

THE ROLE OF DISASTER SUBCULTURES IN LOCAL BUSINESS COMMUNITY PREPAREDNESS: A CASE STUDY OF STAKEHOLDERS IN COASTAL MONMOUTH COUNTY, NEW JERSEY

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ABSTRACT: *Extreme weather events are increasingly affecting coastal communities, often leading to economic and social disruption within these areas. The businesses located within coastal communities are especially vulnerable to climate-related shocks, yet relatively little is known about how the experience of prior disaster events affects business preparedness and planning for future extreme events. This study applies the concept of a disaster subculture to investigate whether and how prior extreme events affect climate resilience practices among small and medium-sized businesses in coastal New Jersey. The methods for the study entailed qualitative analysis of interviews conducted with businesses and related stakeholders during the Spring of 2022. The results of the study indicate that elements of four possible disaster subcultures are present in the region and that these subcultures are influencing business mitigation and preparedness practices and community recovery. A future research direction could consider disaster subculture influence on an individual level and how subcultures may influence household preparedness.*

Keywords: Climate Resilience, Disaster Subcultures, Coastal Communities, Small Businesses

INTRODUCTION

Extreme weather events can shift societal norms. With climate change causing a rise in physical and social disruptions (Woodward, 2019), scholars must consider the social influence that disasters may have on mitigation and community resilience. This study explored the question: *Have New Jersey's northern Monmouth County small and medium businesses' responses and coping strategies to past disasters resulted in a disaster subculture that influences business mitigation strategies and community resilience?*

The study used interview data from small and medium businesses and community stakeholders in northern Monmouth County, New Jersey. The data were collected through an ongoing study supported by the National Oceanic and Atmospheric Administration's (NOAA) Climate Adaptation Partnerships Program at the Consortium for Climate Risk in the Urban Northeast (CCRUN). Interviewees were recruited through existing partnerships with Monmouth

County stakeholders that were established through previous climate resilience projects and via snowball sampling during interviews to request suggestions for additional research participants. After analyzing the interview transcripts, we identified the elements of a disaster subculture from Hurricane Sandy and several other events. Additionally, we explored relationships between disaster subcultures and current business mitigation and community preparedness practices.

In recent decades, a growing number of studies have examined disasters from a cultural perspective (Xu & Lo, 2022, p.1). Xu and Lo (2022) argue that “scholars have come to believe that culture can broaden and nuance our understandings about risks, community resilience, vulnerabilities, post-disaster priorities” (p.2). For this study, disaster is conceptualized as a natural agent that “presents demands and threats to a community which cannot be met by the institutionalized means that are utilized for its normal emergencies” (Wenger & Weller, 1973, p. 1). A disaster subculture is a set of behaviors, norms, values, beliefs, knowledge, technology, and legends that can emerge within a community as a response to and to cope with the impact of a natural disaster or previous disaster activity (Granot 1996; Moore 1964 as cited in Wenger & Weller 1973). Studies that have examined disaster subcultures have found that when such subcultures are present within a community, they have had positive impacts that have helped communities manage their vulnerability and limit the loss of life (Engel, 2018, para. 4-5).

Previous literature has yet to focus on the relationship between small and medium businesses in vulnerable communities and disaster subcultures. This study identifies a relationship between disaster subcultures and climate resilience for small businesses and vulnerable communities. Additionally, this study reiterates the importance of small businesses in climate resilience. Xiao and Van Zandt (2012) stated the importance of taking a holistic approach to address community resilience and encouraged small businesses to take a more active role in community preparedness and resilience (p. 2537). Through studying disaster subcultures, scholars, practitioners, business owners, and community leaders could use this information to perform a knowledge exchange that leads to more effective climate resilience practices (Leichenko et al., 2015, p.2-3).

BACKGROUND

Disaster Subcultures

When a disaster strikes, a community must adjust its social system through alternative activities and forms of organization in order to navigate and respond to that disaster (Wenger & Weller, 1973, p. 1). Wenger & Weller (1973) highlight a number of main factors that aid in developing a disaster subculture (see Table 1).

