

# **The Impact of Corporeal Markers on Natural Hazard Preparedness During Hurricane Katrina**

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## **Abstract**

Natural hazards disrupt society but become disastrous due to social inequality perpetuated through daily systems of oppression. This paper aims to focus on how corporeal markers of race and disability inhibited an individual's ability to prepare, specifically, evacuate before the 2005 Hurricane Katrina's impact in New Orleans. Using relational analysis, I seek to meet the following objectives: (1) to make connections between everyday social inequality due to deviant corporeal markers and pre-Katrina evacuation processes and (2) to highlight the implications of further studying corporeal markers in other fields of academia. This paper adds to corporeal markers literature and connects this concept to natural hazards literature by discussing social inequality and vulnerability during natural hazards. I hypothesized that people who were marked as being of a minority racial group and having a disability were more likely to have difficulty evacuating from New Orleans before Hurricane Katrina, leading to increased vulnerability to disastrous outcomes following the hurricane. The findings within the literature proved to be consistent with my hypothesis. The implications of this paper could be applied to emergency management, geography, and sociology. They encourage professionals in each field to use corporeal markers to be critical, promote equity in practice and theory, and work to dismantle everyday systems of oppression to help prevent natural hazard events from becoming disasters.

## Introduction

Social inequality is not limited to everyday social phenomena. It is highlighted the most during societal disruptions such as natural hazards. Natural hazards arise from seismic, hydrological, meteorological, or other natural processes and are independent of human interference (Puttick et al., 2018, p.118). However, these events can become disasters when "people and cities are vulnerable due to marginalisation, discrimination, and inequitable access to resources, knowledge and support" (Puttick et al., 2018, p.118). Therefore, disasters are products of everyday social inequality.

Hurricane Katrina, a category five hurricane that hit New Orleans, Louisiana, was a natural hazard event that became a disaster because of social inequality. This paper focuses on how the corporeal markers of race and disability inhibited an individual's ability to prepare, specifically evacuate, before Hurricane Katrina in New Orleans. Using relational analysis, I seek to meet the following objectives: (1) to make connections between everyday social inequality due to deviant corporal markers and pre-Katrina evacuation processes and (2) to highlight the implications of further studying corporeal markers in other fields of academia.

Previous literature on corporeal markers does not discuss how natural hazards highlight the inequality already inscribed onto the body of those impacted. The literature also has not addressed that corporeal markers create additional vulnerabilities to natural hazards for those marginalized by these limits on the body. The implications of this analysis can be helpful to disaster managers, geographers, and sociologists in their work to implement effective strategies that prevent natural hazard events from turning into disasters.

## Review of Literature

### Corporeal Markers

The body has been an essential space of inquiry for feminist geographers. Mountz (2018) states that in feminist geography, the body is viewed as an "object of analysis through which [it] understands how power acts spatially in the world to control, regulate, confine, produce, construct, delimit, gender, racialize, and sex the body" (p.759). Fluri (2011) argued that "the body is a surface upon which various forms of social, cultural, and political meaning are inscribed" (p. 26). In addition, Fluri & Trauger (2011) found that "The body is positioned as the medium of social control to which an individual may respond by conforming to or resisting hegemonic social narratives through appropriate or inappropriate appearances and behavior, respectively" (p. 552 ).

The body plays a critical role in who experiences inequality and has power. Societal views on what bodies are considered acceptable and unacceptable are determined by corporeal markers. Fluri (2011) found that corporeal markers are used to classify different bodies and "have been infused with social, political, and economic meanings that are spatially organized" (p. 26). Gender, race, class, disability, sexuality, and dress are corporeal markers. These markers create systems of inequality that give more privilege and power to people with markers considered more favorable. Mason (2013) reinforces this and states that "body differences are often precursors to unequal treatment, but social inequalities also generate differentiated outcomes in bodily health, ability, and appearance" (p.694).

Individuals classified as having corporeal markers that are considered deviant are often subject to social sanctions such as inequality and oppression. Fluri and

Trauger (2011) state that "bodies that are seen as 'out of place' challenge dominant social narratives and are often subject to coercive disciplining" (p.552). Society "attempts to coerce individuals through harassment, verbal attacks or physical assaults [that] reinforce an ideological corporeality of a 'particular kind of body' that conforms to existing power structures" (Fluri & Trauger, 2011, p.552). This treatment and response to deviant markers put specific groups of people at a disadvantage.

