

“IT SEEMS LIKE IT’S NEVER GOING TO END”: THE EXPERIENCES  
OF THOSE LIVING IN DAMAGED DWELLINGS  
FOLLOWING HURRICANE SANDY

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Where people go between evacuation and recovery remains an understudied aspect of disaster research. Whether experiencing multiple displacements, permanent displacement, or undergoing recovery in a damaged dwelling, the spatial and temporal dimensions of disaster displacement can have direct impacts on the recovery experiences of survivors. Pulling from focus group data gathered in 2017 from Hurricane Sandy survivors in New Jersey, this qualitative research focuses on the experiences of those who recovered in-situ, or within their damaged dwelling following the storm, and the various ways this non-displacement impacted their recovery. A content analysis following a grounded theory approach produced the emergent themes of the in-situ experience, including: a lack of suitable shelter, an exposure to secondary hazards, and an inability to achieve satisfactory emotional recovery. This study contributes to the growing body of literature surrounding recovery experiences, and it introduces valuable insights into the challenges that survivors face while recovering in-situ.

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## CHAPTER 1

### INTRODUCTION

Recovery remains one of the more elusive areas of disaster research. The varying spatial and temporal dimensions of recovery greatly contribute to the challenges of studying it. Though we are beginning to understand how demographic and community factors may impact recovery rates (Fussell, 2015; Peacock et al. 2014), the spatial aspects of recovery remain under-examined. This may be partly because the parameters of recovery differ based on the scale from which it is viewed. For instance, Kates et al., (2006) view recovery at the community level, and break ‘recovery’ into four different subcategories: emergency response, restoration, reconstruction I (restoring pre-disaster levels) and reconstruction II (commemoration, improvements). As the overall community advances through broad scales of recovery, the individual household advances through more personal and subjective levels of recovery. Therefore, recovery can also be examined on a much smaller scale at the household level (Bolin, 1982). This study focuses on the household level as this scale allows for an enriched perspective of how recovery is measured at the individual level rather than using communities, businesses, or other generalized forms of measurement.

The location where a household recovers following a disaster may impact the duration of their recovery. At the household scale, the recovery duration is the estimated time it should take a household to complete a set sequence of events that helps them reach what is colloquially thought of as “full recovery.” Though many events contribute to a household’s recovery, this study focuses on four key events: the permanent return home, the reconstruction process, resumption of household functions, and attainment of satisfactory housing arrangements. Where recovery activities are carried out can alter the type and duration of recovery that a household experiences. For instance, although a household may be spatially recovered (i.e., back on their

own property and living within their permanent housing) they could still be far from emotional and physical recovery. In this study, this experience is defined as recovering in-situ, or recovering within a home and community that was damaged during the disaster. Those recovering in-situ must go through the four aforementioned phases of housing recovery while simultaneously living in an active disaster site.

This research explores the experiences of those who recovered in-situ during the years following Hurricane Sandy (2012) in New Jersey. This qualitative study utilizes data previously collected through focus groups to address the following research questions:

RQ1: What is the experience of recovering in-situ?

- a. What motivated residents to recover in-situ?
- b. How did conditions differ between households recovering in-situ?

RQ2: What is the relationship between emotional and physical recovery of residents recovering in -situ?

This study may benefit disaster scientists and policy makers alike by offering novel insights to a potentially common recovery situation. The experiences of these survivors may advance how scholars project recovery timelines and examine this process. Furthermore, an exploration of the challenges these participants faced may help practitioners assist households as they navigate through the recovery process following future disasters.

The outline of this thesis is as follows: First, this thesis provides a literature review into the historical and current state of recovery literature. Next, it describes the methods utilized to conduct the focus group interviews. The findings of the study are then presented, followed by a discussion of the results and the conclusion.



## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

The literature distinguishes between displaced households as those who *can* return to their original dwelling and those who *cannot*. The earliest works examine the different ways households return to their original location following a disaster. Quarantelli, who was one of the pioneers in disaster scholarship, conducted one of the initial assessments of household recovery when defining the earliest concepts of “shelter” and “housing” (Quarantelli 1995). The resulting typology, produced the definitions of emergency and temporary shelter, and temporary and permanent housing that are used today (Table 2.1).

**Table 2.1: Quarantelli’s Phases of Housing Recovery**

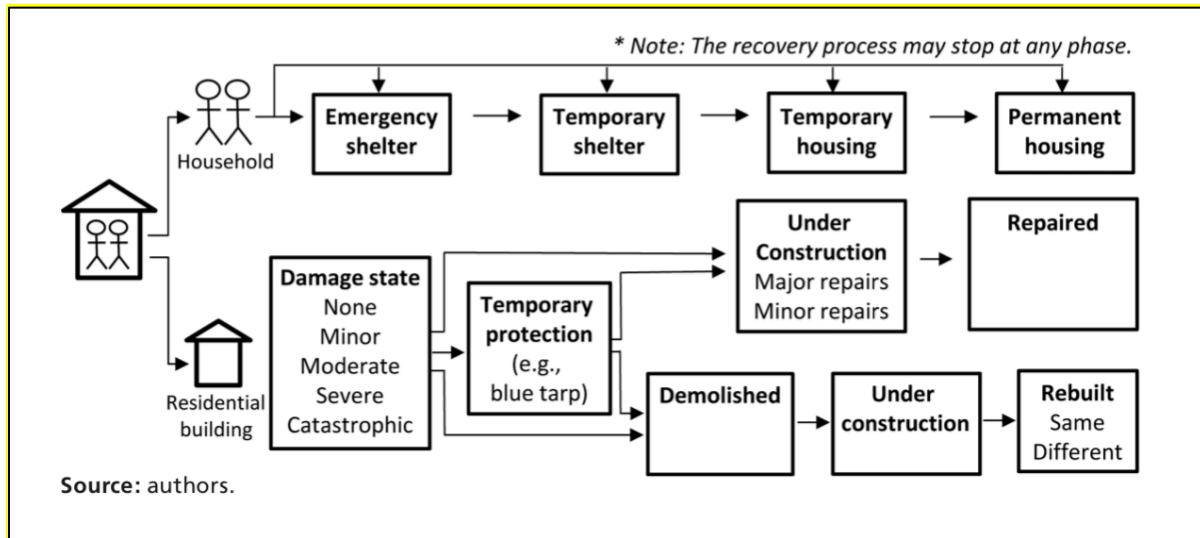
Type of Shelter	Definition	Example
Emergency Shelter	A type of shelter that is only meant to last a few hours.	Taking shelter during a flash flood event.
Temporary Shelter	A type of shelter that can last for extended periods of time.	Staying in a hotel during a hurricane evacuation.
Temporary Housing	A phase of sheltering where typical household functions resume.	Living in an apartment while the primary dwelling is being prepared.
Permanent Housing	The final phase of housing recovery.	Reestablishment in one’s original dwelling, or permanent relocation.

Adapted from Quarantelli (1995).

Within Quarantelli’s typology there are clear distinctions between the different phases of shelter and housing, though there is a stated potential for an overlap between temporary and permanent housing (Quarantelli 1995). It is the experiences occurring within this overlap that this research investigates, as it includes understudied housing situations such as living within damaged original dwellings during recovery.

More recently, scholars criticize Quarantelli’s typology for being limited in scope and

