selected Associates degree, 495 (33.7%) selected Bachelor’s degree, 199 (13.5%) selected Masters degree, 11 (0.7%) selected Ph.D., 35 (2.4%) selected professional degree, 28 (1.9%) selected trade school.
Employment Status

1122 (74.5%) of the respondents were employed, 123 (8.2%) were unemployed, 53 (3.5%) were students, 168 (11.2%) were retired, and 40 (2.7%) preferred not to say. Respondents had the option to pick more than one response.

Table 3: Employment Status Frequencies

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Responses</th>
<th>Percent of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>1122</td>
<td>74.50%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>123</td>
<td>8.20%</td>
</tr>
<tr>
<td>Student</td>
<td>53</td>
<td>3.50%</td>
</tr>
<tr>
<td>Retired</td>
<td>168</td>
<td>11.20%</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>40</td>
<td>2.70%</td>
</tr>
<tr>
<td>Totals</td>
<td>1506</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
**Property Ownership or Rental**

While most people own their home (83.4%), 217 (14.8%) rent, and others listed living with parents or other family member, living with a partner, that they own a mobile home and pay lot rent, and buying property on contract.

Table 4: Property Ownership or Rental

<table>
<thead>
<tr>
<th>Property Ownership or Rental</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own</td>
<td>1226</td>
<td>83.4</td>
</tr>
<tr>
<td>Rent</td>
<td>217</td>
<td>14.8</td>
</tr>
<tr>
<td>Something else</td>
<td>26</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>1469</td>
<td>99.9</td>
</tr>
<tr>
<td>System Missing</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Totals</td>
<td>1470</td>
<td>100</td>
</tr>
</tbody>
</table>

**Number of People in Household**

Of the 1470 survey respondents, 177 (12%) live alone, 523 (35.6%) live with one other person, 264 (18%) have 3 people in their household, 274 (18.6%) have 4 people in their household, 232 (15.8%) have more than 5 people in their household.
The most frequently selected impacts were loss of electricity (n = 1426, 97%), WiFi/cellphone data loss (n = 1294, 88%), damage to property (n = 1251, 85.1%), damage to house/apartment/residence (n = 1125, 76.5%), food loss (n = 1138, 77.4%), mental/emotional distress (n = 884, 30.1%), and financial loss (n = 789, 53.7%); these are shown in Table 5. 370 (25.2%) evacuated their residence. Participants experiences with property damage is shown in Figure 5 and Figure 6. Some of the farm related damage is shown in Figure 7. Many people mentioned in the surveys and interviews that they felt like they had PTSD, or some other type of mental/psychological health impact because of the derecho experience. The derecho occurred in August, five months into the pandemic in the United States. The impacts of the storm exacerbated many of the preexisting burdens like mental/psychological health, finances, food accessibility, etc. It is also important to note that this research was conducted 5-6 months after
the derecho, and the mental/psychological impacts were a central topic in interviews. For those that have been able to physically recover, such as fixing and replacing damage to property, the mental burden still lingers. People frequently reported being scared of thunderstorms and high wind, and are especially worried for the coming months when these weather events are more frequent. The limited warning people had for the derecho plays an important role in this. Technology failed many people, and it was a terrifying experience because of the limited control over the situation, creating concerns about the trustworthiness of the warning systems.

*Table 5: Impact Frequencies*

<table>
<thead>
<tr>
<th>Impact Frequencies</th>
<th>Responses</th>
<th>Percent of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Derecho Impacts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damage to your house/apartment</td>
<td>1125</td>
<td>13.10%</td>
</tr>
<tr>
<td>Damage to your property (i.e. fallen trees, debris, etc.)</td>
<td>1251</td>
<td>14.60%</td>
</tr>
<tr>
<td>Damage to your vehicle</td>
<td>387</td>
<td>4.50%</td>
</tr>
<tr>
<td>Lost electricity</td>
<td>1426</td>
<td>16.60%</td>
</tr>
<tr>
<td>WiFi and/or cellphone data loss</td>
<td>1294</td>
<td>15.10%</td>
</tr>
<tr>
<td>Lost food</td>
<td>1138</td>
<td>13.30%</td>
</tr>
<tr>
<td>Financial loss (i.e. unexpected expenses, lost wages, etc.)</td>
<td>789</td>
<td>9.20%</td>
</tr>
<tr>
<td>Physically injured</td>
<td>35</td>
<td>0.40%</td>
</tr>
<tr>
<td>Mental/emotional distress</td>
<td>884</td>
<td>10.30%</td>
</tr>
<tr>
<td>Childcare was interrupted</td>
<td>129</td>
<td>1.50%</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>129</td>
<td>1.50%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>8587</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Figure 5: Example of personal property damage. Picture taken by participant.

Figure 6: Example of property damage. Picture taken by participant.
Recovery

I’m successfully recovered from the derecho.

Figure 7: Farm storage damage. Picture taken by participants.

Figure 8: Response Frequency for Successful Recovery
Of the total survey responses, 41.9% (n = 616) either disagreed or strongly disagreed with the statement “I’m successfully recovered from the derecho.” While 41.1% (n = 599) agree or strongly agree, and 17.3% (n = 255) neither agreed nor disagreed (Figure 8).

![Figure 8: Response Frequency for Successfully Recovered](image)

Of the total survey responses, 25.1% (n = 369) either disagreed or strongly disagreed with the statement “I still feel like I’m recovering from the derecho.” 62.4% (n = 917) either agreed or strongly agreed, and 12.5% (n = 184) neither agreed nor disagreed (Figure 9).

![Figure 9: Response Frequency for Still Recovering](image)
Of the total survey responses, 26.5% (n = 389) either disagreed or strongly disagreed with the statement “The COVID-19 pandemic impacted my ability to recover after the derecho.” 50.9% (n = 748) either agree or strongly agree, and 22.7% (n = 333) neither agreed nor disagreed (Figure 10).

**Concerns and Needs**

One of the top priorities for people after the derecho was safety. Many talked about the anxiety of getting to their children who were not with them during the storm. During an interview, one parent talked about how they started driving towards their child’s daycare, but could not reach it because the roads were impassable, so they parked their car and walked several miles. The downed cell towers and electricity added to the anxiety because parents did not know what to expect as they were making their way to their children because they could not call...
anyone or get information. There was also a shared fear among people who were not at home during the derecho, and were scared that they were not going have a house when they got back. Other immediate concerns were about the lack of electricity not being able to keep medication or breastmilk cold. The other major concern was finding reputable contractors that were/are available.

Relationships

The social network relationship survey questions looked at formal and informal relationships: family, friends, neighbors, government, non-governmental organizations, volunteers, workplace, and other. The relationships utilized the most were alone/yourself (n = 1239, 23.5%), family (n = 1139, 21.6%), neighbors (n = 984, 18.6%) and friends (n = 930, 17.6%) shown in Table 6. As shown in Figure 11 people frequently utilized two to five relationships, with four being the most common (n = 422, 28.6%)

<table>
<thead>
<tr>
<th>Relationships</th>
<th>Responses</th>
<th>Percent of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighbors</td>
<td>984</td>
<td>18.60%</td>
</tr>
<tr>
<td>Family</td>
<td>1139</td>
<td>21.60%</td>
</tr>
<tr>
<td>Friends</td>
<td>930</td>
<td>17.60%</td>
</tr>
<tr>
<td>Workplace (yours or someone in your household)</td>
<td>354</td>
<td>6.70%</td>
</tr>
<tr>
<td>Government</td>
<td>166</td>
<td>3.10%</td>
</tr>
<tr>
<td>Non-governmental organization</td>
<td>154</td>
<td>2.90%</td>
</tr>
<tr>
<td>Volunteers</td>
<td>258</td>
<td>4.90%</td>
</tr>
<tr>
<td>Yourself</td>
<td>1239</td>
<td>23.50%</td>
</tr>
<tr>
<td>Other</td>
<td>56</td>
<td>1.10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5280</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 6: Relationships Frequencies
Relationships and Social Support

Social support was coded into five major themes: informational, emotional/intangible, material/tangible, financial, and labor. These themes emerged from both interview and survey data, and also from the existing disaster social network literature (Casagrande, McIlvaine-Newsad, and Jones 2015; Jones and Faas 2017b). Informational was defined as seeking or accepting information on how to access resources like food, ice, gas, contractors, time off (unpaid) from employer, and many other necessities. Emotional/intangible support included talking about going through the derecho and checking in to make sure people and their property were okay. Material/tangible support included receiving food, water, ice, gas, equipment to aid clean-up, shelter, electricity/Wi-Fi, etc. Financial support included money, gift cards, grants, loans, paid time off from employer, etc. Labor mostly included assistance with cleanup, childcare, and transportation. Only the social network questions from the survey that asked
specifics about how relationships (i.e., neighbors, family, friends, government, non-governmental organizations, volunteers, other) were relied on were coded for social support. Interviews were used to add additional context to the survey data and for the initial development of themes.