This paper will focus on the consequences of being marked with corporeal markers of race and disability. Fluri (2011) stated that:

"Skin color and phenotype are corporeal markers that have become methods of categorizing individuals into associated groups... race has been used as an identity marker, which has been layered with social, economic, and political meaning" (p. 31).

Mason (2013) stated that "while culturally constructed meanings of 'natural' physical differences...between people of different 'races' are mobilized to justify unequal treatment, those same beliefs also influence the body..." (p.694).

Fluri (2011) also discusses disability as a corporeal marker that leads to inequality. She found that "An individual's type of disability (i.e., blind, deaf, physically disabled, etc.) must also be incorporated into our spatial understanding of disability because it is often a major aspect of how one experiences different spaces and places" (p. 36-37). Garland-Thomson (2002) adds on to Fluri's point saying that:

"disability is a culturally fabricated narrative of the body...The disability/ ability system produces subjects by differentiating and marking bodies. Although this comparison of bodies is ideological rather than biological, it nevertheless penetrates into the formation of culture, legitimating an unequal distribution of

resources, status, and power within a biased social and architectural environment" (p.5).

The literature shows that the corporeal markers of race and disability all shape an individual's daily life and experiences. Again, this literature does not examine how deviant corporeal markers influence an individual's vulnerability during natural hazards. **This paper aims to demonstrate that an individual's vulnerability to disasters is multiplied when hazards strike communities where social inequality is prominent because of these markers.**

### **Emergency Management and Natural Hazard Preparedness**

The field of emergency management "aims to reduce or avoid the potential losses from hazards, assure prompt and appropriate assistance to victims of disaster, and achieve rapid and effective recovery" (Khan, Vasilescu, & Khan, 2008, p. 48). Khan, Vasilescu, & Khan (2008) highlighted four main phases of the emergency management cycle that a community goes through mitigation, preparedness, response, and recovery. For my research, I will be focusing on the phase of preparedness.

Sutton and Tierney (2006) found that "Preparedness efforts... aim at ensuring that the resources necessary for responding effectively in the event of a disaster are in place and that those faced with having to respond know how to use those resources" (p.3). Specifically, this paper focuses on the pre-hazard evacuation process for Hurricane Katrina, which occurred between August 27th, 2005, and August 29th, 2005, in New Orleans. The Federal Emergency Management Agency (n.d.) defines evacuation as "The organized, phased, and supervised withdrawal, dispersal, or removal of students, personnel, and visitors from dangerous or potentially dangerous areas" (para.5). Safe and effective preparedness resources and efforts before a hazard

strikes should be available to all. However, everyday social inequality makes it difficult for people to have equitable access to prepare for hazards (Massey, 2021, p.46–47).

With that being said, I hypothesize that people who were marked as being of a minority racial group and having a disability were more likely to have difficulty evacuating from New Orleans before Hurricane Katrina and, again leading to increased vulnerability to disastrous outcomes following the hurricane. The evacuation period played a critical role in defining which groups of people faced daily inequality, which made them more vulnerable to the effects and aftermath of Hurricane Katrina.

### **Hurricane Katrina and Corporeal Markers of Vulnerability**

The space of analysis for this paper is New Orleans, Louisiana, between Hurricane Katrina's landfall on August 29th, 2005, and the state of Louisiana's mandatory evacuation order on August 27th, 2005. Hurricane Katrina is infamously known for being "one of the five deadliest hurricanes ever to strike the United States and was responsible for 1,833 fatalities and approximately \$108 billion in damage" (National Weather Service, 2016, para. 1). Katrina was predicted to impact the area severely. However, the post-disaster results were even more catastrophic because of the social inequality in New Orleans. In this next section, we will see that the aftermath of Hurricane Katrina disproportionately impacted people with deviant corporeal markers in race and disability.