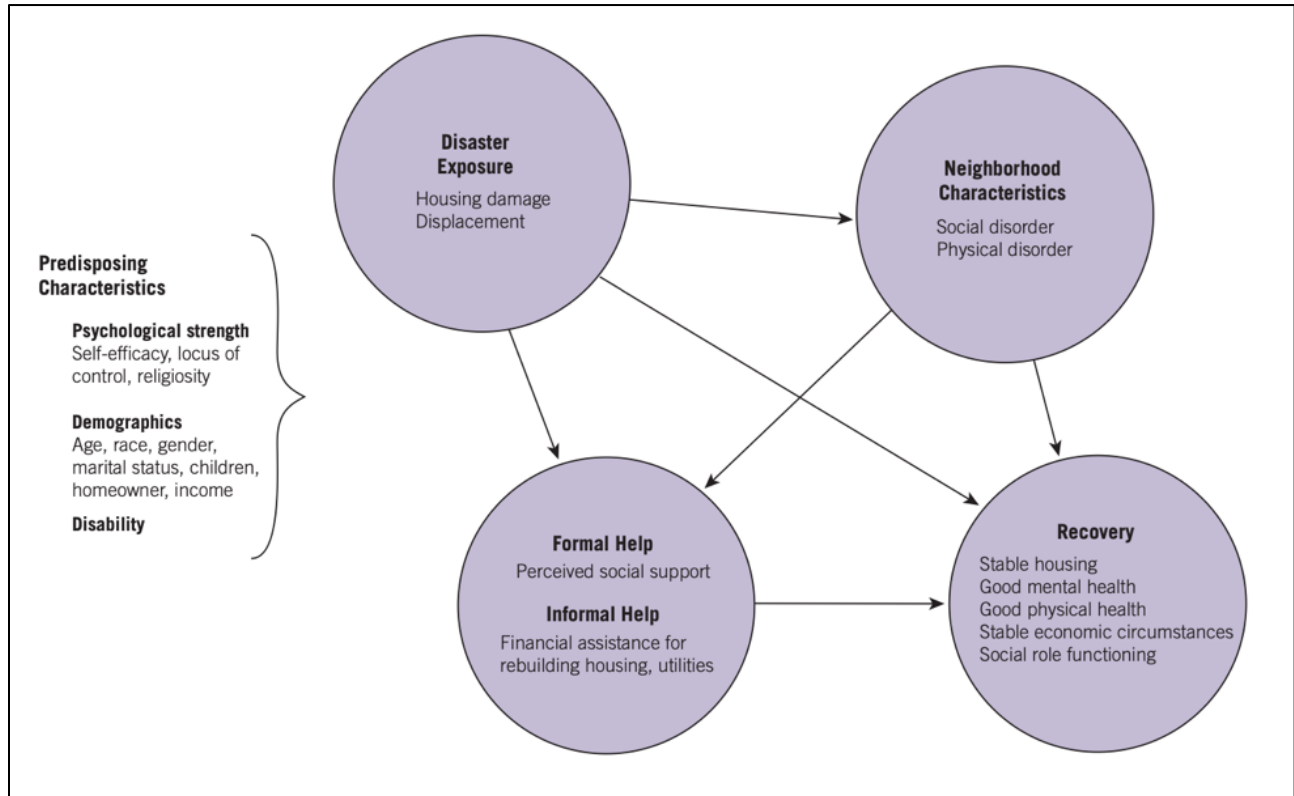
have proposed several adjustments to his existing framework (Peacock et al., 2014; Rathfon et al., 2013). For example, Rathfon et al. (2013) distinguish between household recovery and the residential building (or physical dwelling) recovery to examine how each level of recovery may affect the overall recovery timeline of the household (Figure 2.1).



**Figure 2.1: Household and residential building recovery processes (Rathfon et al., 2013)**

The distinction made by Rathfon et al. (2013) is the first to acknowledge that the physical dwelling’s recovery may impact household recovery; however, this study fails to connect the household’s recovery *to* the physical dwelling recovery. There may be significant impacts to both physical and emotional recovery when households are using their damaged dwelling as emergency and temporary shelter and housing, yet these connections have been thus far overlooked. Other modifications to the classic typology are provided by Peacock et al. (2014) who argue that modern sheltering approaches, specifically the struggles of renters and low-income homeowners, do not fit into Quarantelli’s typology. The Peacock et al. (2014) study attempts to disentangle the nuanced concepts of household recovery and housing recovery through a comparative examination of market rates and payouts in different regions following a disaster (Peacock et al., 2014). Although these recent studies do make needed improvements on

Quarantelli’s typology (1995), they tend to focus on a community-wide scale and fail to dive deeper into the nuances of temporary and permanent housing at the individual and household scales.



**Figure 2.2: Socioecological model of postdisaster recovery (Abramson et al., 2010, p. 48)**

Other researchers call for drastic changes in how we measure recovery. Abramson et al. (2010) propose using a socioecological framework to examine individual recovery (Figure 2.2). This type of framework acknowledges the interconnectedness between housing stability, recovery, and physical/mental health, and is one of the first to propose that linear approaches may be inappropriate for mapping recovery efforts (Abramson et al., 2010). This model is useful when examining household recovery because it is not a “one-sized fits all model”; instead, the model considers the variation in household damages, formal and informal help, and both the physical and emotional aspects of a household’s recovery. It also considers the individual’s

demographics and financial standing before the event and allows for a more contextual examination of recovery through various lenses; different individuals of different socio-economic standing have different challenges and paths to recovery.

This novel type of modeling may be most comparable to the widely cited disaster resilience of place (DROP) model (Cutter et al., 2008) which incorporates many different social and physical factors in calculating a place's resilience to disaster such as: community demographics, average income, and critical infrastructure, among many others. However, the DROP model measures the long-term resilience of entire communities and is not adapted to measure the long-term recovery trajectories of individual households.

## 2.2 A Focus on Living in Damaged Homes and Communities

When examining how vulnerabilities can impact recovery trajectories, Bolin and Bolton (1983) performed a case study comparison of families in Rapid City, South Dakota and Managua, Nicaragua following environmental disasters. They developed a model of family recovery based on interviews with the families and introduced the idea that household recovery could be tied to perceptions of satisfactory housing (Bolin and Bolton, 1983). Thus, housing recovery is not achieved simply when the household returns to the spatial location of their dwelling, but when their living conditions are perceived as equally "satisfactory" (Bolin and Bolton, 1983, p. 131) to their living conditions prior to the disaster. This distinction is important when investigating the recovery rates of those living in damaged dwellings, as these households have regained the spatial aspect of recovery, and perhaps even permanent housing under the Quarantelli (1995) classification, but they have in no way reached the subjective satisfactory levels of recovery Bolin and Bolton discuss.

These subjective levels of recovery are of paramount importance in other areas of the

literature. In his book *Long-Term Family Recovery from Disaster*, Bolin considers emotional recovery one of the most important aspects to recovery (1982). Family recovery is seen as a “fundamentally social process” and is “determined by a number of social and social-psychological factors” (Bolin, 1982, p. 1). Essentially, Bolin argues that the subjective are equally important as the objective measures to recovery, for though a family may technically be in the permanent housing stage of recovery, they may not *feel* recovered due to a variety of factors. Similarly, Whittle et al. examine what they term the “emotional labor” that is required of families in order to completely recover from floods in the United Kingdom (Whittle et al., 2012, p. 62). More recently, Schumann (2018) examines and compares the subjective perceptions of recovery against the objective measures of recovery at the community level, and demonstrates how studies of recovery must include both to present the full scope of recovery. These studies further argue that the emotional work, or emotional recovery, cannot be separated from the physical recovery processes.

Other modern approaches have built upon this concept. Peacock et al., (2007) found that a delay in securing housing may lead to a delay in overall recovery. They argue “without establishing home, the ability of a household to carry out normal activities and reestablish a routine is limited and hampered” (Peacock et al., 2007, p. 258). This concept ties back into Quarantelli’s idea that temporary housing must include a reestablishment of household function, while also noting the delay in emotional recovery that a family may endure when they experience a delay in housing security.

The literature regarding those who make temporary housing within their permanent dwelling is scarce. Instead, studies have focused on the potential health risks involved with living in a flooded-out property (Azuma et al., 2014) and on solastalgia, a term coined by Albrecht (2007) and used by Warsini et al. (2014) to describe the emotional distress triggered by living in

a severely damaged environment that used to provide solace or comfort. Rarely, if ever, are these studies tied back to Quarantelli's framework or discussed in the larger time frame of recovery.

Furthermore, recovering within a damaged home may be a common occurrence that has yet to have sufficient study. The United States Army Corps of Engineers (USACE) manages Operation Blue Roof that aims to "provide homeowners in disaster areas with fiber-reinforced plastic sheeting to cover their damaged roofs until arrangements can be made for permanent repairs. Operation Blue Roof protects property, reduces temporary housing costs, and allows residents to remain in their homes while recovering from the storm" (USACE). According to a report created by the USACE, a record breaking 193,000 blue roofs were installed after the 2005 hurricane season. This broke the previous record of the 134,000 blue roofs installed after the 2004 hurricane season. Even if only a fraction of those who receive blue roofs recover in-situ, this process would still be common enough to encourage further study.

Those living in damaged dwellings are in an understudied transitional period not captured by the theoretical frameworks, as they are using their permanent housing as temporary shelter. Their houses may be missing walls, overtaken with mold, and lacking utilities such as electricity and heat, thus preventing their household functions from resuming as usual and delaying their overall recovery. This understudied group could reveal hidden challenges and roadblocks to recovery, thus further clarifying the different phases households go through during recovery.

Although the literature addressing household recovery certainly needs expansion, researchers do understand how the neighborhood dynamics following a disaster may impact emotional recovery rates (Adams et al., 2009; Graif, 2016). Graif (2016) found that families that moved away from their communities following Hurricane Katrina typically experienced lower rates of "extended neighborhood distress" compared to those who stayed behind (Graif, 2016, p. 312). Similarly, Cutter (2014) examined the recovery of Vietnamese communities separated

along the Mississippi Coast following the same hurricane and found prolonged emotional turmoil resulting from community separation. Furthermore, we understand that households of lower socio-economic status or of minority groups take longer to recover, and they are more likely to live in damaged communities for longer periods of time than those of privileged groups or of higher socio-economic status (Peacock et al., 2014). However, there is no literature explicitly discussing how living within a damaged home may impact household recovery trajectories compared with recovering in a non-damaged environment. Although a household may be spatially recovered (i.e., back on their property and living within their permanent dwelling) they could still be far from emotional and physical recovery.

