

GENDER AND SOCIAL CAPITAL: SOCIAL NETWORKS POST-DISASTER

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Dedication

Για την γιαγιά μου, Δανάη, η πιο δυνατή γυναίκα που γνωρίζω.

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I would like to thank Dr. Kirstin Dow for her excellent guidance and steadfast support over the past two years. Her assistance in helping me frame my research with the acknowledgement that my past experiences are important in the pursuit of future knowledge, defines her as an academic cognizant of the realities of life after the ivory tower. I also wish to express my gratitude to my committee members, Drs. Susan L. Cutter and Lynn Weber, for their expert advice and financial support.

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Abstract

In the last decade, social capital has been linked to community resilience in the post-disaster period. However, a comprehensive understanding of the role of social capital in post-disaster recovery cannot be achieved without a focused analysis of social inequalities and their effect on how people access and utilize social capital following a hazard event. Gender is particularly important in this endeavor as its social construction illuminates processes of responsibility and role-taking, which are often adopted by individuals following a disaster.

This research examines social networks, the social relations through which social capital is accessed, in the recovery phase of Hurricane Ike (2008) in the Texas counties of Galveston and Chambers. The research focuses on three aspects of social networking as they relate to the searching and acquisition of childcare and stable housing: 1) the influence of gender on the exchange of information and favors within social networks, 2) the differences between the social networks of partnered and single parents, and 3) the role of kin, friendships and recent acquaintances, as well as the spatial or aspatial configuration of social networks. Approximately twenty-one weeks after the hurricane, 61 parents and caregivers (47 women and 14 men), the majority of who could be identified as socially vulnerable to disasters due to either low income and/or minority status, were interviewed. Research found that all but one participant used existing social networks rather than emergent networks. Gender was a significant influence in the use of social networks, particularly in the case of childcare support and temporary housing.

Single women differed from partnered women and all men in their greater diversity of social network contacts, as well as the quality and types of support that were received. Meanwhile, fathers were more likely to report not having any supportive friends or family. In the search for housing, single and partnered women perceived the affect of children and arranging childcare differently, with single mothers generally reporting little and partnered women reporting greater influence. Gender also influenced the source of social capital. Often, the people that were supplying the most supportive social network support were women. The significance of the spatial characteristics of social networks varies with the type of favor. Types of favors are also distinguished by source as kin are more likely to provide childcare and financial support than friends and acquaintances. Results from this research can be practically applied to NGO disaster response programs and governmental disaster policy. Future avenues of investigation in gender and social capital research post-disaster should include transportation and gender in the context of domestic partnerships.

Table of Contents

Dedication	iii
Acknowledgements	iv
Abstract	v
List of Tables	ix
List of Figures	x
Chapter 1: Introduction	1
1.1 Research Questions	5
1.2 Organization of Thesis	5
Chapter 2: Literature Review	6
2.1 Social Capital Theory and the Contributions of Social Networks	8
2.2 Social Vulnerability	15
2.3 Studies Incorporating Gender, Social Networks, and Disaster	22
2.4 Summary	28
Chapter 3: Research Design and Methods	30
3.1 Survey Instrument	30
3.2 Study Area	33
3.3 Study Sample	36
3.3 Data Analysis Methods	41
3.4 Recruitment Bias	46
Chapter 4: Results and Analysis	47
4.1 Gender, Social Networks and Childcare	47
4.2 Gender, Social Networks and Housing	52
4.3 Role of Kin, Friends, and Acquaintances	56
4.4 Spatial Versus Aspatial Configuration of Network Support.....	59
4.5 Partnered Versus Single Parent Households.....	62
4.6 Race and Ethnicity	65
Chapter 5: Conclusions	69
5.1 Significant Findings	69
5.2 Overarching Themes.....	72
5.3 Suggestions for Further Research	76
5.4 Practical Applications of this Research	78
References	81
Appendix A	90
Appendix B	99

Appendix C.....101

List of Tables

Table 3.1	Survey Questions.....	32
Table 3.2	Chambers and Galveston County, TX and U.S. Demographic Characteristics.....	36
Table 3.3	Selected demographic characteristics of research participants.....	41
Table 3.4	Coding guide for forms of social support.....	42
Table 4.1	Childcare as a form of network support.....	49
Table 4.2	Childcare as a form of network support by number of people and frequency of support, grouped by household composition.....	49
Table 4.3	Providers of short notice or emergency childcare as a form of network support by percent frequency.....	50
Table 4.4	Sources of information on housing by household composition.....	53
Table 4.5	Sources of social network information on housing opportunities by household composition.....	54
Table 4.6	Breakdown of supportive family members by relation.....	57
Table 4.7	Number of family or friends providing categorized types of network support.....	57
Table 4.8	Influence of children and childcare on housing search, by household composition.....	63
Table 4.9	Frequency of categorized support by race.....	67
Table 4.11	Types of social network support by income level.....	67

List of Figures

Figure 2.1	Percentage of families below poverty level by race and household composition, 2007.....	19
Figure 3.1	A generalized representation of storm surge levels due to Hurricane Ike.....	34
Figure 3.2	Map of recruitment locations.....	39
Figure 3.3	Method one: Social support count diagram.....	44
Figure 3.4	Method two: Social support count diagram.....	44
Figure 3.5	Method three: Social support count diagram.....	45
Figure 4.1	Frequency and category of support grouped by minutes away from reporting participants.....	61

Chapter 1: Introduction

Women can play a variety of different roles in daily life such as mother, caregiver, organizer and professional. However, during and after a disaster, they are often portrayed in the media as helpless victims (Tierney et al. 2006). When Hurricane Katrina struck the Gulf Coast in 2005, we saw images of mothers with children in their arms waiting for help. The question that Hurricane Katrina raised on the world stage is: what makes some people in the United States more vulnerable to disaster than others? Vulnerability research, such as that by Wisner et al. (2004), Cutter (1995), and Enarson and Morrow (1998), demonstrates that social inequalities, including gender and ethnicity, play more of a role in disaster vulnerability than previously thought. Nonetheless, there is also a growing body of literature characterizing women as dedicated social actors and capable emergency responders (Ross-Sheriff 2007), who are proficient in accessing informal social networks to share information and exchange favors (Litt 2008). Yet in post-disaster circumstances, much of the literature still acknowledges numerous obstacles to recovery for women as well as other oppressed or marginalized populations, such as access to resources, child care responsibilities, and institutionalized discrimination (Wisner et al. 2004).