Table 7. Percentage of participants mentioning support type associated with a source of social support (n = number of participants who mentioned support types in survey response).

<table>
<thead>
<tr>
<th>Support Type</th>
<th>Neighbors</th>
<th>Family</th>
<th>Friends</th>
<th>Yourself</th>
<th>NGOs</th>
<th>Government</th>
<th>Volunteers</th>
<th>Workplace</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informational (n = 328)</td>
<td>7.3%</td>
<td>4.3%</td>
<td>5.7%</td>
<td>1.6%</td>
<td>0.7%</td>
<td>0.9%</td>
<td>0.5%</td>
<td>0.7%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Emotional (n = 847)</td>
<td>11.4%</td>
<td>12.5%</td>
<td>17.2%</td>
<td>3.9%</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>11.0%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Tangible/Material (n = 3185)</td>
<td>23.5%</td>
<td>47.2%</td>
<td>15.7%</td>
<td>13.2%</td>
<td>6.8%</td>
<td>2.1%</td>
<td>8.1%</td>
<td>10.5%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Financial (n = 306)</td>
<td>0.3%</td>
<td>3.6%</td>
<td>0.8%</td>
<td>1.8%</td>
<td>1.3%</td>
<td>6.0%</td>
<td>0.2%</td>
<td>5.8%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Labor (n = 3875)</td>
<td>52.7%</td>
<td>41.7%</td>
<td>33.8%</td>
<td>80.8%</td>
<td>2.8%</td>
<td>4.1%</td>
<td>10.7%</td>
<td>1.8%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

Data analysis revealed how particular relationships were utilized more frequently based on the support needed. Labor and tangible/material both have the highest diversity in network engagement (Table 7). The table also highlights how people relied heavily on their informal networks compared to formal sources of support. Figure 12 further emphasizes these aspects in ways the social networks were engaged with support types. A heavier line in the figure indicates a higher frequency for that relationship. The social network map shows that participants overall did not rely on a high density of relationship for the various types of support.

Informational

Informational support was a critical resource when electricity was out, and cell towers were down. This is also an area that cities, counties, and the state of Iowa draw a significant amount of criticism regarding the lack of information. People struggled knowing what resources were available because they could not access the information. Facebook was an important way to receive and provide information for those that had access to cell data or WiFi. Participants also frequently mentioned that they had no clue what type of disaster happened until several days after because information was extremely limited: “We had no cell reception or power so we had
no updates on when anything would be fixed. We didn’t even know it was a derecho until our neighbor told us the next day.” Many thought it was a tornado until they were told otherwise.

Additionally, people also relied on the informal networks for information regarding insurance and finding reputable contractors. For many participants, they mentioned this was their first time filing a claim to their insurance. Adult children talked about how they relied on their parents to navigate the complexities of insurance: “I had endless help from my family with dealing with insurance trying to understand what I needed to do in order to receive help. I mean I’ve never had to deal with something to this extent. Loss of trees, property damage, I had no idea where to begin to get help.”

Material/Tangible

Family was the main source of material/tangible support. This came in the form of clean-up equipment, access to electricity, generators, gas, and shelter. All resources were hard to acquire from days to weeks after the derecho. People relied on family, friends, and neighbors for those scarce resources. Some people relied on friends and family in another area of Iowa or another state that was not impacted by derecho to bring in supplies. Because many parts of Iowa were without power for a significant amount of time, in those areas if grocery stores, supply stores, and gas stations did not have backup generators they could not operate, forcing people to drive a significant distance hoping to find what they were looking for.

The lack of electricity was a top concern for many people. Many talked about their struggles finding a place to take young children, disabled children, or the elderly to places with electricity for medical needs and air conditioning. People were concerned about how to keep medication cold, like insulin or not being able to use medical equipment like a CPAP machines. For these people electricity is a necessity. In these instances people had to evacuate to a hotel,
family or friends house that had electricity, rely on neighbors if they had a generator, or close relationships to take care of children, the disabled, or the elderly.

Financial

Of the participants who mentioned getting financial help, only 6% received aid through the government (Table 7); however, it was also frequently mentioned that people applied for the assistance but were denied help. Applying for government assistance is a complex process that creates barriers and inequality in accessing support. It is often a process that takes a lot of paperwork, time, and appeals to prove one’s “deservingness” of help. Of the sample, the government was the most utilized source of support for financial help. People’s workplace (or someone in their household’s workplace) also was a source of financial support. This often was reported as their workplace continuing to pay them even when they could not physically work, monetary donations, and gift cards.

Labor

Labor was by far the most reported and utilized support type. It was mentioned a total of 3375 in the surveys. The most utilized support source was self/alone (80.3%) (Table 7). This is indicative of the widespread damage that impacted people’s ability to help others. One respondent described the situation as, “it was hard to get assistance if you didn't have family to help because everywhere you looked people were hit by the storm. Everyone had their own clean up. After it hit you could hear chain saws running everywhere, people not complaining just going to work to clean up. That's what we do.” Another person explained the difficulty excepting that they could not help their adult daughter who also had significant damage because they had to work on their own damage: “…our daughter's house in Ames, Iowa was severely damaged and it's not by any means repaired yet. We have not been able to give her the support I'd like to give
her, and this has been the most depressing aspect of the storm. Usually, we can count on each other, but not this time.” In addition to the widespread damage requiring many people to rely on themselves, COVID-19 also created additional burdens. Some people decided to forgo COVID-19 mitigation measures because the threat of the derecho was more pressing, but there were people that tried to reduce their risk as much as possible through limited contact, social distancing, and wearing face masks. A survey respondent stated, “I think the hardest part for me was seeing everyone else who needed help and knowing that I couldn't do much to help them, both because I don't have much power to do so, and because I couldn't put my health at risk during the pandemic.”

People also reported a high reliance on neighbors (52.7%), family (41.7%), and friends (33.3%) for labor after the derecho (Table 7). Labor often included help with clean-up, securing property from further damage such as tarping a roof, and support with childcare.

**Emotional/Intangible**

Participants often sought out and received emotional support from family, friends, and neighbors when tangible support was not an option. 885 (59.9%) reported being mentally/emotionally impacted by the derecho (Table 7). It was common for people to receive emotional support either from family or friends that lived out of state or from the same area, but were not able to physically help because they were occupied with their impacts they sustained. This context is expressed in the following survey response: “Emotional support was the primary help from family since they do not live in the area.”

People’s workplaces were also a source for emotional/intangible support (11.6%) (Table 7). This was primarily through offered time off that did not count toward sick or vacation days.
One participant’s workplace offered emotional support through providing a group therapist for the employees to utilize.