Although the existing literature is broad and encompasses many different facets of recovery, very little literature attempts to examine the experiences of those who have undergone recovery within damaged dwellings and communities. This research attempts to bridge this gap and provide much needed information on how to best help households recover physically and emotionally in an efficient and timely manner.

## CHAPTER 3

### METHODS

#### 3.1 Superstorm Sandy Description

Superstorm Sandy was a complex and unusual storm. It made landfall in Jamaica as a Category 1 hurricane on the Saffir-Simpson scale, made landfall in Cuba as a category 3, and then weakened to a Category 1 as it passed through the Bahamas (Blake et al., 2013). Even though the storm weakened from a hurricane to a post-tropical cyclone as it neared the northeast coast of the United States, it grew rapidly in size and converged with a lingering front to form the “Superstorm” it is colloquially referred to as today (Blake et al., 2013).

Superstorm Sandy made landfall on the New Jersey shoreline on October 29th, 2012, with a reported storm surge of 2.61m in the Sandy Hook National Recreation Area in New Jersey. According to Blake et al. (2013) the damage that resulted from Sandy was “unprecedented” (p. 17) in New Jersey’s history, and a majority of structures along the coast were “flooded, badly damaged, or destroyed” (p. 17). Their study found that approximately 346,000 housing structures were damaged or destroyed, and 19,000 small businesses sustained damage of some sort. Recovery costs for power and gas lines were estimated to cost 1 billion USD , while repairs to the water and sewage systems were estimated at 3 billion USD.

Following the storm, survivors had a variety of resources available to them in the realms of food security, physical and mental healthcare, and housing needs per the Stafford Township “Hurricane Sandy: Funding and Information” website (Stafford Township, 2015). Housing resources were sponsored from both federal (FEMA and the Department of Housing and Urban Development), state, and local organizations.

The housing resources ranged from short-term solutions (such as FEMA-funded hotel rooms, temporary housing, and rental assistance) to long-term rebuilding guidelines and



construction grants (Stafford Township, 2013). Financial housing assistance following the storm included SBA Loans, the Homeowner Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) program, and the Sandy Homeowner / Renter Assistance Program (SHRAP) (Stafford Township, 2013). Per the guide, SHRAP program allotted \$15,000 per household to aid in mortgage/rent assistance or the replacement of damaged household appliances, but was targeted towards seniors and people with disabilities whose primary home was damaged. The RREM program, open for all New Jersey homeowners to apply, allotted up to \$150,000 for residents to repair, rebuild or elevate their home, and was designed to “fill the gap” between other forms of financial assistance (Stafford Township, 2013, p. 12).

### 3.2 Data Collection

This research analyzes previously gathered data from Hurricane Sandy survivors located in three different communities from two counties along the New Jersey coast: Manahawkin (Ocean County), Hazlet (Monmouth County), and Seaside Heights (Ocean County). As described in Lee et al. (2020) and Siebeneck et al. (2020) local contacts (established by the research team) advertised the research opportunity and assigned twenty-eight willing participants to six focus groups, each comprising three to six people. These six focus groups were conducted over three days in May 2017, approximately five years after Hurricane Sandy made landfall along the New Jersey coast. Each focus group was approximately two hours long.

The data collection process entailed four steps in which participants (1) shared their experiences recovering following during Superstorm Sandy, (2) as a group, generated a list of facilitators and barriers to their household’s recovery, (3) created individual timelines of their household’s recovery process, noting key dates, activities, and resources that enabled or hindered their recovery process, and (4) individually responded to a background survey on household

conditions. A semi-structured focus group protocol guided by an interview protocol guided Steps 1 and 2 of the session. The protocol probed for information regarding barriers and facilitators to recovery, including probes such as:

- What about physical infrastructure (e.g., utilities, communication, or transportation)?
  - Which of these were not working? When were they functional?
- What about information you received related to response and recovery (at different time points)?
  - Social media, TV, websites, govt officials etc; Frequency of use, usefulness of these sources etc.
- What about secondary hazards (e.g., gas leaks, live wires, mold in the home, downed trees, or wild animals)?
  - Did any of these secondary hazards happen, or were they just part of your thought process? When did they happen?
- What about public facilities and services?
- What about businesses?
- What about social, health, or education services?
- What about volunteer labor or contractor labor?
- What about people you know, such as friends, neighbors, relatives, or those from your community?
  - In what way did these people influence your decision to return?

In the third step of each semi-structured focus group session, members of the research team guided the participants through an activity where participants created a timeline of their recovery process using the identified barriers and facilitators discussed during the prior interview phase. At the conclusion of the timeline activity, the participants then entered the fourth and final step of the focus group interview. Participants completed a semi-structured paper survey which included a mix of open- and closed- response questions about demographic information, information on damage sustained to their dwelling, and what types of assistance they received

following Superstorm Sandy. There was also an open response section that allowed participants to discuss any topics they felt the group did not emphasize; this data compliments the 11.5 hours of audio recordings. At the conclusion of the focus group, participants were paid 40 USD for their time.

### 3.3 Demographics

Overall, the sample was representative of the surrounding area and overall homogeneous: primarily white, middle-to-older aged, middle class residents with some college education. It must be noted that both females and older residents were overrepresented in this study when compared to the census data for the region (Table 3.1).

**Table 3.1: Census and Survey Demographic Information**

<b>Demographic</b>	<b>Monmouth County</b>	<b>Ocean County</b>	<b>Focus Groups</b>
Median age (yrs)	43	42.8	62.5
Race/Ethnicity (% white, non-Hispanic)	75	85	96.4
Gender (% female)	51	52	75
Some college/2-yr degree (%)	24	29	46.6
Median annual household income (\$)	90,226	62,223	-
Owner-occupied households (%)	72	78.4	100

Source: Siebeneck et al., 2020.

As far as reported damage, all but one participant reported that their house was affected by storm surge. Thirteen reported wind or roof damage; six reported fresh water flood damage; six reported water damage not related to flood or surge; and thirteen reported felled trees or other damage to property. Twenty-one participants are in the same dwelling they were prior to Superstorm Sandy, while seven reported living in new residences at the time of the interview, though it is unclear if these new residences are temporary or permanent relocations. While data from all 28 participants was utilized to understand the conditions of the entire community

following the disaster, nine participants explicitly stated they recovered in-situ at some point in their recovery process. This study focuses mainly on the experiences of those nine participants who reported recovering in-situ.

### 3.4 Data Analysis

I conducted a content analysis on the transcribed focus group interviews. The interview transcripts were uploaded from the existing Word documents into the coding software Atlas.ti to be coded and analyzed following grounded theory methodology (Corbin and Strauss, 2014). This study follows the scholarship that categorizes grounded theory as a guiding mindset that can be used in a content analysis (Cho and Lee, 2014). In this study, both the manifest (or literal) as well as the latent (or interpretive) content was utilized to fully explore the experiences of those recovering in-situ.

Although I was not present during the primary data collection, an intuitive content analysis following the grounded theory methodology requires such a thorough and extensive familiarization with the entire data set that makes this factor negligible (Cho and Lee, 2014; Corbin and Strauss, 2014). Furthermore, members of my thesis committee were present during the original interviews and corroborated the reliability of the transcripts and the reliability of the analyses based on said transcripts. The thesis committee was consulted for triangulation as a validation of the results (Creswell, 2018). This committee acted as “peer debriefers” to confirm or provide guidance on further data analysis from codes generated (Phillips, 2014, p. 152). Following approval and validation, these initial codes were further refined and divided into sub-codes for analysis.

The transcripts were read and listened to in their entirety multiple times. After a thorough immersion in the data over several weeks, the initial coding process began. The initial coding

efforts identified overarching emergent codes such as “aid,” “displacement” and “recovery”. These broad codes then were each searched for “signaling” codes, or codes that lead to promising analysis (Phillips, 2014).

The “recovery” category was chosen for further development because of the breadth of content and novelty of subject. Within the “recovery” coding, the experience of recovering in-situ emerged. Instances of participants sharing experiences of recovering within damaged dwellings were highlighted and analyzed separately for new signaling codes. Within this new subset, signaling codes such as “hazards,” “housing conditions,” and “emotional recovery” emerged. Once the signaling codes were identified, the data was analyzed using selective coding, or coding that focuses on the signal codes identified in the second stage of coding (Phillips, 2014). From this selective coding process the following questions were explored: (1) why did participants recover in-situ; (2) what was the experience of recovering in-situ; and (3) how did recovering in-situ impact the participants overall recovery?