#### *Minority Racial and Ethnic Groups and Hurricane Katrina*

Racial minority groups often experience a heightened vulnerability when natural disasters strike a community. Siddiqui et al. (2011) found that "racial and ethnic minorities, defined as groups differing from the majority population by race, culture, or language, are often more vulnerable in times of disaster, yet are frequently not included

in disaster plans and suffer disproportionately from adverse outcomes" (p.2). When Katrina struck the New Orleans area, it became clear that the African American population was heavily affected. Gabe et al. (2005) found that "an estimated 310,000 black people were directly impacted by the storm, largely due to flooding in Orleans Parish. Blacks are estimated to have accounted for 44% of storm victims" (p.16).

Gabe et al. (2005) also found that "In Orleans Parish, an estimated 272,000 black people were displaced by flooding or damage, accounting for 73% of the population affected by the storm in the parish" (p.16). Communities of color in New Orleans comprised a significant portion of the population that experienced the extreme impacts of flooding and home destruction following Katrina.

#### *People with Disabilities and Hurricane Katrina*

The daily obstacles faced by people with disabilities are created by a society that ignores disabilities and glorifies ableist bodies (Garland-Thomson, 2002,p.5-6). Hurricane Katrina highlighted the effects of this everyday oppression. Gabe et al. (2005) found that during Katrina, "Nearly half (48%) of all persons age 65 or older living in flooded or damage-affected areas reported having a disability, and over one-quarter (26%) reported two or more types of disability" (p. 17). An article published by the Administration for Community Living (2015) found that "71% of the people who died in the state of Louisiana during the storm [Hurricane Katrina] were over the age of 60. Furthermore, as the National Council on Disabilities (NCD) has noted, 'people with disabilities, especially those living in poverty, were disproportionately left behind in Hurricane Katrina'" (para. 2)

According to Walsh-Warder (2016), these disproportionate effects were because "they [the disability community] were unable to voice the challenges that could prove

fatal in disaster scenarios, resulting in disproportionately high mortality rates among people with disabilities, particularly in elderly populations" (p.9). The literature demonstrates that people with disabilities were put at a higher risk of being significantly impacted by Katrina and this was caused by pre-existing social inequalities caused by corporeal markers.

### **Methodology**

My research focuses on the corporeal markers of race and disability and how they shaped an individual's experience when preparing for Hurricane Katrina in New Orleans. My goal is to highlight the connections and implications between these corporeal markers based on existing literature and scholarly articles. That said, I chose to conduct a content analysis, more specifically, a relational analysis, to achieve my research objectives.

Busch et al. (2005) stated that content analysis is "when the researcher quantifies and analyzes the presence, meanings, and relationships of such words and concepts, then makes inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part" (para.1). The two types of content analysis are relational and conceptual. For my research purposes, I will be using a relational analysis. Busch et al. (2005) stated that "the focus of a relational analysis is to look for semantic or meaningful relationships" (para.7).

I want to use the content analysis method because it will allow me to collect my observations from various sources that offer different perspectives on the impact of each corporeal marker and the preparation phase of Hurricane Katrina. Using a relational analysis, I will be able to focus on how to highlight relationships and determine the strength of those relationships between corporeal markers and the evacuation

process in New Orleans. This process will help me achieve the research objective of highlighting how bodies marked with these deviant corporeal markers go through unjust experiences. This method also will help me connect corporeal markers and my findings to other fields of academia and demonstrate how considering corporeal markers in natural hazards can lead to a more equitable society.

### **Findings and Discussion**

After researching, I analyzed the main findings by how each corporeal marker influenced one's evacuation experience. The findings are listed and explained below.

#### **Race**

- **Race was a strong marker of class, leading to parallels between who was able to evacuate and race. If individuals were marked with a higher social class, they were more likely to be White and could evacuate.**

One of the most significant findings for the corporeal marker of race was its consistent connection with the corporeal marker of class. They were often paired together as significant factors that heightened the vulnerability of these groups of people. A study by Thiede & Brown (2013) found that the consequences of being marked as a member of a racial minority and as someone with a lower-class status worked together to hinder one's ability to evacuate from New Orleans before Hurricane Katrina (p. 810-820). Another article by Belkhir & Charlemaine (2007) found that "African Americans are mainly of the working class, and many are of the poorer sections of the working class as a result of racist discrimination" (p.141) in New Orleans. The everyday systems of racism in Louisiana have created a system of stratification that has kept Blacks in cycles of poverty and marginalization.