Another aspect of emotional support that was frequently mentioned by parents was the importance of maintaining mental/emotional stability for their young children. They were worried about the trauma their children experienced and how the break in routine might impact them, when routines were already fragmented due to the pandemic. One parent explained their experience with that as, “I had to keep my emotions in check when food was low for my kids. I had to keep it together when my bathroom ceiling fell in.” Parents tried their best to create a sense of normalcy for their children by maintaining emotional stability, keeping routines, and offering comfort. Another parent explained that her situation as, “my children are mentally damaged by it and now are terrified of storms and super loud noises. Especially my youngest two, when the storm happened a tree went through the wall of the room they were napping in and through the bed my youngest was in and gave him a big scratch. Thankfully, nothing more but they are definitely traumatized from it.” For those that were able, many parents sent their children with family or friends that were outside of the severely impacted areas so they could have access to electricity and other necessities.
Figure 12: Map of relationship between support type and support source. The heavier the line indicates a higher frequency of the relationship.
With the statement “I am well connected to my community,” 62.7% (n = 927) either strongly agreed or agreed, 27.9% (n = 413) neither agreed nor disagreed, and 9.4% (n = 138) either strongly disagreed or disagreed.

When asked “I feel more connected to my community after the storm,” 56.8% (n = 838) either strongly agreed or agreed, 34.5% (n = 510) neither agreed nor disagreed, and 8.7% (n = 129) either strongly disagreed or disagreed.

Of the total, 75% (n = 1188) either strongly agreed or agreed with the statement “My network (neighbors, family, friends, workplace, government, non-government-organizations, and volunteers) adequately supported me after the derecho with recovery,” while 8.6% (n = 128) either strongly disagreed or disagreed, and 16.4% (n = 242) neither agreed nor disagreed.

On the other hand, 42% (n = 635) either strongly agreed or agreed with the statement “I needed resources or help I didn’t get right after the storm.” While 32.4% (n = 479) either strongly disagreed or disagreed, 24.6% (n = 364) neither agreed nor disagreed.

**Interview Results**

A total of 20 semi-structured interviews were completed. The majority of the participants were women and from Linn County, Iowa. Interviews were utilized to contextualize the survey network data and to understand experiencing the derecho more in-depth. Pseudonyms were used to maintain confidentiality of participants. Interviews and text-entry survey responses were thematically coded with themes of communitas, meaning making, lucky ones, defining recovery, inaccessible help or resources, can’t help, and self-sufficient or pride. Communitas represents feeling of community and belonging related to the derecho experience, such as neighbors working together to clean each other’s properties and often eating meals together when resources were limited. Sections of text were coded with “meaning making” to capture data on how people
described the derecho experience and ways they understand the response by the media and the government. Within “meaning making,” there were subcodes to specified references to the media, government, other disasters, the future, things they learned, finding good from the derecho, and the transformed landscape. The “lucky ones” was used to code text that included those words or variations, specifically when participant would talk about their own experience and comparing it to others. “Defining recovery” was used to identifying how people understand what it means to be recovered from the derecho. “Inaccessible help” and “can’t help” were used to distinguish between needing help but being able to access it and wanting to help but was not able to, typically because people were busy with their own damages. Lastly, “self-sufficient or pride” was used to identify explanation and feeling for why people did not seek out help related to negative feeling about what it means to not be able to provide for oneself. These themes are explored in-depth in the discussion section.

Limitations

This research was limited due to the sampling methodology. Snowball and convenience sampling can limit the generalizability of the study results. The original research design did not anticipate having this large of a sample. If it were included, purposive sampling would have been used to have a more representative sample of the population. Additionally, it would have been ideal to include emergency management, city/state officials, and non-governmental organization employee in the interview design. Also, the time constraints, COVID-19, and distance restricted my options for recruitment. I was mostly limited to Facebook; however, organizations in Iowa shared the project on Facebook, helping me reach a wider sample than I originally had access too. I did reach out to cities across Eastern Iowa, informing them that this research was going on,
and there was limited response back. Their perspective could have added additional information on the ways they approached resource distribution and communication.

There were significant time constraints from the COVID-19 pandemic and the graduate school timeline. There was minimal time to test out the survey. Since this did start out as a class project, that was the pilot project, but was limited in scope. If there was more time I would have included more people and methods in the design process. Because of the timeline constraints I did not have the opportunity to have the community that participated guide the development of the research. The research was designed by me, but included participants in the process of what they want to come out of this research. Another limitation in the research was that I failed to include “disabled” as an option for employment status, potentially misrepresenting some of the participants. In hindsight I should have also asked if participants were still displaced because I did not realize that people still were until after the project was launched. After reading and listening to people’s experience with insurance, I would have included a specific question about that. Participants provided feedback that they wished the survey had more specific questions about the emotional/mental toll of the derecho, how they helped others (instead of focusing on how they received support), and questions for business owners.
Introduction

The aim for this project was to understand how people utilized their social networks, both formal and informal, to recover from the 2020 derecho storm. Social networks are vital during life altering events, like a natural disaster. They play a critical role in connecting individuals to emotional, material, and informational support to which they do not have access to independently. Understanding how populations organize can have positive contributions for disaster management. This research demonstrates how people responded to the derecho storm and the ways they relied on personal networks, perceptions on accepting help from the network, and how meaning is constructed after a disaster.

A Culture of Self-Sufficiency

One of the themes that emerged from survey data and the in-depth semi-structured interviews was an emphasis on being self-sufficient, or at least feeling connected enough to their community to not have to rely on the government or other organizations after the derecho for help. When I think about the people of Iowa, I see them as the quintessential Americans that represent the “pull yourself up by your bootstraps” mentality. I would describe Iowans as reserved and laidback. Some might call them nosy or involved, but that often stems from wanting to help other people. While Iowa lacks diversity in many ways, especially when it comes to race/ethnicity, they are still not a homogenous group, but there are these cultural norms
that are present. There is a strong sense of pride with being able to support yourself. Those norms are represented in the following quote from a survey:

Iowans don't beg for government assistance. We help each other and we take pride in that. It comes from being connected to the land. Example: when a farmer is sick, injured or dies and there is a crop to get in the ground or harvested, neighbors just pitch in and help. They don't ask questions or want outside help. We just take care of each other knowing that the reverse would be true if needed.

When asked “What did you do for yourself?” one participant responded “Everything. We rely on ourselves and don’t ask for handouts.” People often wrote in the survey or said during the interviews “Iowa Strong” or “#IowaStrong” with no explanation or context, to sum up these feeling of being self-sufficient and supporting each other during a time of crisis. For middle- and upper-class individuals, accepting “handouts” conflicts with their cultural values and norms. And these stories of experiencing the derecho and the recovery are saturated with this conflict. Participants often recognized the failure of the state’s response and the lack of overall assistance, but then explained it away with their willingness to care for themselves. Or if they did accept help, they dealt with intense feelings of shame and stigma—as if it were a personal failure.

Victoria, a woman in her early 20s with a son, when asked what it was like standing in line at a food pantry after the derecho, she responded,

I mean, it was kind of rough, you know, because you, you see all these other people that are…less fortunate than you even and you kind of feel bad because you're like, should I be here when there's other people that need it worse, but then at the same time, you're like, well, I lost all my food, too. And that was definitely really hard. And the grocery stores afterwards, you know, because everybody was restocking, and it was a nightmare to try to find groceries for at least a month and a half after the storm. Because nobody could keep up.

She viewed it as a personal failure to accept help, even when it was for basic needs, like food, when there were no other options. She had limited options for securing food because she works a minimum wage job and had limited extra money. The financial strain forced her to take out a
loan on her car that she was still paying on 6 months later because she had to move out her home because of the mold. She was relieved that she was living in a safer space for her child now, but was concerned about it costing more than her previous place. Additionally she relied on Facebook, and received approximately $200 worth of groceries from a stranger she connected with on a Facebook page. Victoria’s work also had to shut down for a period of time because they could not operate without power. She decided to commute over an hour to a different location that was still operating after the derecho so she could continue to work. While state and federal resources were slow to arrive, they were available. But seeing the social network analysis data, participants did not utilize those resources to the same extent that they relied on their informal network. Victoria wanted to apply for federal assistance, but encountered barriers in the application process because she did not have access to her social security number or birth certificate. These perceptions of aid influenced how and who people asked for help from. Analyzing perception of aid after a disaster is an interesting and important context to understand, and there is little attention paid towards it.