## CHAPTER 4

### RESULTS

#### 4.1 Reasons for Recovering in-situ

To answer RQ1 regarding the experience of recovering in-situ, we must first examine why many participants made the decision to return to their homes in the immediate aftermath of Superstorm Sandy, if they were able to evacuate at all. Some participants stated they simply had nowhere else they could stay following the storm, while others mentioned that they became frustrated with the temporary housing provided by federal resources and decided to return to their own dwelling for relief. Others still were motivated by rumors of looting to return home and protect their property. Overall, all of those who returned immediately after the storm felt they had to do so for a combination of three reasons: necessity, security, and sanity.

##### 4.1.1 No Place to Stay

In the immediate days after the storm, residents began their reentry process. The area was hit hard by the storm, and many community areas had limited access. Roads had been washed out, debris covered the streets, and many areas experienced a loss of power and running water. The returning residents had to be verified at multiple checkpoints by national guard troops and local police units. These checkpoints were in place to protect communities against rubberneckers and potential looters, but the process added stress to those attempting to return to their homes.

At this point in their recovery process, residents were in the process of determining whether to recover via displacement or in-situ. The limited access to communities implied that residents who chose to recover via displacement may not be able to revisit their homes for an extended period of time. Many, like those quoted below under a pseudonym, simply stated they had nowhere else to stay following the storm:

[When] we went to go to Union Beach they [the National Guard] wouldn't let us in because we couldn't get into town, and we were like "No, you don't understand. This is our driver's license, we live over there down the hill couple blocks down, we have no place to stay." And they're like "what do you mean you don't have a place?" and we're like "we don't have a place to stay." (Monica, Hazlet)

I knew I had to stay there, because there were so many unknowns. We didn't know how long they would take to get insurance money and what the whole, you know, you didn't know what was to come... (Loretta, Manahawkin)

The uncertainty of how long recovery would take made survivors hesitant to start living in costly hotel rooms for an extended period of time or to start searching for vacant apartments for short-term housing. In addition, many participants were expected to continue making their mortgage payments regardless of the condition of their home and simply could not afford to be paying both a mortgage and rent or the cost of an extended hotel room stay. As a few participants explained:

We came home, we got at the house and we stayed there. We lived on concrete floors and started walls until the insurance finally gave us money...that was my house, I was not moving out. I couldn't afford to rent and pay my mortgage. My mortgage company I called, and there were like "well, yeah, I know, you know, you still have to pay your mortgage," so you have to live. (Beth, Manahawkin)

The mortgage company tried to foreclose. I think they saw a cash cow, in the location of where my property was even though it was on the mainland. I think all of a sudden it occurred to the mortgage company "well, if we can." I was, obviously in tough financial straits, and so, "if we can push the envelope on the this guy and foreclose on him, we got a sure property." And they tried hard, and I ended up, in order close out the mortgage, I ended having to use some of the penitence of an insurance settlement I got to pay off the mortgage company to stop them. So I even have less than that quarter of what I was going to need to rebuild because it was the only way I could even hold on to the property. That's how vicious they got, the mortgage company. (Jim, Seaside Heights)

#### 4.1.2 Limited Options for Alternate Housing

Those residents who initially wanted to stay in a hotel or an apartment at their own expense were presented with few viable options. The hotels within the community were full of evacuees or were being used as a form of government funded temporary housing. Those who

secured the FEMA funded temporary hotel housing were only issued the housing on a weekly basis, meaning that at the end of each week they would need to seek approval to stay for another continuous week. This caused strain and additional displacement for residents. As one participant described:

Now sometimes you were told “no you have to check out.” So you would gather all your stuff, check out, drive around to do whatever only to find out that you were then allowed back into the hotel. So they would displace you, ok, you’d be out looking around, the mental exhaustion, the mental stress, the mental pressure of going “ok I don’t have a place to stay ok.” (Donna, Hazlet)

Others participants attempted to stay in other forms of temporary housing such as apartments but found these conditions to be less than ideal. Some decided that if they were going to stay in a dwelling that had dirty carpeting, poor heating, and limited-to-no furniture they may as well stay in their own damaged homes and save on costs. As explained by one participant:

We went to this apartment in Kingsburg and we got there, I had just had some blankets and we went to just go lay down on the floor ‘cuz it had no furniture in there. You know we couldn’t even go buy furniture or anything like that, and the house there was a problem with the heat... there was no heat, and it was freezing. And the on the floor there was carpeting, and the carpeting was so dusty like, whoever lived there like, they probably never cleaned the carpet. They had pets ‘cuz you could smell that dander or whatever. My husband has allergies, I have allergies, my daughter, we all started coughing and sneezing I mean for like an hour. And my husband just said “you know what I can’t take this anymore,” he’s like, “we’re either gonna sleep in the car, or we’re gonna go to our house and we’ll sleep in our own crap.” (Monica, Hazlet)

In addition, some participants expressed a reluctance to rely on family for extended periods of time and cited this as a reason for returning to their damaged home following the storm. One participant went so far as to claim that while one may *expect* families to open their doors and welcome refugees, in reality the survivors are often left on their own with limited options following a disaster:

I know this sounds horrible, but you think that in moment of crisis that people that you know come to your aid, and they do maybe for a day or two, and then they all run and



turn the other way. And that's what we encountered. We had no place to stay because it's not like we're gonna call people up and beg "can we stay at your house a couple of days?" I'm sorry, but when you're going through something like that you expect people close to you to offer their home, so that's a whole 'nother issue. (Monica, Hazlet)

This combination of limited housing availability and the systematic failures of temporary housing efforts left survivors with seemingly little choice but to return to their storm damaged homes and communities.

#### 4.1.3 Security Against Looters

Although some participants felt no choice but to return to their homes, others actively sought to return home to protect their property and valuables against looters. Following the storm, reports of looters using boats to cross over onto barrier island communities quickly spread across local platforms. As one participant who experienced looting reported:

The next step with looting. We put a sign out saying "you loot, we shoot." I mean, we had a plywood board 4x8, we were serious. My son had a gun and I'll tell ya, I'll be damned we were going to shoot because they were driving by looking for things ... they were coming in on the property brazenly and they were chasing me off my own property, the looters. (Adam, Manahawkin)

More commonly, the concern of looting was enough to encourage residents to take residence within their damaged dwelling:

I hate to say it, but the one of the barriers you know, one of the reasons why they had to be so strict because there's an element of our society that was out there robbing everybody. (David, Seaside Heights)

I fixed up the house good enough that we could move ourselves back in. We would get a bed in, there was heat. A lot of us use the term "camping," because we made the house good enough, you know, you could run the water, you could flush the toilet. So I moved back into the house because I wanted to protect the house, and my wife wouldn't come back because when you look at our house at night, it was not another person, not a light in any house. (Ben, Manahawkin)

Although a few participants did observe looting behavior first hand (2/28 total participants), most participants (9/28 participants mentioned looting specifically) only reported

hearing secondhand accounts that groups of people in boats were crossing to the island communities and stealing things like televisions, refrigerators, copper pipes, and other valuables. Although widespread looting in the aftermath of disaster is not common (Tierney et al., 2006; Alexander, 2007), this issue was a significant concern for many participants that influenced their decision to return and remain in damaged homes and communities filled with hazards.

## 4.2 Conditions Post-Disaster

Whatever the reason that motivated survivors to return to (or remain in) their damaged homes for recovery, the conditions within the community were unpleasant. Those within the storm-struck community faced a variety of hazards—from traditional secondary hazards like mold, fire, and debris to more unique, anthropogenic hazards like contractor fraud. This section explores the conditions within those households that recovered in-situ (RQ1.b).

### 4.2.1 Secondary Hazards – Mold, Fires, and Debris

Many participants recalled having to deal with a variety of secondary hazards. These common hazards included mold, fires from downed powerlines, and debris from fallen trees and damaged structures. Though some returned home within days following the storm, they were surprised with how quickly they needed to begin mold remediation, as recalled by one participant:

We had mold, sure, real quick. Which you would think, “how would you get mold?” Because we were there and the next day. We cleaned everything, but that mold started to grow. (Beth, Manahawkin)

Fortunately, in these instances the participants seemed to understand what actions they needed to take to immediately begin remediation, and the community aided this process by passing out buckets, cleaning solutions, and even offering remediation courses to those inexperienced in mold removal.