First, there must be a repetitive disaster impact, and the community must view that disaster as a recurring, likely threat. Secondly, Wenger & Weller (1973) state that disasters that “diffuse damage that cuts across class and status lines in the community” and “produces consequential damage to the human and material resources of the community” (p. 9) increase the likelihood of a disaster subculture because the damage is considered to be significant to the entire community. Granot (1996) and Wenger & Weller (1973) also suggest that a third important component of a disaster subculture’s development is a period of forewarning before the disaster’s impact. Wenger & Weller (1973) emphasize that this element is not present in every case, for example in communities that experience disasters such as explosions or other sudden shocks (p.9). However, they argue that when there is a period of warning, it “allows the community to ‘control’ the impact of the agent by instituting instrumental planned and routinized measures to lessen the consequences of the impact” (p. 9). In short, the period of forewarning can help activate disaster subculture elements within a community.

Wenger & Weller (1973) also pointed out a variety of additional disaster subculture elements that could help support a researcher in determining the likelihood of a subculture’s presence within a community. These additional elements include the community’s perception of the disaster’s impacts, the manifestation of subcultural elements within community members and organizations, and the geographical boundaries of subculture diffusion. The main subculture elements listed in Table 1 mentioned by Wenger & Weller (1973) and Granot (1996) are critical for the development of disaster subculture; however, these additional elements also listed in Table 1 are characteristics that show how these subcultures can differ. Although the focus of this paper is not identifying the variation of the subculture, these elements were essential to include because their presence further supports the idea that a subculture may be present within a community.

Table 1: Disaster Subculture Elements Identified in Wenger & Weller (1973)

Main Disaster Subculture Elements

Repeated disaster impacts and the community must view that disaster as a recurrent threat to the community. Single disaster events are also able to trigger a subculture if the community believes there's a possibility of that disaster impacting the community again in the future.

Significant damage to the community because of the disaster. Damage is viewed as more significant if it impacts everyone in the community and cuts across class and status lines.

A period of forewarning before the disaster strikes the community. This element is not absolutely necessary for the development of a subculture. However, this period aids in the activation of disaster subculture elements.

Additional Disaster Subculture Elements

The normalization of that disaster within the community or making that disaster a part of the community's culture.

A set of behaviors that are only performed during the approach, duration, or immediate aftermath of the disaster's impact on a community.

Subcultural actions, values, beliefs, etc. are observed among individual community members.

Subcultural actions, values, beliefs, etc. are observed among community organizations.

New changes were implemented in a community organization due to the disaster's impact and the subculture's activation. These responses are supported both within and outside of the organization.

Subcultural actions, values, beliefs, etc. that communities take on that are related to the preparedness, mitigation, and response to the future physical impact of the disaster.

Subcultural actions, values, beliefs, etc. show that the community has a specific perception about the disaster agent or a relationship with that disaster and its impact.

Subcultural actions, values, beliefs, etc. can be observed in strict boundaries within a community or can be observed throughout the community (no strict geographical boundaries).

Subcultural actions, values, beliefs, etc. can be observed influencing community solidarity and identity.

Small and Medium Businesses

Small and medium businesses play an influential role in their local communities. According to Helgeson et al. (2021), "small and medium-sized enterprises (SMEs) make up 44% of US economic activities and are the lifeline for many local economies" (p. 1). Businesses wield substantial societal influence and "are also part of a community's social fabric, providing places where people meet and forming key nodes in social networks" (Madajewicz et al., 2021, p. 2). Small and medium businesses depend on their communities to remain operational. Xiao and Van Zandt (2012) argue that "Households provide labour to businesses and consume goods and services from businesses" (p. 2524) and that businesses are dependent on community infrastructure (p.2525-2526).

Although they are vital to communities, small and medium businesses are also highly vulnerable to disruptions associated with extreme events and disasters. Madajewicz et al. (2021) argue that "Disruptions to their [businesses] functioning can have multiple, cascading effects" (p.2). In addition to the direct financial impacts on the business, "communities may face financial difficulties due to reductions in business taxes, personal income taxes, sales taxes and user fees" (Committee on Disaster Research in the Social Sciences, 2006, as cited in Xiao and Van Zandt, 2012, p.2526). Small and medium businesses also shape disaster recovery. Xiao and Van Zandt (2012) stated that businesses are "critically important for resuscitating economic activities within communities which provide economic resources in the form of wages and salaries as well as goods and services" (Committee on Disaster Research in the Social Sciences, 2006; Zhang et al., 2009 as cited in Xiao and Van Zandt, 2012, p.2526).