Experiencing a disaster that opens up access to federal and various other types of aid offers an interesting context to view perceptions and beliefs about assistance, specifically financial support. In some instances it might be seen as socially acceptable to need state and federal resources. Research by Fothergill (2003) is an example of how survivors of a disaster that needed this financial assistance still experience stigma. Even though the impacts of the derecho were not blamed on the individual, the acceptance of financial assistance marked their personal character. It is also not uncommon for people to not access formal help because they think it is not available or its not meant for them. A predictive factor if a person receives help is based on their willingness to ask for help. This is reflected in the cultural and individual values as
“…certain cultural traditions and orientations foster greater development of and reliance on indigenous support systems” (Kaniasty and Norris 2000, 547). As discussed previously the self-sufficient culture influences this hesitancy to seek and accept formal aid. An important caveat needs to be made, however, with this discussion about a self-sufficient culture: not everyone has this approach to life, and this also does not mean these people should not receive government and non-governmental assistance. But suggests that the government and non-governmental organizations should alter disaster aid messaging that would encourage people to utilize it. This concept is expressed in the following survey quote: “Although my county was declared a federal disaster area, I was told over and over that I didn’t ‘qualify’ for any help. I received no government assistance.” People in Iowa and throughout the Midwest clearly needed and wanted assistance: “It’s amazing to me how much people were and are expected to take care of themselves. We don’t save money for a hurricane to happen in Iowa but yet low-income families have to pay for tree removal, house and car repairs, sidewalk and street repairs. There should’ve been more support and a quicker response.”

While Iowans are familiar and uphold the value of being self-sufficient, it is simultaneously reinforced by the government: “our government, local or National, did NOT respond or provide assistance. If neighbors didn’t help neighbors it wouldn’t have gotten done.” The government is simultaneously benefiting from and reinforcing this self-sufficient culture.

**Impression Management**

Impression management are techniques used to help cope with difficult situations. It is used to create distance between the person and the situation. As highlighted by Alice Fothergill (2003) with her research on the stigma of charity after a flood in North Dakota, women used impression management to show that they were not the “real” poor, but that their situation was
temporary. It was not a reflection of them or their personal doing, but the disaster. Impression management is utilized to shape identity, reduce stigma, and serves as a coping mechanism. It counters and offers explanations for Iowans when they need to accept help, but want to avoid the associated stigma.

*Lucky Ones*

One of the most prominent phrases that appeared throughout survey and interview responses was “…but we’re lucky,” or some variation thereof. People used this phrase or variations that draw a comparison to acknowledge that other people had it worse, to emphasize their place and that others needed more help than them. One interview participant, a woman in her sixties who lives with her husband and son, detailed help she received from two non-governmental agencies. These agencies contributed in terms of 150 person-hours over 3 days, and this does not include the work her friends, family, and neighbors contributed. At the conclusion of her story her response was “…we had significant damage, but it was nothing compared to so many in the region,” drawing on her emphasis that other people needed more help, even though she had significant damage herself and required a significant amount of labor to clear her property. She was reliant on this help because she was not physically capable of doing the work herself.

*Temporality*

Another way that survey and interview participants emphasized that others had it worse was by reflecting on the fact that their situation was temporary. Whether it was the temporality of their living situation, food assistance, financial assistance, this was used to contextualize the stigma they might experience as temporary too. A survey respondent explained her experience with the derecho as:
This experience with homeowner’s insurance has on one hand made me furious and frustrated with the way I’m being treated but on the other hand, and more importantly, made me feel for those who are less fortunate than I am. At the end of the day, while my out-of-pocket expenses will be much greater than they should be, I’m fairly certain I’ll be able to absorb those costs without it impacting my life or the life of my family. There are so many who simply can't afford these additional costs and it's messed up that through no fault of their own they’re being faced with these additional hardships. So while I'm upset with my own experience, I'm also really lucky and am grateful for that.

She begins with explaining her own situation and transitions into speaking about other people and their experiences with recovering from the derecho. She emphasized her ability to financially recover without it inhibiting her life. Many people who framed their situation as temporary did not know for certain if it was, but spoke confidently about it.

**Giving Back**

Another mechanism people used to avoid charity associated stigma was by giving back after receiving help. After the derecho, Lily, a married woman in her early 30s and a mom, could not find diapers for her child at the store and had to go to a resource center, even though she could afford diapers. She described her experience as:

I mean, at one point, we needed diapers for our youngest, and we couldn't find his size in the store anywhere. It was already hard enough with COVID you know, just they were always limited on diapers, people were buying like crazy and stuff. And we couldn't find them anywhere. We had like three diapers left. And finally I was like, well, we can afford diapers, but I have no choice rather...And I, I told him [resource center worker], I was like, I can afford diapers, I will give you $30 for a pack of diapers. But when I can't find them at the store, I have to do something. My kid needs diapers.

She donated the $30, which is the cost she would have paid at a store. This was a very common story to hear when people spoke of their experience needing donations of food or necessities. If the recipient gives back in the form of money, items, or services it is used to counter the fact that they received charity. One survey respondent paid back in the form of volunteering: “Red Cross food drives helped my daughter and I by supplying food and water. I also volunteered at a food
drive one day to give back to my community.’” Donating money, supplies and time after receiving assistance helps to distance the person from charity associated stigma. It is a technique to showcase that accepting free resources was not the norm, but the exception for an extreme circumstance. Accepting donations conflicts with Midwest middle-income values (Fothergill 2003).

*Not Asking for Help*

One other aspect of impression management is the emphasis on not asking for help, but only receiving help when people offered first. One survey respondent said, “I didn't ask for help being fiercely independent. My kids & grandkids showed up to help with clean up.” There is a distinction between asking for help and accepting help that was not asked for. Additionally, on the survey several people clarified that they did not rely on others for help, but help was still appreciated: “I wouldn't say relied on, but neighbors pull together to help each other. No asking, just doing.” It became clear through interviews and comments left on the survey, that people were more interested in talking about how they helped others versus how they were helped. The social network questions were worded as “select all they types of relationship you relied on for recovery after the derecho?” and “please explain how you relied on [relationship selected].” It was a continuous pattern that participants disregarded the wording of the questions, and instead explained how they helped others. This is due to the shame and stigma associated with asking or receiving help. There was more of sense of pride when talking about how they helped their community recovery from the derecho, versus what they needed help with.
Social Capital and Support

Mobilization

After the immediate impacts of the derecho, formal support was inaccessible in many parts of Eastern Iowa because communication was cut off via power outages, data and phone service were unreliable, and roads were impassable from downed trees, debris, and electrical wires. People were relying on informal support from neighbors, friends, and family in the following hours after the derecho, and for some the following days and weeks, to ensure safety, clear roads so emergency responders could pass, and for the acquisition of basic necessities such as food and water. The more ties an individual has the more they are able to engage both strong and weak ties to access resources (Casagrande et al. 2015). The analysis of social support and relationships revealed that people rarely acted alone and instead widely utilized friends, family, and neighbors. People did not report the same level of formal network support like reported before and after the 2008 Mississippi River flood in Illinois (Casagrande et al. 2015). While this was not a universal experience, it was the most commonly reported. One participant noted that network support was less utilized for them based on the geographic location: “we live in a rural community where we all had damage and were so busy taking care of our own problems that there was no opportunity to help neighbors, so the cleanup and recovery is taking much longer. In town most people had the support of neighbors coming together to quickly and efficiently complete clean up.” Different levels of population-density produced different needs and different levels of access to support.