By looking at race as a class marker, I found a relationship between the ability to evacuate from New Orleans, race, and socioeconomic class. A study from Belkhir & Charlemaine (2007) found that "Low-income residents had fewer choices with respect to how to prepare for the imminent arrival of Katrina" (p.128-129) and that "low-income New Orleanians are those who are least likely to own vehicles, making voluntary evacuation more costly and logistically more difficult" (p.128-129). Belkhir & Charlemaine (2007) also stated that in the evacuation and response to Katrina, "many of the neglected New Orleanians were African American - the poor are disproportionately African American in New Orleans, and throughout the United States" (p.130). The lack of options for evacuation of the Black poor significantly increased their vulnerability to the impacts of Hurricane Katrina. According to Belkhir & Charlemaine (2007), "the people hit hardest by the flooding were also those from neighborhoods where poverty was most concentrated as a result of the concentration of federally subsidized housing" (p. 129).

The opportunity to evacuate the New Orleans area was a privilege for those who could plan and had expenses to drive to safety. In New Orleans, having the corporeal marker of a higher class status was associated with whiteness. This reinforces the idea that these everyday racial and class inequalities influence who was able to evacuate prior to Katrina. People who did not have that high social status were left behind or not given adequate preparedness alternatives.

- **There is a relationship between the history of residential segregation in New Orleans and what racial groups were able to evacuate before Hurricane Katrina.**

Another key finding in my research was the relationship between residential segregation and evacuation before Katrina. A study by Zamore (2010) found that: "Hyper-segregation links with the other significant finding to develop the concept of hyper-vulnerability. Black evacuees from New Orleans had multiple factors working against their evacuation chances—hyper-segregation kept them 'spatially isolated from the rest of American society' (Massey, 2001), and little education leads to low job opportunity and consequently low income. Place matters, but so does race—regardless of where blacks lived, their race shaped their evacuation behavior" (p.18).

This demonstrates how urban planning, another system of inequality, led to Black bodies' vulnerability during Hurricane Katrina. Larino (2018) found that "New Orleans has a long history of racist housing practices, and it has repeatedly failed to reverse course, even after billions of dollars of recovery money flowed into the city following Katrina" (para. 4). Larino (2018) also found that residential segregation has allowed wealthy and white residents to choose areas with less natural hazards risks (para. 8). This was done in partnership with redlining and the racial discrimination that banned Blacks from getting home loans (Larino, 2018). In their findings, Zamore (2010) stated that racial segregation led to lower-quality education and fewer job opportunities in communities of color compared to whiter, wealthier communities in New Orleans. This implies that less money was going into these communities because the residents may have been stuck in cycles of poverty, making evacuation and preparedness difficult for Black communities. This finding shows how everyday inequality of corporeal markers can lead to additional inequality and vulnerability in natural hazard events.

## **Disability**

- **There was a relationship between poor alternative evacuation options and people with disabilities' ability to evacuate prior to Hurricane Katrina.**

There was a lack of effort to evacuate people with disabilities to safe and accommodating places. Belkhir & Charlemaine (2007) stated that.

"Many people could not escape not only because of poverty, but because they were not physically able to punch through rooftops, perch on top of buildings, or climb trees to survive. Horror stories of people abandoned to drown in nursing homes and hospitals emphasize that any disaster preparedness planning must take into account those unable to evacuate themselves" (p.130).

According to an article by Gabe et al. (2005), "The elderly are more likely to live alone, and less likely to own a car, or be able to drive. Some may have been more isolated, living alone, or homebound due to frailty or disability" (p.17). The National Council of Disability (2006) found that "during the Katrina evacuation, many people with disabilities could not evacuate because to do so would require them to abandon support services and personnel. Moreover, since emergency transportation and shelters could not care for them, many people with disabilities were forced to stay behind" (p.9). Both of these reasons inhibited individuals with disabilities from evacuation prior to Katrina.

Although alternative locations were opened to those who could not leave, the shelters were not ready to accommodate those with disabilities. According to Waterstone & Stein (2006), "temporary shelters lacked accessible entrances and restrooms; people with disabilities were separated from their families, who often provide them support; and evacuees were displaced without assistive technologies" (p. 338).

Additionally, "people with disabilities had no centralized source of disability-related information, and relief workers had not been trained to assist them. Worse, many shelters turned away disability specialists and their offered assistance" (Waterstone & Stein, 2006, p.338). This clearly shows that the pre-existing inequalities for people with disabilities led to that group of people being forgotten and disproportionately impacted by Katrina.