Recognizing small businesses' relationships with their community is vital in understanding disaster subcultures. The relationship between small and medium businesses and their community can help scholars better understand business disaster preparedness and community recovery and resilience (Xiao & Van Zandt, 2012, p. 2537). In this study, business disaster preparedness is defined as any action that businesses take "that has the potential to save lives, lessen property damage, and reduce negative impacts of disaster events, including long-term interruptions of commercial activities" (Dahlhamer & D'Souza, 1997, p.267). Community recovery is conceptualized as post-disaster actions taken by community members, local businesses, and stakeholders that further the process of restoring, rebuilding, and reshaping the physical social, economic, and natural environment of the whole community (Smith & Wenger, 2006, p. 237, as cited in Jordan & Javernick-Will, 2013, p.22).

DATA AND METHODS

Northern Monmouth County remains extremely vulnerable to disruptions. Coastal New Jersey was significantly impacted by Hurricane Sandy in 2012. The research site also hosts a direct commuter ferry line to Lower Manhattan, and communities in the region lost dozens of residents in the September 11th terrorist attack at the World Trade Center. More recently, New Jersey was among the national epicenters for the COVID-19 pandemic and the site's business community, particularly its food-related enterprises, have been affected by pandemic-related shutdowns. These previous disaster experiences indicate that a disaster subculture could have emerged among businesses during the post-disaster recovery periods. Lessons learned from this study may influence current business mitigation strategies and community preparedness.

Focusing this study on northern Monmouth County's coastal communities is important because this research site is home to many small and medium businesses. According to the U.S. Census Bureau's Annual Business Survey: County Business Patterns table, there are approximately 38,200 business establishments across all sectors in Monmouth County, NJ that fall into our conceptualization of small and medium businesses, defined in this study as a business with fewer than 250 employees (United States Census Bureau, 2021). The interview data were collected in four coastal New Jersey communities: Atlantic Highlands, Highlands, Keansburg, and Middletown. These communities are home to a large number of small and medium, locally-owned businesses, which serve both local residents throughout the year and tourists who frequent these towns in the summer months. Small and medium-sized businesses are clustered close to the coastal areas and along main streets within these towns. Larger businesses and chain retailers are limited within the study area, though they are located along a nearby state highway, which marked the outer bounds of our study site. These data were collected as part of our larger study of the determinants of small and medium sized food-related business resilience in coastal New Jersey. The study limited businesses included in the interviews to food-related businesses both due to their relative importance within these tourism-focused communities and because these businesses, particularly restaurants, were among the most directly affected by closures and other restrictions implemented during the COVID-19 pandemic.

The research team recruited interviewees for the study by partnering with community and business organizations and stakeholders to learn more about the climate resilience issues that small and medium businesses face and to include business owners in the study. More specially, researchers partnered with elected officials and municipal and state government staff in New Jersey whom they have previously worked with on climate-related projects, to emphasize a co-production approach to collect interview data supported the partners' climate resilience (Madajewicz et al. 2021; Leichenko et al., 2014). These interviews with businesses and community stakeholders in Monmouth County aimed to understand the resilience of small and medium businesses, challenges, and their needs to increase resilience. The research team also used a snowball sampling methodology in all interviews to continue to source additional interviewees.

The data collection consisted of 21 in-depth interviews with small and medium-sized business owners and operators, leaders of the community and business organizations, and other entities who work with businesses, such as local chambers of commerce, elected officials, and local, state, and federal policymakers and practitioners. The interviews were conducted between January 2022 and June 2022 by the CCRUN research team. Each interview lasted approximately 60 minutes. Fifteen of the interviews were conducted virtually via Zoom and the remaining six interviews were conducted in person. The interviews followed a structured, open-ended format and included questions that were designed to solicit information about factors affecting business resilience in coastal New Jersey. Questions

addressed climatic and economic stresses in the region, actions taken to enhance business resilience, types of assistance that communities and other entities provided to businesses, and areas where more assistance was needed. The researchers took detailed notes during each interview and the interviews were also recorded and transcribed (in two instances where recording equipment failed, the researchers wrote up a complete transcript of the interview based on their written notes). Although the study was not designed as an investigation of disaster subcultures, the team decided to explore the influence of disaster subcultures on businesses in the region based on the observation that past disasters and their influence on current behavior and future preparedness was a frequent topic of discussion in most of the interviews.