COVID-19 and Social Support

Surprisingly, people did not mention COVID-19 as much as I anticipated. At the national level, the week of August 10th, the United States had a 7-day average of more than 53,000 new
COVID-19 cases a day and an average of 1,000 deaths per day. Iowa had an average of 466 new COVID-19 cases a day and an average of 7.3 deaths per day. Cases in Iowa, as with the rest of the country, continued to rise for the next several months, not reaching a 7-day average for new COVID-19 case in the 400’s until March 2021 (The New York Times 2021). For most people when they did mention it, it was along the lines of what this survey participant said: “COVID briefly went by the wayside post-derecho. Everyone just pitched in and helped, and no one paid any attention to the pandemic. There were lots of hugs and it was so needed. It was as if we could only handle one terrible thing at a time (at least for me).” This was the experience for many. After being several months into the pandemic, at the time of the derecho, there was a sense of joy in being able to physically connect with people, even if it was under stressful circumstances. For others they mentioned that the COVID-19 pandemic only impacted their recovery in terms of getting supplies delivered. Another survey participant explained, “COVID did impact the recovery because at one point I was being tested and the contractor and workers didn’t come to the home, even though I wasn’t living in it, during this time for fear of being exposed to COVID because I did go in the house and was living in the RV next to it. They didn’t return until my test came back negative which took longer than expected.” For others, they contracted COVID during the days and weeks after the derecho. One participant explained that he and his wife had COVID right after the storm and it was hard to be sick without electricity or internet for 10 days.

**Communitas**

Communitas has been shown to be strong immediately following a disaster and decrease through time. Communitas is important when considering the “ritualized and emotive aspects of disaster” (Jencson 2001). While there is power in understanding disaster communitas, there is
also critique about emphasizing strong bonds, it then in turn can stigmatize networks that do not work in solidarity. It can translate into ideas about deservingness of aid and support (Jones and Faas 2017b). Similarly to research by Hoffman (1999), Casagrande et al. (2015), and Jencson (2001) people relied on relationships that were weaker ties immediately after the derecho, but many of those relationships began to dissipate as time progressed. Participants received help from weaker ties for immediate concerns, and relied on stronger ties or on formal sources of support for more long term needs.

Communitas was most prevalent regarding labor and material/tangible support type and neighbor support source. It was also associated with the time period immediately after the disaster, from the following hours after to days later. Many people shared a common experience, with emerging from the homes as soon as the storm stopped and working with their neighbors together on immediate needs like ensuring people were safe, removing trees off houses so people could get out, and clearing streets. They often described it as “neighbors banded together.” People reported meeting neighbors for the first time, even though they had lived there for a while: “…actually feel grateful for it because we never would have gotten to know our neighbors otherwise.” For those had this type of experience, they expressed feeling comfort in their network growing, specifically for when the next disaster occurs.

Communitas describes the build-up of feeling a sense of belonging to a community from working towards a common goal together. After the derecho, the common goals were clearing debris and securing material resources. But what happens after those goals are met? Often people feel a decrease in those positive feeling, sometimes feeling worse off than they did before. One survey respondent described it as: “there was a lot of support immediately after the storm, but we still have a lot of work to do, and that support has dwindled.” Joan is a married woman in her
early 40s and has two children. She was home with her children when the storm hit. They had significant damage to their property and belongings outside, but minimal damage to their house. They were without electricity for 10 days and because of this they spent most of their time outside. Her neighborhood, of approximately 10 families, worked together to clean everyone’s properties, shared food, and took turns traveling to other towns to go to the grocery store. Joan described her experience missing the spirit of communitas:

I do [miss being around neighbors]. And you know, the derecho did happen within the timespan of COVID. But we all kind of joked that we’re not worried about COVID now because there’s bigger things. And so, you know, it probably wasn't wise, but nobody got sick from it. But we kind of just ignored that and worked together and ate together. And it was just really nice to have that, especially with, you know, people lost property and their homes were damaged. And it was tough. But having that social connection was, was like a bright spot. And, and I do miss that, I miss being able to just hang out and, and we had nothing else to do. So that part was a little fun. I won't say the derecho was fun. But that part was fun.

Joan and her neighbors were already planning in January to have breakfast together this spring, in hopes of feeling a sense of togetherness again.

It is important to reiterate that just because a person, neighborhood, or city does not experience communitas it does not reflect as a failure to adequately respond to the derecho. Communitas is a concept used to analyze how communities come together in times of crisis, but it should be done so carefully as to not blame individuals for not working together or used to justify who deserves support. There are larger systems and identities that shape communitas such as geography, race, gender, and socioeconomic status. A survey respondent, a woman over the age of 65 who lives by herself, described seeing some of her neighbors collectively working together, but did not extend that help to her. She ended up paying them for the help she required and also described how she was over-charged by contractors because she was not able to clean or fix the damage on her own. She was not able to drive her car either to get basic resources like
food that was offered by many volunteer groups because her car was trapped by tree debris. Her friends either were not able to support her because they were handling their own damage or did not provide adequate support for her to feel secure: “I resent how one local "friend", considered it "help" to send me charity outlets [information]. It was not practical to go across town, when initially I could not even get to my car, and if I could, there were no traffic lights. There were food give-a-ways, but I could not get to them. It made me realize how my friends did not help me.” Her network was only providing support in the form of information when she needed labor and material resources. Additionally, circumstances such as not originally being from the area limits the support sources that people require after a disaster because their network is small. A few participants mentioned they were new to the city they are currently living in and only know a few people. One individual moved at the beginning of the COVID-19 pandemic, further limiting her ability to make connections in her area.

The widespread destruction interrupted how people were able to engage with the informal social networks. Neighbors were a widely used and an accessible relationship for some people, typically in more densely populated areas versus rural areas. They were an easier relationship to utilize due to proximity. Participants that were from rural areas of Iowa, mentioned that their closest neighbor was several miles away. A survey respondent described her experience as, “I feel bad saying that we didn’t get help from anyone, because everyone was suffering as badly (or worse) than we were. There wasn’t anyone that could help. We did have a neighbor that had more resources than the rest of the neighborhood, and it was disappointing to see them not help anyone. We did what we could to help our elderly neighbors.” It is difficult to support other people when you have your own damage to handle and necessities that need to be met. There
were also people that provided support and expected it back, but did not receive it, and were disappointed.

**Community and Grassroots Response**

The community and grassroots response that emerged out of the derecho highlighted the fact that people who experience a disaster are not passive victims, but active agents. While the government and outside help was slow to respond to the derecho, the community responded. Even when state and federal resources became available, the community response did not disintegrate. Organizations like the Iowa Derecho Resource Center, that was born out of the derecho, filled a need in the community for people that were not eligible for more formal types of assistance. They did not require proof of “deservingness” to receive resources. This social movement emerged and is continuing to serve the community. They are filling a need that was present before the derecho, and now has community support to begin filling some of those larger gaps.

**Construction of Meaning**

An unexpected theme that was present in many of the surveys and interviews, was the concept of meaning making, specifically how people tried to make sense of and explain the derecho. This was an unanticipated theme that emerged because the literature on disaster symbolism is limited (Hoffman 2002). This theme was salient as the analysis process progressed, and this section does not cover all the themes that emerged, only the most common ones. The construction of meaning sub-themes are not mutually exclusive, there is a noticeable connection between them, and at times difficult to parse out. While they will be discussed separately, they do not exist by themselves, and are all interconnected. Meaning making is an integral part of the
healing process after a disaster. Hoffman (2002) states that “symbols influence shared behavior. It important to both cultural and physical survival.”

Derecho meaning making showed-up through symbolism or metaphors such as comparing the derecho to a hurricane, war zone, or the aftermath of a bomb. The emotional distress was clear when reading and hearing about the environmental transformations that took place because of the storm and the ways people are reckoning with what that means for the future. People also frequently brought up opinions on how the national media and government response failed them, invaliding their experience with the derecho. The last concept that will be explored regarding meaning making, is how people define and experience recovery.

*Environmental Transformation*

Iowa and other areas of the Midwest that were impacted by the derecho, went through a major environmental transformation; most notable was the extensive tree damage. The storm damage resulted in almost half of the corn and soybean crop in Iowa being lost, equaling 10 million acres. Over half of the tree canopy was destroyed in Cedar Rapid, Iowa and other areas of the state also lost a significant portion of their trees too (Cappucci 2020).