However, these actions are only useful if someone had returned early enough to perform them. Some homes in these communities act as secondary or vacation homes, meaning they are not regularly occupied, and the damaged homes often sat damaged until the remote homeowners could send someone to assess for repairs. Many residents expressed concern over the houses within their neighborhood that were not remediated immediately after the storm and the consequential health effects they may still have to experience many years after the initial disaster:

You had to deal with people not doing their houses like we did so some people it was a long time before they went in and cleaned out their houses. My next-door neighbor was a long time before she had got somebody to come, and I was like oh my God what am I going to catch? (Beth, Manahawkin)

I mean, this is four and a half years later, when the air is stagnant, you can still walk out of your house and smell the mold from the houses that have not been remediated on a regular basis, which is totally a health hazard to all of us that live there full time. And every time they do finally tear down a house, they have to spray it down with something to try to keep the mold at bay but you smell the mold for days and days. (Michelle, Manahawkin)

Other residents explained the frequency of fires from homes that were not repaired properly after the storm. Here, geography plays an important role in the types of secondary hazards experienced. With in-land flooding, the floodwaters are typically freshwater and come from rain or inland lakes and streams. However, coastal storm surge flooding contains salt water, which can erode through a home's wiring and cause fires once power is restored if not treated promptly. Since many of these neighboring houses were vacation homes, many permanent residents experienced the risk of fires many years after the storm initially hit. One participant explained:

To give you an example, last week [five years after the storm] we passed this one house on fire. There was one house on fire, the contractor, the guy was in Florida. It was a rental. He was moving out because he had just bought the house. He paid the contractor, a reputable one... I don't want to mention the name but it was a reputable one which you

would think he would use. He went into the house that in January, after that year and the wall start smoking. They never replaced the wiring. (Adam, Manahawkin)

Yet some residents experienced more regional secondary hazards. Prior to the storm, many homes in this community had private underground diesel oil tanks on their properties that would be used to funnel heated oil into their homes. During the storm, some of these tanks failed and caused oil to spill across the neighborhood. One resident explained how having a diesel fuel spill over her property made it incredibly difficult to begin the recovery process:

When DEP [Department of Environmental Protection] finally came in to do the evaluation of the diesel damage it was estimated 250 gallons of diesel number two came into the house and just saturated everything. The smell was overwhelming and we were stuck in the house smelling it all night. It was awful. It was awful. With that being said, FEMA put into quotation marks, I mean parenthesis, substantial oil damage, but it was just parenthesis, like a little side bar. So to them they saw the damage to the house was maybe 75 thousand to 90 thousand worth of damage in the house when our house had to be completely demolished. (Julia, Hazlet)

This regional hazard caused complications with the restoration of utilities—the oil had to be cleaned before electric and gas could be restored, but the cleanup required resources and specialization that the average survivor does not possess. This was frustrating to those impacted participants, as they felt they were facing the consequences of an accident they did not cause and could not remedy without official help.

#### 4.2.2 Lack of Utilities and Community Resources

Not only did these residents return to homes filled with mold, diesel fuel, and potentially hazardous damaged wiring—but they also returned to recover in homes with no utilities. The storm flooded sewage lines, and the utility and gas lines took months to be restored since sand and debris covered many major roadways. As one resident explained:

We lived in our house with nothing with the baby for weeks, I don't even know when I had utilities I mean it was probably I mean I don't even know. We froze, literally, and didn't have hot food to eat for probably a good almost two months... (Monica, Hazlet)

Finding warmth was particularly challenging in the early weeks following Superstorm Sandy. This region is typically damp and cold throughout the winter, and a snowstorm had followed the hurricane which exacerbated the conditions. The lack of utilities paired with the freezing temperatures lead to some to depend on gasoline powered generators or cars to stay warm. Others depended on their generator or car to begin recovery activities such as charging their cell phone to call insurance, searching for resources, and powering tools to begin reconstruction. However, gasoline quickly became a limited resource due to the blocked roads. Gasoline shortages meant residents were given strict refueling limits. One resident explained:

When you'd go to put in gas you'd have to wait two three hours to put gas in your car. I mean there were like lines, and uh we used a lot of gas because that's where I would take the baby sometimes during the day, put her in her car seat and turn the car on just so we could warm up, you know. (Monica, Hazlet)

Residents struggled to find the resources they needed to survive within their damaged dwellings. In addition to difficulties securing gasoline and utilities, residents also struggled to purchase groceries in the weeks following the storm. The lack of power throughout the entire community meant grocery stores and banks could not access digital funds, so everything purchased had to be purchased with any cash the residents had on hand before the storm made landfall.

The other problem we had was as the days progressed, we were running out of food, the stores electric were also down, so you could not go in and give them a charge card, you couldn't go in and give them a check, it had to be cash. The problem about that, the banks were closed, because there was not ATM, there was no electric in the banks, all that was closed. So what do you do? (Allison, Hazlet)

#### 4.2.3 Vulnerabilities to Fraud

In addition to their vulnerabilities to hazards like mold, fires, freezing weather, and a lack of community resources to counter those hazards, residents recovering in damaged homes were also vulnerable to fraud. In the immediate days after the storm, public adjusters and contractors

were going door to door to offer their services to those living within these damaged homes. As one participant explained:

Right after the storm you had contractors, handyman, a million public adjusters, all coming to your house, knocking on your door, leaving the cards. We were out pulling all the contents of the house out and they were coming up to you, and as the days went on, you became more and more vulnerable. (Loretta, Manahawkin)

The longer these residents were living in and rebuilding these damaged homes and communities—and the more mentally and emotionally exhausted they became—the more appealing it became to sign a contract with someone who promised to restore your heat, walls, and furnishings. Public adjusters are supposed to work with insurance companies as an advocate for the insured and use their expertise of insurance policies to ensure that the insured gets the maximum payout available. This advocacy is designed to benefit both parties as the public adjuster gets a percentage of the overall payout as payment—therefore the higher the insurance payout for the insured, the higher the adjuster’s paycheck (Poliakoff, 2006).

However, many residents soon found that they had signed contracts with individuals who would not advocate on their behalf but would still take their percentage of the payout for work not done.

What they did, they have so many clients, they were not having the best interest of the clients at heart ... once you signed it was like 5% or whatever you get from the insurance company. They would pay, some of them 5 to 10. What they would do, is that they would leave you high and dry, because if they had 300 clients, and they got the money from 300 clients, they could care less if they got 60 or \$70,000 because it didn’t make that much of a difference to them. (Adam, Manahawkin)

So the public adjuster came in, did this whatever, then the insurance, the NFIP came in, more or less than the public adjuster said “okay.” Supposedly these public adjusters we’re going to fight for you to get you the most amount of money that you’re supposed to get, because the regular insurance people weren’t going to give you [what you’re supposed to get]. So therefore, they were supposed to make sure. Well we heard from the insurance person, “public adjuster says ‘okay.’” So, I said “where are you fighting for me?” and “why am I now paying you if you are just going by what he did?” (Beth, Manahawkin )

Many residents had to wait years to begin receiving insurance payouts from the National Flood Insurance Program (NFIP) or recovery grants from FEMA, and often for amounts that the residents felt were insufficient to cover damages. On top of receiving what they felt to be an unfair insurance payout, participants now had to pay a percentage to a public adjuster who they felt did not perform any service worth paying for.

Other participants also felt cheated by fraudulent contractors. Many contractors flocked to the area following the storm knowing that people needed repairs and were in vulnerable positions. Those recovering within their damaged homes were some of the most vulnerable; they had nowhere else to stay, winter was approaching, and they had no utilities or gas lines to stay warm. The contractors knew they would be paid by the highly anticipated insurance payouts, and they could therefore demand inflated prices for their services. Some contractors acted on this vulnerability with price gouging and profiteering. As one participant explained:

I'm in construction myself so, you know, it was so obvious to me when people would come in and give me bids to do certain work that I could tell they were just trying to rip me off because they thought I didn't know anything. You know, so I'd have to go through 5 or 6 contractors to get somebody that was honest and just doing the job, didn't care about Sandy, was just making the same amount of money that he would before or after... so I just, I felt for all the seniors and people like that that took the first person that came by cause they were desperate. You know and they all, I mean they lost so much money and so much stuff you know people went broke because of that. You know, I mean besides the contractors ripped them off, subs [subcontractors], everybody overcharging... starting a job and not finishing it. (David, Seaside Heights)

They would stretch the paint if I wasn't there. They would stretch the paint, and then they kept on using dirty rollers. I had him redo the walls because they just wanted to get done and I'd come back and, to do that, he had to redo the whole walls, he had to sand them all down again. You had to ... watch what was going on. My contractor towards the end said "I can't have you here anymore, I can't get the work done, you're up my backside too much" and I said "okay, I'll let you be," and then things got worse that last month. They put in the countertop, they put the sink in and the faucet, no sealant. So you can imagine. So had to do a whole new countertop, I had to get new cabinets again... you have to watch the contractor, you got to be there 24-7. (Adam, Manahawkin)

Participants who signed a contract with these contractors quickly found that the work quality was

unsatisfactory after paying out large sums of money to secure the work to be done. Some contractors would use this initial lump sum to payout subcontractors—electricians, HVAC specialists, painters, and plumbers—to do the actual labor. However, some contractors could not deliver the terms agreed to and failed to properly pay the subcontractors, leaving home owners with little choice but to pay these workers a second time, or have the work they already paid for be left unfinished. One participant explained:

After I got that second payment, like I said, the contractor had started you know all the subs. That payment was supposed to get me the sheet rock, and he had started all the electrician, the HVAC guy, the plumber and all that. And then half way through them doing their work, he told me there wasn't any money to pay them. So I was put in a position of having to pay everybody twice, you know because I already paid the contractor to pay the subs, and now I had to pay the subs again, because they never got paid, you know, to continue doing the work. And I was also stuck with his subs, you know, which were... some of them were good and some of them, you know, I wish I hadn't had to deal with, you know, but I was already in the process so I thought I had to. (David, Seaside Heights)

Many participants felt violated and frustrated at these instances of price gouging and scamming. Those in damaged homes particularly felt the sting, because if work ceased they would have to live in a semi-constructed home for an extended period of time until a reputable contractor, who may be booked for many months if not years into the future, was available to resume the work with credible subcontractors.