Qualitative analysis was appropriate for this study because it helps “support a researcher in generating a deep and nuanced understanding of a given phenomenon” (Lester, et al., 2020, p. 95). This study used qualitative data analysis to identify common themes within interview transcripts (Green et al., 2014, p.175). Additionally, this method aided in identifying whether there were relationships between the disaster subculture elements pointed out in the literature and interview data. The interview transcripts were analyzed in two stages. The first stage sought to identify common or reoccurring disaster subculture elements, as identified in Granot (1996) and Wenger & Weller (1973). This was accomplished by tabulating each instance where a past disaster was mentioned in an interview and by identifying specific actions, beliefs, and values that were discussed in association with the past disaster. The second stage explored whether and how the disaster subculture elements influenced business preparedness strategies and community disaster recovery. The second stage of analysis was accomplished by examining each mention of past disaster-related actions, beliefs, or values and by tabulating whether the interviewee connected these actions, beliefs or values to current business preparedness strategies or community recovery actions. For example, one interview demonstrated a connection between a subculture element -- post-disaster community solidarity -- and raising money to help community members who had lost their homes after Hurricane Sandy (Interview 15). The connection between the subculture element and the actions taken to contribute to post-disaster community recovery would be tabulated as an example of subculture influence on community recovery.

FINDINGS

The first stage of the data collection focused on identifying patterns of disaster subculture elements highlighted in the literature. Twenty out of the twenty-one interviews identified at least one disaster subculture element. Additionally, there was evidence of four possible disaster subcultures that may have developed in coastal New Jersey communities including Hurricane Sandy and coastal storm threats, the COVID-19 pandemic, tidal flooding, and the September 11th terrorist attack. Figure 1 shows the number of interviews that identified a subculture element for each possible subculture.

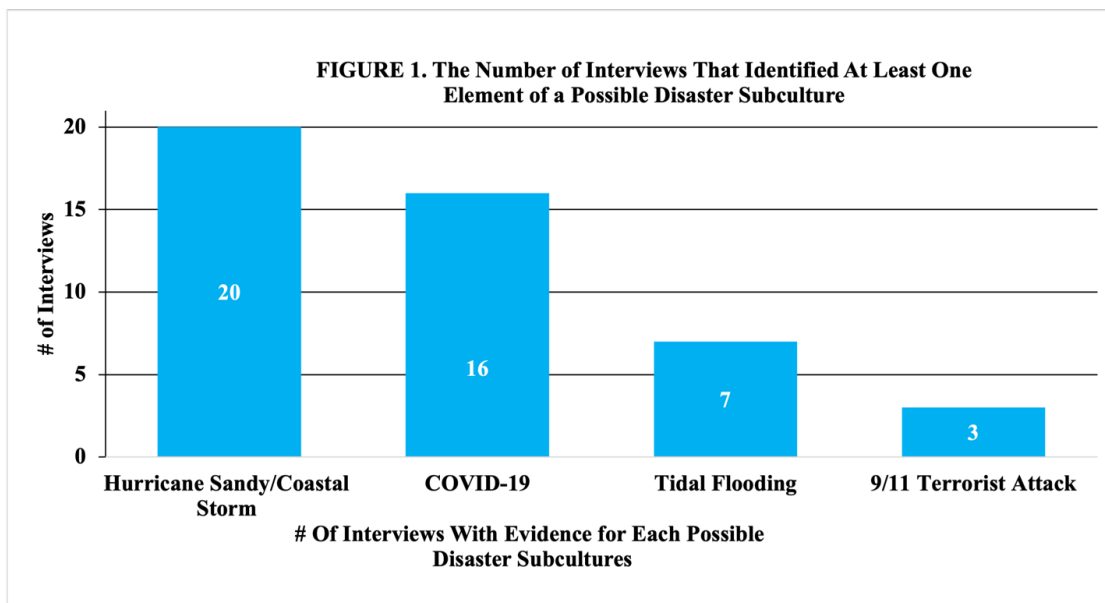


Figure 1. The number of interviews that identified at least one element of a possible disaster subculture.