The landscape transformation is one of the more distressing long-term aspects of the derecho for many people. The change in landscape is a constant reminder of the storm. The disordered landscape was particularly painful to see, and many people immediately began cleaning up, not waiting for city or county assistance. A participant described their experience seeing the landscape in the following way: “We lost 65% of our tree canopy that afternoon and I still can't drive to work without getting choked up. Our landscape is so marred, there's nowhere you can look and not see damage and it has been 5 months.” Seeing the environmental destruction is what is keeping some people from feeling recovered: “I do not feel recovered. The
loss of the tree canopy in our yard has really affected me. We had a beautiful, mature yard that we enjoyed with our kids, grandkids, friends at barbeques. It is decimated and not cleaned up yet…We are on a contractors list for the spring. The loss of the trees has affected me more than anything. The buildings are repairable. The tree loss cannot be fixed in my lifetime.” Others have noticed changes to what they see out of their windows. Some now see neighbors or streets that were once blocked by the trees. Survivors of the 1991 Oakland firestorm had similar reaction to the disordered landscape. There was a rush to clean-up the physical damage, to return to a sense of ordered normalcy (Hoffman 2002).

People were also gravely concerned about what the transformed landscape means for the wildlife. Sophie, and interview participant, talked about her partner’s immediate concern once the storm stopped: “The first thing he did was dig to the…he dug the bird feeders out. And it was such a good idea. Because, like, everything everywhere that the birds knew was gone. And so we had probably four times as many birds in our yard as we ever had just because that was it for them.” A licensed wildlife rehabber talked about their work they were doing after the derecho regarding the increase in injured and displace wildlife. In addition to being concerned about impacts wildlife sustained, many people ended up with wildlife finding ways into their homes because of the damage.

War and bomb metaphors were frequently utilized to describe the physical damage. One participant said, “finally got home and my neighborhood looks like a war zone. It looked like a bomb had just gone off. There were trees down everywhere.” And someone else said, “Thousands of trees were down, it was as if a bomb went off and after the storm let up, everyone had a look on their face as if one actually had.” These war and bomb metaphors evoke intense emotions and imagery. They use it as a reference point to understand and describe the damage.
they describe. War and bomb metaphors produce a more impactful image than describing the windspeeds.

One participant raised valid concerns that are pressing questions about what impacts the derecho will have several years from now on the environment: “I believe it will take several years to understand the true toll of the derecho. We have not yet been through our typical flood season or the intense heat of summer. I feel strongly that both flooding and the heat island effect will be increased dramatically in the coming years due to the loss of trees.” This concern is explored further at the end of this chapter about how recovery is defined and the long term effects that are yet to be known.

*Legitimizing a Disaster*

How do disasters get meaning? How do we begin to understand them? From an atmospheric or environmental science perspective, you might think a disaster is only the physical aspect, like the wind or rain, but there is more that contributes to how we give it meaning. People who experienced the 2020 derecho grappled with questions about why it did not feel like a “real” disaster. There was minimal national media coverage about the storm leading to people outside the Midwest not knowing about the devastation and the slow government response, and provided inconsistent messaging. A survey participant wrote that, “I feel we were poorly represented in regard to this being a legitimate natural disaster”. How does a disaster become legitimized?

*Hurricane Comparison*

A common phrase used to describe a derecho is “inland hurricane.” Most people can picture in their head what a hurricane looks like and the destruction it can cause. A derecho also produces similar windspeeds and rainfall as hurricanes do, but one of the main differences is that a hurricane produces rotating winds, and a derecho produces straight line winds. So when the
phrase “inland hurricane” is used it gives people a reference point to begin to grasp what a derecho is because before August 10th, 2020 many people were unfamiliar with the storm system (Shepherd 2020). It makes the unfamiliar familiar. While “inland hurricane” is inaccurate to describe a derecho in the technical sense, the actual labels do not matter to people outside of meteorology or related fields because it is more about how that label evokes cultural and social meaning.

While people use metaphors to understand the derecho, they are not necessarily used for outsiders to relate to the experience. Multiple participants expressed similar sentiments to this survey response: “I don’t think anyone that didn’t experience it directly understood how devastating and widespread it was.” There are physical similarities between a derecho and hurricane regarding the meteorological aspects and devastation, but people felt that the mental/emotional burden is ultimately not relatable, even when they use relatable terms to describe it. Joan, an interview participant mentioned before, compared the derecho to her experience with hurricanes in Florida: “The devastation...it just amazed me and you know going through a hurricane in Florida...it's coming and you put up the hurricane shutters and you bring the cars inside and the palm trees pretty much can weather it. There's a lot of things that just bend and move. My whole family said this destruction is worse than what we saw in Florida. Just because so many trees were down.” The two types of disasters are not relatable in the ways that people were prepared. For hurricanes, there is typically a warning a few days in advance, giving people time to prepare both physically and mentally/emotionally. Whereas for the derecho, most people were not aware of the storm until it was already happening. Participants also used the physical similarities between the derecho and a hurricane to justify it as a “real” disaster. There was, and still is, confusion about why an official response to the disaster was slow and
inadequate. To refute feeling that the derecho was not a “real” disaster, participants compared the devastation to a hurricane to question the government response. One participant said, “I’m from Florida and lived through many hurricanes. What we experienced here was nothing like anything I have experienced. I will say, all of our neighbors came together to help each other and that was wonderful to witness.” A few people even compared the destruction to Hurricane Katrina, “we should have had more help from the national guard and government. Didn’t get coverage like it should have. Nation didn’t understand the devastation. Told by guard this was worse than Hurricane Katrina.” Comparing the derecho to hurricane Katrina paints a vivid picture of the destruction, as it a very well-known disaster.

*The Role of Media*

As noted by Button (2010), many significant disasters are not brought to light by the media, no matter their significance. Instead, their focus is typically on the “melodramatic,” unique, and uncommon events. They are only discussed at the local level, dismissing wider impacts along with the historical context that produces intensified inequalities after a disaster. Disasters are discussed in isolation and as unique events. The role the media plays before and after a disaster cannot be understated. They help shape how the disaster is perceived. The media “reinforces the notion that disasters are exceptional events, which are not reflective of everyday life and out everyday material world that shape them” (Button 2010, 154). The derecho killed a total of four people across the Midwest, and by media standards that is not interesting or shocking. The death toll is a common metric to measure the severity of a disaster in the news.

Regarding the derecho, the national media was viewed as way to legitimize the experience of going through and recovering from the derecho. People wanted national recognition:
“I'm mostly disappointed in the fact that we did not seem to get any coverage. I know it was widespread, even outside of Iowa. However I lived in the town that was legitimately hit the hardest in Iowa, if not the whole impacted area, and I don’t believe we received enough media coverage to adequately show how awful it was. I feel like additional media coverage would have brought additional help in sooner and faster. Our town overall still has a long way to go before we are recovered”

People wanted the national recognition to reaffirm what they went through deserves acknowledgement. The national media is a source of emotional and physical support.

Participants pointed out that they are aware of hurricanes that threaten the southern United States, and the impacts they have but felt that the same could not be said for the derecho. People did speak positively about the efforts that were made at the local media level though: “The attention at a national/ state level was horrible at first. Thank goodness for local news media that brought it to the forefront”

*Understanding State and Federal Response*

Disasters are political events. The societal hegemonic discourses construct disasters as political. It is political in the ways the disaster is given meaning, who has control over information, who has access to resources, etc. Even though disasters are political events, they are often constructed as solely environmental. Button (2010) discusses how “disaster narratives place the events as ultimately being outside human control” even though humans have been altering the environment and creating social structures that are directly related to these environmental events (155). This perspective shifts blame away from the government and private industry because their narrative is that they cannot control the environment, while their actions have a direct impact on human-environmental interactions.

There was frustration directed at city, state, and federal response to the disaster. Many participants expressed frustration and disappointment that President Trump did not leave the
airport when he came to Iowa to survey the damage. People felt that the government completely abandoned them: “I'm from Florida and have lived through many tropical storms and hurricanes; that being said I’ve never seen such a lack of help or empathy from the government, on a state and federal level, in my life. The devastation that ripped through this county and neighboring counties deserved so much more; the response from the government was way too delayed fell so far short and that’s coming from somebody who spent the first 23 years predominantly in Florida.” People were also frustrated with government leadership misrepresenting the devastation and needs to the media, potentially impacting available aid. One participant explained it as, “State government seemed more worried about budget surpluses than providing adequate help and materials. The feeling of a rural republican controlled state ignoring the thousands in need in democratic city.”