#### 4.3 Links between Physical and Emotional Recovery

Those who recovered in their damaged dwelling went through a different recovery than those who stayed in a location outside their damaged home. Spatially, the place that existed before the storm no longer existed anymore, yet since they were considered back in their homes some definitions of recovery may classify them as recovered. Their community was damaged, their physical homes were damaged, and their emotional recovery was tied to their physical recovery in ways not felt by those who recover through displacement or relocation. This section



explores answers to RQ2: “What is the relationship between the physical and emotional recovery of residents recovering in-situ?”

#### 4.3.1 Physical Recovery as a Means of Emotional Recovery

Many of those who recovered in-situ began the physical recovery process within days following the storm. They ripped out soaked drywall, cleaned up debris, salvaged furniture and personal belongings and were able to begin recovery almost instantaneously. This immediate immersion into their damaged homes and communities also forced them to adapt to their surroundings—reconstruction still needed to be done, bills still needed to be paid, and food still needed to be bought. The quicker they were able to get to work on physically rebuilding their home, the quicker they found they were able to adapt to their situation:

It was my oldest son and his friend and me and my husband. We just ripped and gutted, and did whatever we needed to do, to get it to where we... you know it's funny because it's amazing to how you adapt to your situation. Do you know how you had things? I had no bottom kitchen cabinets, that all got ripped out because it was in 2 and a half feet of water. So we started to sheetrock, studded walls, we had a tarp between my bedroom and the living room. My husband made plywood base cabinets for me, put the sink in there, but it didn't bother me. After a while it just did not bother me. It didn't bother me that I had no dishwasher anymore, did not bother me one iota... I just didn't miss anything anymore. So, it's really amazing how you adapt and you adjust, so I'm fine. (Beth, Manahawkin)

I ended up, it was Thanksgiving Day, that year after the storm. It was 70 degrees, and I insulated myself, my open cut out walls, because I figured it was going to be pretty cold, I might as well do it now. (Loretta, Manahawkin)

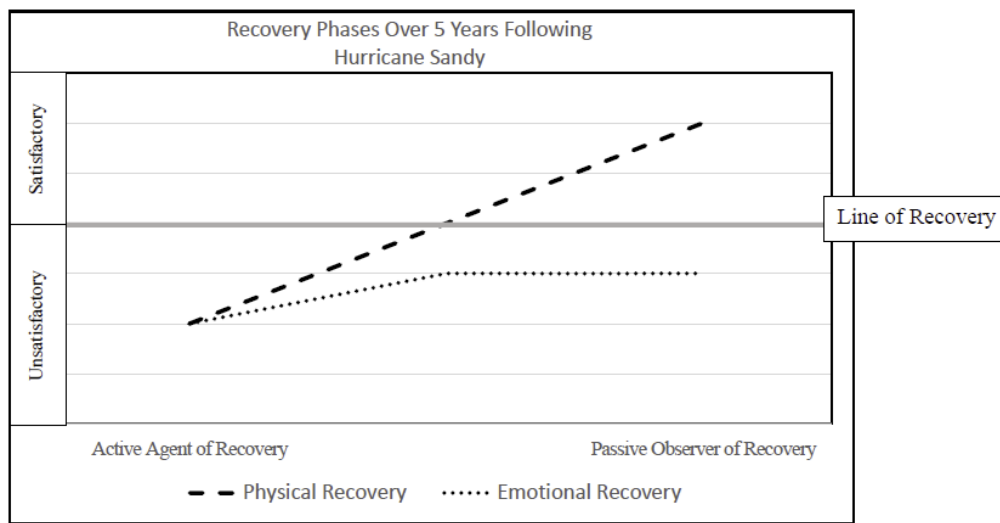
These participants realized quickly that they would need to adapt to their physical environment. Superstorm Sandy hit in the middle of autumn, and temperatures would soon start dropping below freezing at night in these coastal communities. Those who were able to start reconstruction and physically adapt to their surroundings seemed to begin to emotionally adapt to the conditions they were living in.

However, as time went on and short-term minor recovery efforts transitioned into major

reconstruction, the participants began to experience a plateau or drop in emotional recovery. For most participants, major reconstruction efforts were handled by a contractor who then went on to hire subcontractors to perform the actual labor. Some participants discussed the overwhelming amount of mental energy that went into restoring their homes. The emotional labor that went into reconstruction, especially the emotional labor involved in dealing with the repercussions of fraudulent contractors, took a toll on a few of the participants. As one participant explained:

I had no plans to get back into, you know, 10 hours a day, everyday. So I would reach these points of just total meltdown. Then I just didn't want anything to do, there were so many times I just wanted to pack up and quit, or, you know, light my house on fire, you know? I didn't want to spend the last 5 years of my life, you know...dealing with this stuff, you know? I wanted to retire and enjoy myself. So there's been many mental breakdowns. (David, Seaside Heights)

Those living within their damaged home had the advantage of being able to undergo reconstruction efforts, even minor ones, almost immediately. This allowed them to begin physically and mentally adjusting to their situation. However, as time went on the participants were no longer in control of their own recovery but instead reliant on third parties to complete their recovery. This led to frustrations and ultimately stalls their emotional recovery as conceptualized in Figure 4.1.



**Figure 4.1: Recovery phases over 5 years following Hurricane Sandy**

This stall is depicted in the plateau in emotional recovery as residents transition from active agents of their own recovery to passive observers. Dissatisfaction with reconstruction efforts, uncertainty of the future, and concern of clawback orders stalls emotional recovery and leaves survivors without a sense of closure to their recovery efforts. This lack of closure is present despite the fact their physical dwelling may be fully reconstructed.

#### 4.3.2 Using Reconstruction as a Measure of Recovery

Some participants used the physical reconstruction of their home as a measurement of their recovery process. They would relate construction activities to phases of recovery, such as noting that once their house is elevated they will be recovered, or once some piece of paper work is officially filed they will be considered recovered. Initially, this seemed to be a satisfactory way to measure progress as they were seeing, and the active agents of, physical progress happening before them, and recovery seemed to be just a few construction steps away. However, as the construction efforts were over taken by contracting services, and the active reconstruction responsibilities held by the resident were replaced with the passive waiting for insurance adjustments, claw-backs, and paperwork filings, many participants were left without closure. As a few participants shared:

So then I had to take out a loan from SBA [Small Business Association] then to then pay back my 401k because of course, you know, again, we did the work ourselves. There wasn't enough money, my house still isn't finished, but it's finished enough where RREM approved to say you're done, you're done with the program. So, great, but my house isn't done, but I'm living in it and I don't care. If it gets finished, it gets finished; if it doesn't, it doesn't. I just wanted the lien off my house and I just want it to be done.  
(Beth, Manahawkin)

...this what scares me because you hear the other stories where people are later on they're having to give money back... The way she worded it was, "we put what you said you did, and what you really did next to each other, and then we decide whether we owe you money or you owe us money." So now, I'm living with that sentence. And it's been over two years since I was ok. So, what going on here? And that's what we're all facing.  
(Rosemary, Seaside Heights)

The way I would sum that up is you became victimized twice: once by the Hurricane Sandy destroying your home or severely damaging it, and the second time by all this bureaucracy and red tape that you were running into. Whether it was governmental, mortgage companies, umm, insurance companies, it was umm, you just... everything was a fight, everything was a fight. (Jim, Seaside Heights)

Physical recovery was a useful measure so long as it was occurring, but eventually the participants realized this unit of measurement was fallible. Even once the homes were rebuilt to a sufficient standard the residents were still dealing with the intangible emotional aspects of recovery: the stress of having to properly update and file paperwork; acceptance that the homes and community may never be the same as it was prior to the storm; and anxiety over whether they will be charged for claw-backs or if they are truly 'done' with certain recovery programs.