The data showed that 95% or 20 out of 21 interviews contained at least one mention of disaster subculture elements related to Hurricane Sandy or the threat of coastal storms. Hurricane Sandy occurred in 2012 and interviewees described it as a devastating event for the region. A community stakeholder interviewee stated, “this area [the research site] is some of the most vulnerable areas we have in the county . . . Keansburg area, Union Beach, suffered tremendously during Hurricane Sandy, along with Highlands as well” (Interview 1). A number of interviewees pointed out that community leaders and climate resilience practitioners have used preserved knowledge from Hurricane Sandy to mitigate the physical impacts of future coastal storms along the Monmouth County coastline. For example, a community leader stated: “as it relates to infrastructure, there has been a significant amount for resources in last 10 years or so . . . a lot of federal investment in the form of flood risk reduction projects . . . a lot of efforts [have] been spent post-disaster to, you know, harden those pieces of critical infrastructure” (Interview 12).

Another important type of subculture that was supported was the COVID-19 pandemic. Seventy six percent or 16 of 21 interviews identified at least one subculture element for COVID-19. The COVID-19 pandemic led to almost a third of New Jersey small businesses closing in 2020 (Choi, 2020, para.1). Interviewees reinforced that COVID-19 has created salient damage to the New Jersey community and economy. For example, a business owner interviewee stated “we have... another short-term issue, which is COVID. So that's something that's impacted everything, our local economy for small businesses” (Interview 8). In response to the pandemic’s impact, interviews identified behaviors that helped businesses cope with the impact of the disaster. Several business interviewees mentioned responding by applying for financial assistance such as grants. Other business interviewees immediately responded to the disaster by shifting their business model or enforcing COVID-19 precautions. One interviewee stated, “So as we came back, yeah, we started opening up for takeout but like, that's another thing that restaurants had to do...” (Interview 17). Another interviewee stated that: “Business[es] will do anything that they need to do to protect their assets, including ...their workforce, their inventory, and their real estate okay? The example I say [during] COVID is [when] businesses immediately took every precaution, they could...at their sites to put in all the proper protocols for health and safety to protect their workforce, their patrons, how they deliver their services, their products, their vendors...” (Interview 7).

Tidal flooding was another subculture identified in the interviews. Thirty three percent of data or seven out of 21 interviews identified at least one subculture element for tidal flooding. Tidal flooding has had repeated impacts in the region as a result of rising sea levels and poor storm water drainage. One interviewee stated that “we’re so used to [it], and then we have regular tidal flooding . . . But the extra high tides come up the storm drains . . . So, it doesn’t take too much of a high tide for the water to come up the storm drain” (Interview 9). Several interviewees also suggest that there were preparedness actions that were part of the community’s livelihood and culture for individuals and businesses. For example, a community stakeholder stated that “Whether that’s Covid, whether it’s a flooding event, and even if it’s a flooding event they [the community] probably have sandbags somewhere by, near them, or something, or some sort of flood protective gate that they can put in front of their building, or they've just learned to live with it somehow” (Interview 1).

While the September 11th terrorist attack does not precisely fit the conceptualization of a disaster for this study, three out of 21 or 14% of the interviewees identified at least one subculture element for this event. Although the interview questions for this study focused on natural disasters, this theme is worth mentioning because the community had practiced specific coping mechanisms to respond to that disaster and had developed a sense of solidarity and a culture of resilience based on the community’s recovery. For example, one interviewee stated “they [the community] do tend to bounce back, and I think you know that's very common in most communities and I don't necessarily know if it's business but it's also community like, if you think about 9/11, how the communities pulled together, then you think about Sandy and how the communities pulled together well you know you think about this pandemic...” (Interview 10). Another interviewee stated that they supported first responders who were responding to 9/11 and staying in Monmouth County. They stated, “because they had just get [gotten] here, you know, so once we realized that [9/11 terrorist attack] was happening, you know, and we knew that even NY-- New York Fire Department and police were taking breaks -- they were taking the ferry over here and yeah, hanging out and then going back-- then we started sending food down to them.” (Interview 15).