Creating Good

While the derecho caused extreme devastation to the environmental landscape, wiping out a huge portion of the tree canopy and disrupted wildlife, mental/emotional devastation, and so much more, people still tried to reframe their situation into something positive: “Being off the grid wasn’t a big thing. Kinda was the best thing ever. I got to see all the stars at night.” This was one of the more common expressions. Being disconnected was a source of anxiety for many people, but some enjoyed the solitude. People had time to connect with family and neighbors because at night when the sun went down there was not much to do other than talk when you do not have electricity. Another survey participant expressed similar sentiments, such as, “having no electricity was extremely stressful because we were completely disconnected from the world for a time. It was actually quite peaceful at night due to the silence of it all but frustrating that once back online outside of Iowa media and resources didn't understand the severity of the hurricane
and didn't care. We had to beg for help. But it was amazing to see several members of our community step up to serve (continue to this day) and electricity trucks from states near and far come to help restore power.” People have a lot of pride in the way the communities across Iowa responded to the disaster, when the government and outside help was inadequate.

**Defining Recovery**

The ways participants grappled with recovery varied widely, including the ways that it was defined. Recovery is more than the economic toll that disasters have on society. Recovery is made up of social, cultural, emotional, political, and economic factors (Garcia-Acosta 2002). Recovery definitions spanned from feeling recovered because personal property was restored to full financial recovery. Some people did not feel recovered because their place of employment still had damage, still were experiencing emotional distress, or because the city they live in was overall still damaged. Participants expressed that they will never feel recovered because the trees they plant now will never grow to the size of the ones that were destroyed in their lifetime. Some participants understand their recovery based on if immediate needs were taken care of versus long-term needs. When asked if they felt recovered, a survey respondent wrote, “mostly recovered. We still have some work that needs to be done, but everything that needed immediate attention has been taken care of roof damage has been mended, damaged/dangerous trees and limbs have been removed/fencing has been shored up.” One survey respondent when asked if they were recovered, responded with “Yes since our damage was minor compared to the rest of the city and county.” It is interesting that their frame to understand recovery was comparing their experience to others and connected back to the concept of impression management. This frame of reference was very prevalent.
There were a few participants that left comments at the end of the survey frustrated that there was no specific questions about if they were mentally/emotionally recovered. These comments are particularly interesting because there was an open-ended text-entry response question that asked “do you feel recovered? Why or why not? Please explain.” The intention of this question was to capture details on the nuances of recovery, such as the physical destruction to personal property, transformations to the landscape, financial impacts, mental/emotional trauma, but these respondents did not define recovery that broadly. The purpose was to let the individuals define what recovery means to them, versus imposing my own definition.

A major barrier people encountered to restoring and fixing personal property was insurance holding up the recovery process. People struggled with insurance adjusters not fairly quoting damage or taking months to process claims that resulted in more damage to accrue because of water and mold growth. In addition to the issues people had with insurance companies, people also expressed frustration and concern about not understanding the process of hiring contractors to fix their property. Participants reported hearing stories about instances of contractors scamming people, and were worried about further delaying their recovery process. Many were concerned about hiring out-of-state contractors that swarmed the area after the derecho. This worry was on top of the issue of not being able to find a contractor because many are booked for the foreseeable future, further slowing down the recovery process.

For some participants, they put a timeline or an expectation for when they will feel recovered. It typically has to do with the physical impacts of the derecho. They might have repairs that are scheduled in the coming months and assign their recovery to the completion of rebuilding: “we are not completely recovered. We still have fallen trees to deal with and our roof needs to be re-shingled, which will happen this spring.” For others, even with a timeline and
damages still not fixed, they felt recovered because they established normalcy: “yes, though we have not gotten house damage (roof, siding, gutters) fixed, the trees around us have been picked up and we have returned to normal life until the house can be fixed in the spring. We are able to live in the home and many people aren’t.” Another person understand recovery not in terms of returning to “normal” but finding a new “normal”: “the ongoing implications and recovery process to feel totally fully recovered will be years and years. The tree line and canopy cover at my home provided significant energy savings. It would take 60 years for those trees to grow back, unlikely to happen in my lifetime. So it is less about being recovered and more about being at peace with the new reality and moving on.” And that difficult reality is that many feel like they will never recover: “since this has never happened before and the level of devastation, recovery will never be complete, but adaptation to learn from it and changes for better will happen and continue to happen until the memory fades decades from after the storm elapses.”

Social Time and Space

A way to understand the complexities of how people understand, and experience disaster recovery is analyzing it through a social time and social space frame, as opposed to chronological time and geographical space (Quarantelli 2005; Casagrande et al. 2015). This is important to consider because phases of recovery are not bounded, and people do not move through the recovery process chronologically either. People can also move in an out of being/feeling recovered and the concept of the illusion of recovery helps explain this. In an interview with Dan, who is in his mid-30s and lives with his wife, talked about how winter covered up a lot of the physical damage on his property, making it invisible to him for a period of time. He owns his house with his wife and lives in a neighborhood where the houses are relatively close but still have large lots. He said, “there's kind of an illusion that we're recovered
from the yard standpoint, because I can't see the fact that it's covered in mud. And because it's covered in snow. I'm not entirely sure what our yard is going to look like because it's going from full shade to full sun. So we might just have dirt for a while. So that I don't think that we'll ever fully recover.” The physical damage to his yard was one of the things that bothered him the most. He had over $25,000 worth of damage in tree removal alone. During the interview he went into detail about what it looked like before the derecho, describing it as an oasis and one of the main reasons him and his wife bought the house. It was a source of pride and joy. He talked about the damage to the trees versus his house:

“And it's not something [trees] that you can just fix. If I lost some shingles, if I lost some siding, okay, that's problematic, but I can fix it. You can't...not in my lifetime will you be able to replace those trees. So, it'll...now I'll never seen that backyard in the same splendor that it was. And that's 70% of the trees. 70% of the old growth trees in Cedar Rapids were taken out by the storm, so I'm definitely not alone.”

In Hoffman’s (1999) research on the Oakland Fire, she distinguished between 3 phases of recovery that emerged in this context. The phases were “the crisis,” “the aftermath nexus,” and “passage to closure.” These phases were delineated based on the transition from individual to collective response, fracturing collective response, and by closure. These sociocultural phases of disasters are not distinct categories. Survivors of the fire gradually transitioned between phases, and not all at the same time. The recovery process after the derecho, maps well onto these phases. While not everyone experienced a collective response after the derecho, it was a common experience. Hoffman also notes that disaster impacts can be felt decades after the initial impact. People move beyond recovery at different rates, and might reenter to commemorate the anniversary.
CHAPTER SIX:

CONCLUSION

On August 10th, 2020 lives of many Iowans and across the Midwest were significantly interrupted, layering additional burdens that people were already experiencing due to the COVID-19 pandemic. This is a disaster that people are still recovering from almost a year later and will continue to for years to come. Social networks serve as a key source of social support when all aspects of life are disrupted. Social network analysis offers insight into how information and resources are distributed and acquired, and the ways communities are organized.

This research builds onto the existing anthropological disaster research by Casagrande et al. 2015, Jencson 2001, and Hoffman 2002 that focuses on social networks and communitas in a disaster context. An important gap is that there is no anthropological or social network literature on a derecho. This is important distinction when considering how the climate crisis is impacting disaster predictability, intensity, and frequency. It also offers additional perspective on how people manage two coinciding disasters at the same time—a derecho and a pandemic. Some of the key aspects that this research adds to the literature include how Iowans participate in a culture of self-reliance, how they conceptualized the derecho and made meaning, and that participants reported utilizing labor support from their network the most.