#### 4.3.3 Shifting Prospects of Recovery

When asked about their prospects of recovery, or *when* they expect to be fully recovered, the participants used various metrics to measure what recovery meant to them. Some use their completed home construction as their measure for when they will reach recovery, as two participants stated:

But right now it's been over four years and we built a new house and I should be in it within a month. (Ben, Manahawkin)

They say about a month or two, so, so it's almost like getting there. I'm now just starting to think that maybe I'm actually going to live there again, because it seems like it's never going to end. (Loretta, Manahawkin)

Others who already completed reconstruction realized that simply being back in their home did not give them the satisfaction of recovery they expected; the emotional recovery was not achieved concurrently with the physical recovery. As explained by this participant:

We got back in our house in October of 2015, and we still are recovering emotionally rather than physically at this point. (Julia, Hazlet)

This emotional recovery does not have a scale for measurement. Unlike the physical home,

which they could see being rebuilt around them, participants were often unaware of many variables that can contribute to emotional recovery, such as: how long paperwork would take to file, whether they would need to resubmit receipts or information, whether they would be facing a claw-back charge, whether they would be able to restore their house to its previous condition, or whether they would ever feel secure in their recovery. This lack of security and closure in their recovery left many participants with feelings of resignation even five years after the storm.

As one participant summed up:

...to tell you truth the first six months were nothing. It seemed really easy compared to what it's been since then, I mean the storm was nothing, compared to trying to recover.  
(Ginny, Seaside Heights)

Since the participants in this study were at varying points in their recovery process at the time of the focus groups, it is clear how the perceived attainment of recovery shifts as survivors move from physical to emotional recovery. Following this trend, a satisfactory recovery in this context seems unattainable; each new challenge presented (claw backs, lawsuits, emotional hangover from the disaster) moves the metaphorical goal post further out of reach. Again emphasizing the lack of means to adequately measure emotional recovery, participants are left unable to gauge their progress in emotional recovery and thus unable to gauge their potential for full recovery. At the time of the interviews, five years after the storm, none of the 28 participants felt they had achieved recovery.

## CHAPTER 5

### DISCUSSION

#### 5.1 Introduction

The aim of this analysis was to examine the experience of recovering in-situ and explore the extent to which recovering in-situ impacts a household's emotional and physical recovery duration. Based on the results, summarized in Table 5.1, the experience of recovering in-situ is frustrating, time-consuming, and exposes households to a wide variety of vulnerabilities and hazards. As explored in Section 4.2, lack of utilities in the freezing New Jersey winter, the vulnerability to fraud and secondary hazards from neighboring homes, and the emotional exhaustion of living within a damaged home within a damaged community clearly weighed on the participants. However, many found an unexpected resolve that allowed them to begin their own reconstruction efforts and take their recovery in their own hands – to a point.

**Table 5.1: Summation of Findings**

<b>Reasons for Recovering In-Situ</b>	<b>Experience of Recovering in-situ</b>	<b>Relationship between Physical and Emotional Recovery</b>
No Place to Stay	Secondary Hazards	Physical Recovery as a Means to Emotional Recovery
Limited Alternative Options	Lack of Utilities and Resources	Physical Recovery as a Measure of Emotional Recovery
Security Against Looters	Vulnerability to Fraud	Shifting Prospects for Recovery

As examined in Section 4.3, the participants often used their physical recovery as a means to their emotional recovery, citing landmarks such as: drywall ripped out, utilities restored, new roof installed, etc. Their tone of language when describing this portion of recovery was prideful. Participants were proud they ripped out their own drywall, or installed tarps and insulation to protect themselves in the immediate days following the storm. When the participants were active agents in their recovery, and they could measure their progress in terms

of actions to be done *themselves*, they seemed to make progress in their emotional recovery in adapting to their situations in an effort to return to what they considered to be “normal”.

However, over the following weeks as the recovery processes transitioned from short-term to long-term, the participants lost agency of their recovery; instead of being active agents in their reconstruction, they became increasingly passive observers. During this time, their physical recovery converted from an active *means* to achieving emotional recovery to a passive *measure* of their overall recovery. Participants had to hire contractors, work with insurance adjusters, and rely on policy makers to manage their recovery. During this phase, which could have started weeks or years after the storm, participants expressed frustration and exhaustion at having to keep up with changing rules, lost paperwork, and a need to monitor subcontractors who attempted to cheapen repairs through various means including watering down paints.

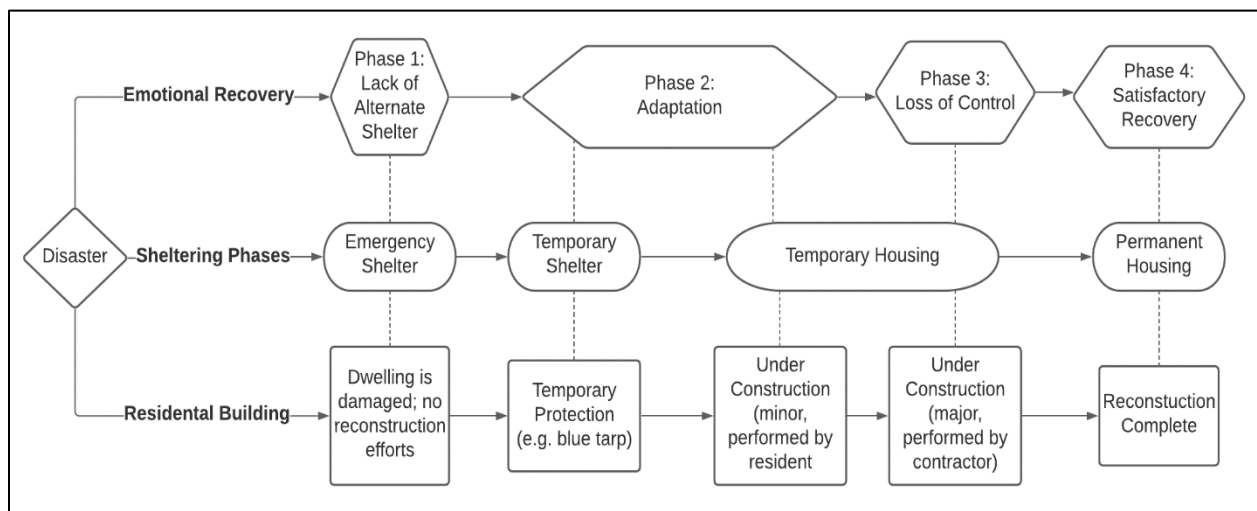
Furthermore, many of these processes were codependent: a contractor could be hired to repair a house, only to have a policy maker decide that it needed to be elevated two years after reconstruction was presumably complete; or delays in payouts with insurance companies may have left participants unable to pay contractors upfront, preventing their ability to move forward in the recovery process. The temporal variability between households could be attributed to the type of company or adjuster that was assisting them, and this lack of control or ability to foresee an end left many feeling hopeless and frustrated.

## 5.2 Links to Previous Research

These findings complement those developed by both Quarantelli (1995) and Rathfon et al. (2013). Quarantelli (1995) developed the distinctions between shelter and housing based on what function a place serves. A shelter is used for temporary means, only to provide basic necessities, whereas housing allows for the resumption of household processes. Here there is an

acknowledgement that different types of shelter (sheltering vs. housing) allow for the continuation of different levels of normalcy to resume within the household, or for emotional recovery to begin (Table 5.1). In this model, only once households resume living in housing, whether temporary or permanent, can emotional recovery begin.

In Rathfon et al.’s (2013) adaptation (Figure 5.1), the physical reconstruction of a single family home is accounted for along with the different phases of sheltering recovery a household will typically undergo separately until rejoining with the residential building upon completion. This study is unique in that the participants underwent the different phases of sheltering within the residential building that was simultaneously undergoing repairs.



**Figure 5.1: Model of residential building recovery (adapted from Quarantelli, 1995, Rathfon et al., 2013)**

When survivors are recovering in-situ, we can connect the phases of Quarantelli’s (1995) housing recovery directly to the Rathfon et al. (2013) model of residential building recovery. When the participants moved back into their damaged homes after the storm, they sought *emergency shelter*. As defined by Quarantelli, emergency shelter is meant to be short term (a few hours) and does not provide essential needs like beds or utilities. This description aligns with the



condition within many of the houses upon initial return, as many were flooded, infested with mold, and had no utilities.

The households then moved themselves from *emergency shelter* to *temporary shelter* by performing mold remediation, tearing out drywall, and installing tarps and insulation. This action also moved their residential buildings from their *damage state* to *temporary protection*, a type of progress meant to delay further damage to the house than what was already done by the initial disaster (Rathfon et al., 2013).

Another progressive change was made when they began *minor or major reconstruction* while living within the home and were able to resume some of their basic household functions with the restoration of utilities and power, thus placing them in the *temporary housing* category within their own permanent dwellings. Up until this point, these progressive changes were made by actions of the residents. In having control of their progression, the participants were also taking progressive steps in their emotional recovery. Though emotional recovery is abstract and difficult to break into clean phases as sheltering or residential building recovery can be, the tone and choice of words used to explain these actions conveys their emotional coping and progression.