The second stage of the analysis sought to explore whether and how a disaster subculture element has influenced business preparedness strategies and community disaster recovery. Figure 2 shows the number of interviews that mentioned an element of disaster subculture that had influenced business preparedness strategies for

future disasters or community recovery. The data showed that eight of 21 or 38% of the interviews mentioned subculture element influences on business preparedness strategies. The business preparedness strategies that were influenced included keeping inventory on wheels to remain prepared for evacuation, strategic post-disaster business rebuilding, and business owners keeping sandbags in their shops. These business preparedness strategies were primarily associated with subculture elements from Hurricane Sandy and coastal storm threat and tidal flooding. Through the interviews, it is clear that Hurricane Sandy left significant damage to Monmouth County. Interviewees mentioned that because of that damage, they have taken actions to make sure that their business is more prepared for future storms. For example, a business owner stated that “In my restaurant . . . All my equipment was on wheels, and I was ready to pull it out in case [a] flood or something happens again” (Interview 11). Hurricane Sandy’s damage also encouraged several interviewees to rebuild their businesses strategically. One business owner stated that after Sandy they rebuilt with “all the wiring in the shop is now outdoor wiring so [when] the water comes in it's not going to affect it at all . . . Yeah, it's more not if the water's gonna come in again, it's when” (Interview 18).

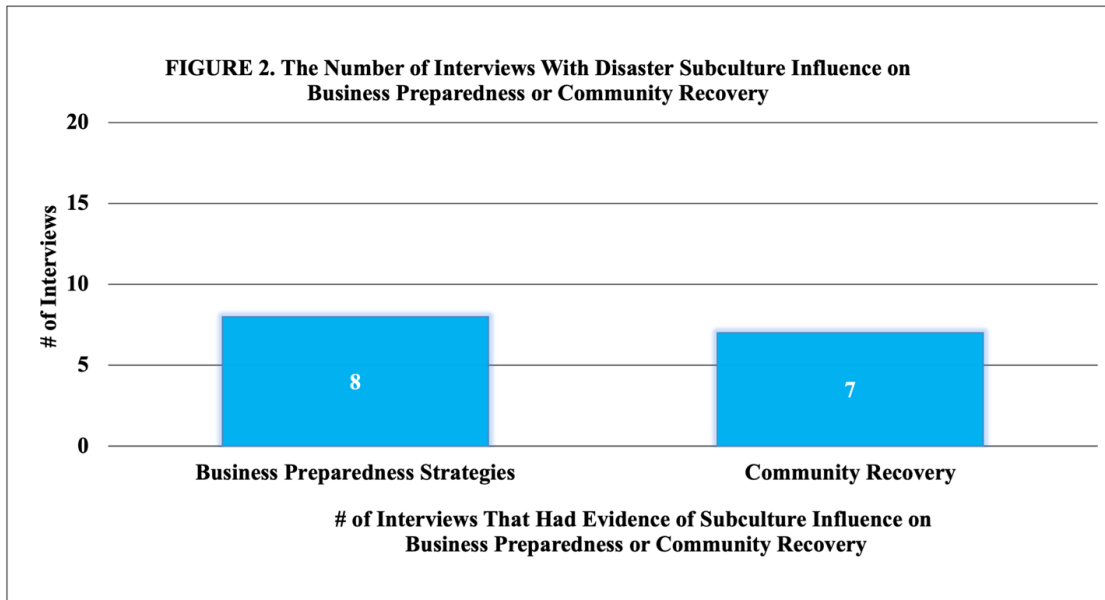


FIGURE 2. The number of interviews with disaster subculture influence . . . on business preparedness or community recovery.