This study identifies how people relied on their social networks based on the support type. It offers a perspective on how people responded after a major disaster and the gaps in support that people needed. The findings show that people heavily relied on neighbors, friends, and family for all types of support, and formal support was not utilized to the same extent. In the
spirit of communitas, people also collectively worked together to clear debris, access emotional support, and for resource acquisition. It expands on the existing literature on how people recover from disasters and reconceptualizes what recovery means. Additionally, this research also explores how stigma associated with help impacts someone from seeking and accepting help. It expands on the limited but growing research on the anthropological research on social networks in a disaster context

**Recommendations**

Social network research is extremely relevant to disaster management, but is often underutilized. This research identified ways people organized to access support through their social networks, the ways they conceptualized aid, and how they understood the derecho, and the response to it. For those that work in disaster management and allied fields there are a few recommendation that came out of this research. The first is developing contingency plans. Specific to the derecho, cities and states need to have contingency plans for communication. A variety of options need to be available, from technologically advanced options to non-technological. Some of the options raised by participants included using churches as hubs for information, as well as utilizing flyers that could be handed out to neighborhood associations or members in neighborhoods that would be willing to help distribute information. The second recommendation is to plan for possibilities, not probabilities. Derechos are not rare storm systems, but the intensity of this one made it unique. There are uncertainties about the specifics on how disasters will be impacted by the climate crisis, but there is evidence that supports the interconnectedness between the two. Disaster are occurring more frequently and are more intense than they have been in the past (Al-Amin et al. 2019). Disasters, such as the 2020 derecho, have a possibility of happening again and could be become more common in the future. In the United
States, 2020 overall had a record breaking year for many disasters. Some of those records in the derecho as the most expensive thunderstorm on record, the Atlantic had the most active hurricane season with most named storms, and West had devasting wildfires (FEMA 2020).

   Communities across the Midwest were unprepared for a disaster of this magnitude. These possibilities also need to be communicated with the public in an appropriate way. There needs to be balance between being informed and not creating unnecessary stress. Many participants expressed their hope that this was a once in a lifetime weather event. Some of the preparedness could be boosted with education, so the public is more aware of possible risks and ways to prepare for the next disaster.

   Additionally, the community should be included in preparedness efforts. A bottom-up approach centers collaboration (LaLone 2012). Collaboration should come from a variety of stakeholders like grassroots organizations, churches, local businesses, people from a variety of neighborhoods, etc. In addition to community-collaboration, emergency managers need to better understand how individuals used their social networks for social support, so that information can be incorporated into planning. Collaborate with social scientists who have experience with community-based research. Emergency management and other related agencies should utilize social network analyses to understand how information and resources flow through the community. Social networks and ones’ ability to access social support is related to disaster recovery. This is important to note because those that have limited access to social support, their ability to respond to their needs after a disaster will be further reduced—expanding on the preexisting inequities. Knowing how people mobilized social networks for social capital is important so that the response for the next disaster can incorporate lessons learned to better meet the needs of the community. This can be done through risk assessments. Frequent risk
assessments would help emergency managers and other professionals that responds to disasters understand better what they are and the available informal and formal support options are (Casagrande et al. 2015).

**Applications**

This project highlights many ways people felt abandoned by formal support from the government. Understanding how people utilized their social networks, specifically the informal relationships, emphasizes the need for community collaboration with emergency management and other disaster related services with disaster preparation. People are not passive victims of disasters, but active agents. Human are creative and resilient creature, but that does not mean they should be resilient to government neglect and to systemic inequalities.

This research connects to the larger concerns in anthropology because it is a people-centered approach, context specific, and it is focused on offering solutions for current human problems, like the combination of the climate crisis and the increase in frequency and intensity of disasters. This type of research can have important contributions related to disaster policy. It highlights the importance of understanding social networks in the time of crisis. This research raises questions about the limited utilization of formal support networks, and why this occurred. This needs to be investigated more because those types of support were available, maybe it was not accessible or there were other barriers/reasons people did not rely on it. If there were issues with accessing that type of support, the state of Iowa needs to rethink how they can support Iowans after a disaster. Or there needs to be more targeted support, to work towards a future of equitable recovery. There is a possibility that if governments and other organizations understand how the local people use and do not use networks, that the networks could be leveraged in disaster management at all phases of a disaster. While there is an increasing number of
anthropologists contributing to literature on disasters, social networks, and the climate crisis, this research adds to it with the focus on a derecho storm, which is missing from the literature. It will add to the growing but limited literature on anthropological disaster research of social networks. The literature in this arena seems to focus more on slower moving hazards like floods, hurricanes, and fires, where the people impacted typically have some type of warning. With the derecho there was minimal warning, and many individuals were not aware of the severity of the storm beforehand.

**Directions for Future Research**

This project focused on how people utilized personal networks to leverage access to various types of social support. Going forward, research needs to focus on how gender, socioeconomic status, and race, and various other identities vary regarding how they engage with their networks, specifically in the United States. A particular area of interest that emerged from this research is how parents, specifically mothers, support themselves, their families, and their community following a disaster. Childcare and safe shelter were two critical resources that were frequently mentioned. Parents talked about relying on friends and family for childcare so they could clean their property, get their children in air conditioning, or for support if they had to work. But what if parents do not have those types of relationship to rely on for care?

To support the understanding that recovery should be conceptualized as social time and space (Casagrande et al. 2015) and not linear, this research should also expand by doing a longitudinal analysis to study the recovery process. This could highlight how individuals can move in and out of feeling recovered that this study was not able to capture. Most disaster research is not focused on the long-term impacts and recovery process, but more short-term
outcomes. The long-term implication need to be better understood because it could be utilized to analyzing how people learn, adapt, and prepare for the next disaster.

Lastly, the findings from this research underscore how emotional/mentally devasting the derecho was to many people. Six months after the storm people are still experiencing the effects from it. There needs to be further exploration on how social networks support emotional well-being and the gaps that need to be filled in more formal support sources. What communities need after a disaster is reliant on the context. People need easily accessible free mental health resources and general support from the community. For some people and their mental wellbeing it might be important to commemorate anniversaries with ceremonies.

Conclusion

With the implementation of these recommendations in policies, they offer the possibility for more direct and applicable disaster preparedness and response plans. Network analysis is an underutilized but powerful tool. Disaster social network analyses provide insight into how communities are connected and how resources flow. This research highlights the need for better understanding of network engagement after a fast onset disaster. The lessons learned from this disaster show the value in understanding how people utilized their networks after the derecho and emphasizes the need to integrate network data into local emergency response plans to better respond to the next disaster.
REFERENCES


Button, Gregory. 2010. *Disaster Culture: Knowledge and Uncertainty in the Wake of Human and Environmental Catastrophe*. Walnut Creek, California: Left Coast Press.


Appendix A: IRB Exempt Determination

January 8, 2021

Kayla Jones
4202 E Fowler Ave
SOC 107
Tampa, FL 33620

Dear Ms. Kayla Jones:

On 1/8/2021, the IRB reviewed and approved the following protocol:

<table>
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<tr>
<th>Application Type:</th>
<th>Initial Study</th>
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<tr>
<td>IRB ID:</td>
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<tr>
<td>Review Type:</td>
<td>Exempt (2)</td>
</tr>
<tr>
<td>Title:</td>
<td>2020 Midwest Derecho: A Social Network Analysis of Social Support</td>
</tr>
<tr>
<td>Funding:</td>
<td>None</td>
</tr>
</tbody>
</table>

The IRB determined that this protocol meets the criteria for exemption from IRB review. Approved study documents can be found under the ‘Documents’ tab in the main study workspace.

In conducting this protocol, you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Please note, as per USF policy, once the exempt determination is made, the application is closed in BullsIRB. This does not limit your ability to conduct the research. Any proposed or anticipated change to the study design that was previously declared exempt from IRB oversight must be submitted to the IRB as a new study prior to initiation of the change. However, administrative changes, including changes in research personnel, do not warrant a modification or new application.
Ongoing IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit a new request to the IRB for a determination.

Sincerely,

Tatyana Harris
IRB Research Compliance Administrator