- **There was a relationship between difficulty communicating preparedness information and people with disabilities' ability to evacuate before Hurricane Katrina.**

Another main finding was that there were struggles to communicate emergency messages to people with disabilities. There was little effort put in to communicate with the residents of New Orleans with disabilities effectively. The National Council on Disability (2006) reported that:

"According to a recent Congressional hearing on the impact of Hurricanes Katrina and Rita on people with disabilities, NCD [ National Council on Disability] Vice Chairperson Patricia Pound, testified that people with hearing disabilities often could not comprehend evacuation instructions and other similar directions in shelters" (p.4).

In terms of actual shelters, Waterstone & Stein (2006) found that "less than 30 percent of shelters had access to American sign language interpreters; 80 percent lacked TTYs [Text Telephones]; 60 percent did not have televisions with open caption capability; and only 56 percent had areas where oral announcements were posted" (p.338). These situations again show the consequences of everyday social inequality during natural hazards and the heightened vulnerability of experiencing a disaster for

people with deviant corporeal markers. As shown with Hurricane Katrina alone, the effects are dangerous and life-threatening for socially vulnerable populations.

### **Conclusion**

In this paper, I have examined how the corporeal markers of race and disability impacted an individual's ability to prepare for Hurricane Katrina in New Orleans, Louisiana. First, I established a background by providing research on corporeal markers, hazard preparedness, and Hurricane Katrina. I then shifted the focus to how individuals in New Orleans who were marked by either the corporeal markers of race or disability were disproportionately impacted by Hurricane Katrina. Next, using a relational content analysis, I conducted research that highlighted the relationship between the concepts of race and disability and the preparedness phase, specifically the evacuation period.

I hypothesized that people who were marked as being of a minority racial group and having a disability were more likely to have difficulty evacuating from New Orleans before Hurricane Katrina and again, leading to increased vulnerability to disastrous outcomes following the hurricane. Based on my findings, I found that each corporeal marker influenced an individual's ability to evacuate from New Orleans. These influences resulted in Hurricane Katrina, disproportionately impacting people of color, those experiencing poverty, and people with disabilities. My findings also highlighted how everyday systems of inequality such as residential segregation and lack of accessibility accommodations create devastating consequences when natural hazards strike and cause specific groups of people to be forgotten.

## **Limitations**

There were several limitations to my research. One limitation was a significant reliance on scholarly and news articles. This means that the information was not from direct victims of these corporeal markers or hurricane Katrina. With that being said, some experiences and perspectives could not be heard but would have been beneficial to my work. Another limitation is the limit of time. As stated earlier, there is only so much information I can get from articles, and this was the only way I could conduct my research given the time frame. If I had more time, I would have included interviews and quantitative data that would have given voice to members of these corporeal markers and their experiences during the evacuation period before Hurricane Katrina.

## **Implications**

This paper has implications for emergency management professionals, geographers, and sociologists. First, this paper reinforces the importance of equitable strategies for hazard preparedness, especially evacuation. Emergency managers must prepare their communities equitably to counter the everyday social inequality created by corporeal markers. Emergency managers must also consider who is being forgotten through evacuation mandates and other preparedness strategies. This could be done through consulting with community members and researchers in academia.

For the field of geography, this paper provides insight into how geographies of the forgotten are created through corporeal markers. These methods of identification and categorization are proving to be ways that people in power can choose who is worth remembering and who is worth forgetting and leaving behind when preparing for natural hazards. Corporeal markers can also encourage geographers to remain critical

of maps and begin discussing how corporeal markers influence the decision of what places are considered essential and unimportant.

In sociology, this paper could be used to demonstrate how social norms decide who is worth saving from societal disruption and who is worth leaving. The research could also analyze power structures and how society creates these corporeal markers by labeling what markers are deviant.

In conclusion, natural disasters such as Hurricane Katrina only uncover the realities of the power relations built throughout history. Change is needed to make our society more equitable; however, it begins with addressing and analyzing the faults of the past. Emergency managers, geographers, and sociologists could use the concepts explained in this paper to develop theory and practice that dismantles the systems of oppression that persist within our society and create additional vulnerability when hazards strike.

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