Before the household can transition into the *permanent housing* phase or complete residential reconstruction, the participants had to relinquish control to one or more types of people: contractors, public adjusters, insurance adjusters, or federal/state representatives. As noted before, some of these contractors or public adjusters were not acting in good faith and took advantage of survivors. Those who were not impacted by fraudulent contractors or public adjusters still needed to cooperate with busy insurance adjusters or federal/state representatives in order to fund their reconstruction with available state and federal resources.

The emotional stress of having to monitor fraudulent contractors, cut contracts with

scamming public adjusters, or resubmitting paperwork numerous times to various individuals within the same organization weighed on the participants. During this time period, spanning from months to years after the storm, participants use negative language to explain their experience. They frequently mention being frustrated or overwhelmed, and the uncertainty of ever fully completing reconstruction and being free from federal clawbacks left them without closure.

The literature explains that recovery can be accomplished by achieving satisfaction in living conditions (Bolin and Bolton, 1983). This study found that though the survivors were living in functionally reconstructed homes, they still did not *feel* recovered. “Functionally” is emphasized here because many participants noted that they planned on abandoning cosmetic reconstruction efforts due to the stresses of negotiating with insurance companies and/or federal/state officials.

Based on this distinction, we can conclude that while participants recovering in-situ follow previously established theoretical frameworks within their dwelling, they divert emotionally before achieving permanent housing or completed reconstruction. This emotional roadblock or diversion prevents participants from achieving recovery in the traditional sense (Figure 5.1).

This proposed framework shows the casual relationship between the sheltering phases and the residential building phases that those recovering in-situ experience. As reconstruction is done on their dwellings, they transition through the various phases of sheltering and more complex household functions can resume. In addition, this model demonstrates where the participants are in their emotional recovery experience, a factor which is neglected in previous models.

Phase 1 of their emotional recovery begins immediately after the storm while seeking

shelter. Upon determining they have “nowhere else to stay,” they recover in-situ. This decision leads to Phase 2, adaptation to their environment. For many, this means beginning minor reconstruction (tearing down moldy drywall, removing mud and debris) to transition their home into a temporary shelter. As time progresses and aid is slow coming, the participants use this adaptation to take on increasingly challenging reconstruction efforts such as installing insulation. This significant reconstruction paired with the restoration of utilities and power transitions the residents in temporary housing. However, it is during Phase 3 where a dependence on outside sources leaves the participants with a loss of control over their own recovery, and disrupts their emotional recovery. This lack of emotional recovery leads participants to feel as if their home is never fully reconstructed, and therefore they never reach Phase 4, permanent housing within their own home. This leaves them stranded in never-ending reconstruction phase of temporary housing.

As found in previous research, these subjective levels of recovery are imperative to the entire recovery process (Bolin, 1982; Bolin and Bolton, 1983; Graif, 2016; Schumann, 2018; Whittle et al., 2012). Measuring recovery simply by the physical recovery of the home is failing to acknowledge that many of these households do not *feel* recovered. Current recovery practices are only completing half the work; rebuilding a house is much different from rebuilding a home. Survivors need security, routine, and control over their situation in order to restore the loss sense of place in their own dwelling. This study suggests that future aid needs to focus on the non-physical aspects of recovery: mental health, navigating different grants and contracts, and giving survivors an achievable end goal for recovery.

## CHAPTER 6

### CONCLUSION

This study examined the experience of recovering in-situ following Hurricane Sandy. Using focus group data from survivors in New Jersey, this study explored why residents recovered in their damaged homes, the hazards they faced there, and the relationship between physical and emotional recovery. As suggested in the findings, though their homes may be reconstructed, not one of the participants interviewed in this study felt they achieved recovery. This research contributes to the growing body of recovery literature by offering a more nuanced understanding of the recovery experiences of disaster survivors at the household level, and more specifically, the experiences of those recovering in damaged dwellings.

Future work can build upon this study when examining housing recovery following different types of disasters including wildfires and flood events. It also has potential for transferability into the realms of buyout and relocation literature. In addition, the timing of this study examines recovery five years following the disaster, supporting the understanding that recovery is an extensive and lengthy process. Although one may be recovered objectively (returned to home, back to work, resuming household functions) they may have yet to scratch the surface of subjective recovery.

Furthermore, there are no studies to date that have examined the experiences of recovering in a damaged dwelling, and how this experience may fundamentally alter the recovery duration and processes that these households experience. Aside from informing scholars, this study can also inform practitioners of a potentially overlooked (yet common) situation, ensuring that the plight of these households is considered in future disasters. This may mean a change in the types of aid that those living in damaged communities can access, and

perhaps an emphasis on aid that will help them achieve levels of housing satisfaction in an efficient and straightforward manner.

## 6.1 Practical Implications

This research identifies four major changes that could be implemented in order to help survivors achieve subjective recovery: 1. providing access to stable, temporary long-term housing; 2. providing survivors with a “roadmap” to recovery; 3. creating universal aid application processes; and 4. a establishing a limitation on the issuance of clawbacks.

Participants of this study acknowledged that FEMA provided hotel rooms for two-week intervals to survivors; however, for many this was not enough time to return to their home, assess damage, and find necessary long-term housing arrangements while their homes were rebuilt. Furthermore, the stresses of having to re-establish if they still qualified for the two-week housing at the end of each interval added to their emotional distress and prolonged their recovery process. These frustrations could be mitigated by providing hotel stays to survivors in month long intervals, and allowing extensions on a case-by-case basis. This extended sheltering would give survivors time to access their properties and make important decisions without the added pressures of a short time constraint. This housing security may also minimize the contractor fraud that many survivors were subject to given their desperation to have essential utilities and services restored to their damaged homes.

Mutual-aid agreements paired with state and federal grants would make this extended sheltering feasible and beneficial to all parties: using larger hotels with conference halls or ballrooms as Red Cross or Salvation Army distribution centers would be beneficial to the hotel (as state or federal money could replace money that would be earned from canceled larger corporate rentals) and the community as a whole would benefit from having a one-stop location

for all of their recovery needs.

These proposed one-stop locations for all recovery needs should also provide representatives from federal, state, local, and charitable resources. Participants in this study explained their frustrations with not knowing where to start or what to expect during their disaster recovery. Having a one-stop location with all the representatives they may need to interact with would be incredibly helpful in establishing expectations, creating a timeline, and finding next steps as they begin their recovery process. This proposed roadmap may help survivors quantify their subjective recovery and provide closure.

In addition to these changes, the application process for aid could also be streamlined. As many college scholarship systems have discovered, many applications for aid ask for much of the same information with a few specific questions for certain resources. A web platform that allowed survivors to enter their geographic information, financial information, and damage assessments into one system that held information on all available federal, state, and local resources would 1.) ensure survivors had access to all available resources and 2.) save time and frustrations by allowing only those who qualify for certain resources to apply.

Finally, there needs to be a reasonable limitation on the issuance of clawbacks, or the repayment of distributed funds. Participants in this study explained they received clawback orders well after they believed their files were closed and they had reached recovery. Clawbacks should only be issued in the cases of proven fraud, and even then only once a certain financial threshold has been reached. It is nothing short of cruel to distribute \$100,000 to survivors to repair homes in a time of crisis only to issue a clawback for \$60,000 five years later. The fault of perceived overpaying must be left for the insurance company to absorb, not for the survivor to have to produce.

## 6.2 Limitations

This study had various limitations. First, while the sample was representative of the area studied, it was limited to one particular demographic—white, middle-to-older aged, educated individuals. These results may not be generalizable over various demographics, so future studies will need to examine how this recovery phenomenon may differ for minority or low-income groups. For instance, those with less access to liquid assets or charitable resources, or local resources may have vastly different recovery processes. Furthermore, this sample group faced regional geographic challenges; being in the north presented a rapid need for heat when the temperatures began to seasonally drop. Other regional hazards such as oil spills and sand inundation may not be present in other areas that are at risk of hurricanes. Finally, this research was derived from a greater study that did not solely examine the experience of recovery in-situ. Future studies should exclusively examine this experience and expand the study to include those of a broader demographic and geographic origin.

## 6.3 Future Research

Future research should investigate each of these proposed remedies to the shortcomings of recovery programs. Studies examining how participants apply for aid, how they themselves map their own recovery, and how different communities are impacted by clawbacks would continue to build the case for radical recovery reformation. Furthermore, future studies need to examine how different communities survive within damaged homes and dwellings for extended periods of time. This study focused on specific communities along the New Jersey coast that had unique environmental challenges; other studies should focus on communities that may have more severe economic hardships or different type of environmental hardship. For instance, those recovering in damaged dwellings in New Orleans, Louisiana may instead struggle to find

adequate cooling and shade following a disaster rather than needing to find heat as was the experience in New Jersey.

Studies that aim to help survivors recover from unprecedented disaster will become ever more valued as climate change continues to stress modern hazard mitigation and response systems. More households may find themselves in the position of those in this study, and recovering in-situ may become a common trend as disasters increase in severity and frequency. Recovery processes must be streamlined if we wish to keep up with the increased demand for housing solutions following a major disaster.



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