Finally, 33% or seven out of 21 interviews mentioned subcultural influences on community disaster recovery. These subcultural elements were primarily associated with Hurricane Sandy and the COVID-19 pandemic. While a number of interviews identified behaviors that were only performed in the immediate impact of Hurricane Sandy, several interviewees spoke on how this subculture element led to community recovery. For example, one business owner explained that during their post-Sandy recovery, “we had an army of volunteers that were willing to pitch in, who live up on the hill [in the community] mostly. You know, so then they felt bad for everyone down here so everyone kind of got together and figured out what we needed to do. It was kind of orchestrated through the business partnership, among other groups” (Interview 16). In the case of the COVID-19 pandemic, many interviews noted the negative impact that the disaster had on the community. However, several interviews showed that the coastal communities of New Jersey developed a sense of community solidarity, which led to donation of food to people who were experiencing food insecurity during the COVID-19 pandemic. One interviewee stated:

“we started a [food donation program] and every time people you know everything was to-go, you know, so we encourage people to bring a can or two or something . . . we'd get full bins every week at all the different restaurants, we'd get bins and bins of food and it got to the point where it became so popular . . . we did two food drives so we were able to give [to] the food pantry, or like... just from [a food donation program], we were able to give them [people experiencing food insecurity] like over 20,000 pieces, you know items of food” (Interview 9).

DISCUSSION

These results provide four main findings in the study. First, there is evidence that the majority of the interviews indicated the development of disaster subcultures in northern Monmouth County. Secondly, based on these initial findings, there was evidence of four possible disaster subcultures in coastal New Jersey communities. The events associated with the development of the possible subcultures were Hurricane Sandy or other coastal storms, the COVID-19 pandemic, tidal flooding, and the September 11th terrorist attack. Thirdly, this study identified additional business preparedness strategies implemented due to disaster subculture elements. Lastly, this study identified a relationship between disaster subculture elements and small business involvement in community recovery.

This study implies that small businesses can help teach outsiders how their community has responded to past and current disasters. In this study, the unit of analysis was small and medium business owners and stakeholders in coastal communities. These interviews helped provide more information about how the different communities have adapted to the previous disaster activity, such as Hurricane Sandy, and are coping with ongoing disasters, such as the COVID-19 pandemic. Another implication is that future climate change adaptation and disaster preparedness may need to consider the presence of a disaster subculture within a community in order to prepare for a disaster effectively. This study showed that disaster subcultures may have encouraged businesses and communities to play an active role in their recovery and resilience. Climate change adaptation and disaster preparedness experts may need to consider the coping and response mechanisms already developed within communities to supplement and advise communities on increasing their preparedness and resilience. Both of these implications reinforce that incorporating small businesses into climate resilience could provide a space to focus on finding new community resilience and recovery approaches that maximize subcultural elements within businesses (Xiao & Van Zandt, 2012, p. 2528; Leichenko et al. 2015, p.2-3).

Although this study has significant implications, there were limitations to the results and the conceptualization of disaster subcultures. The preliminary results of this study were based on 21 interviews with business owners and stakeholders in northern Monmouth County. This was a relatively small sample of the businesses and community leaders that may have played a role in the communities within the research site. A second limitation is the definition of disaster subcultures and subculture elements. The description of disaster subcultures and their elements is based on highly cited papers by Wenger & Weller (1973) and Granot (1996). Although this literature is well-cited, it is a limited framework. Future research should take larger sample sizes and find additional literature that supports the concept of disaster subcultures and their elements.

CONCLUSION

The objectives of this study were to identify the elements of a disaster subculture during post-disaster Hurricane Sandy and other events by analyzing small businesses' past responses and coping strategies. Additionally, this paper sought to identify the relationship between the past disaster subculture and current business mitigation and community preparedness practices. After conducting two qualitative analyses of 21 interviews from small and medium businesses and community stakeholders in northern Monmouth County, New Jersey, this study found significant evidence supporting the presence of a disaster subculture within coastal New Jersey communities. Additionally, the results showed that four possible disaster subcultures might be developing in coastal New Jersey.

The findings of this study also suggest that disaster subcultures did influence current business mitigation and community preparedness practices. This study can be used to understand better the relationships between disaster subcultures, small businesses, and community climate resilience. Additionally, this paper strengthens the argument for cultural approaches to climate resilience and adaptation within vulnerable communities. A future research direction could consider disaster subculture influence on an individual level and how subcultures may influence household preparedness.

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