In disaster situations, such as Hurricane Katrina, where access to many resources is compromised, social capital becomes a more significant element in recovery. Social capital, as it is used here can be succinctly defined. Following Lin (2000, 786), it is the

“investment and use of embedded resources in social relations for expected returns.” It can involve staying at a friend’s house while your house is rebuilt, getting your children a daily ride to school from a neighbor, or receiving an inside tip about a job or housing. An individual’s participation and investment in social interactions and reciprocal relations with other individuals establishes a person’s “social network,” within which social capital is created, held and accessed. The breadth and strength of social networks is highly variable, and can be influenced by numerous factors. For example, gender, household composition, and economic circumstances all have an effect on the way a person relates to others to create, maintain and utilize social networks and associated social capital. Gender plays a particularly significant role in the distribution of childcare responsibilities and the social networks that develop around them. Although obtaining information and trading favors through one’s social network is a daily practice for most people, the importance of a person’s social network is heightened in circumstances where usual methods of information sharing and resource obtainment are no longer available. Disaster situations may impose stress on these networks because such events often affect broad areas and large numbers of people who would otherwise be networked together socially. Thus social capital developed through informal associations can prove more viable when the integrity of formal systems is compromised. Given that post-disaster settings highlight the significance of social inequalities, research would suggest that these inequalities are likely to affect a person’s capabilities and strategies to use social capital after a disaster (Cutter and Emrich 2006; Lin 2000).

However, little research has been dedicated to the way that people utilize their social networks in terms of disaster (Nakagawa and Shaw 2004). Even less apparent in

the current body of research is how gender and other factors influence a person's ability to maintain, reconstruct or develop social networks subsequent to a hazard event. While various studies have acknowledged the importance of these issues, there has as yet been no comprehensive treatment of social networking, social capital, gender, and disaster using a unified theoretical framework. My research aims to fill this gap by investigating how gender impacts a person's access to social networks that have been interrupted because of a hazardous event. Under these disaster circumstances, the role of gender in utilizing social networks might be more identifiable (Litt 2007). Particular attention is given to parenting responsibilities which are also heavily influenced by gender roles and may influence a person's utilization of social capital.

Dynes (2006, 23) identifies social capital as an active resource in disaster recovery and, "since social capital theory links the consequences of individual action to social resources, such a linkage holds the possibility of explaining individual 'trauma' and individual resilience to disaster." However, leading social capital theorists such as Bourdieu (1983), Coleman (1990), and Lin (2001) demonstrate that, while it can be a useful resource, social capital is not equally available to all people because it functions through social systems of inequality. In discussing forms of social capital that are intricately linked to social networks, Coleman's categories of "information potential" and "obligations and expectations" are most closely related to the post-disaster experience of rebuilding. Both forms of social capital play an important role in a post-disaster situation where the need for information, as well as dependence on one's social network, increases. However existing research offers an incomplete picture of the role of gender. These forms of social capital and the role of gender are particularly important to households

with child rearing responsibilities that have additional child-oriented needs which may not be addressed through mainstream information channels. Single-headed households with children have to face the additional hurdle of rebuilding with just one person's income, time, and network connections rather than two. Given that approximately 30% of children under age 18 lived in single-parent homes in 2008 and 87% of those children lived in a female-headed household (U.S. Census Bureau 2008), a gendered analysis of how the post-disaster experience of single parents and of partnered parents is important to understanding the role social capital plays in rebuilding post-disaster and how social networks are accessed to reach various goals.

The disaster situation created on September 13, 2008 by Hurricane Ike in Galveston, Texas, provides an opportunity for research on the role of "information potential" and "obligations and expectations" forms of social capital and gender in the process of regaining stable housing for families. Residents of the area were forced to evacuate their homes and more than 20,000 Texas residents were expected to need temporary housing in response to the disaster (Hsu 2008). The search for stable housing situations is a major goal for households whose homes were lost or seriously damaged. That stability is an important element in rebuilding and reducing stress. Therefore, the role of social capital in obtaining housing is a focus in this effort. By investigating how social networks are rebuilt in the aftermath of a destructive hurricane, we clarify our understanding of what vulnerabilities remain in post-disaster communities. The high representation of minority and low income households in the study sample yields insight into these questions among more socially vulnerable groups.

1.1 Research Questions

This research project focuses on these questions:

- Does gender influence the exchange of information and favors within social networks in the search for and acquisition of childcare?
- Does gender influence the exchange of information and favors within social networks in the search for and acquisition of stable housing?
- Do social networks of partnered and single parent households differ in the exchange of information and favors in terms of searching for and acquiring childcare and stable housing?

Specifically, I will examine differences between genders and parenting situations in the role of kin, friendships and recent acquaintances as well as spatial or aspatial configuration of social networks for sharing information or trading favors.

1.2 Organization of Thesis

This thesis is organized into 5 chapters. The literature on gender, social capital, and disasters is reviewed in Chapter 2. Chapter 3 introduces the case study and outlines the research methods. Chapter 4 presents the results of analysis. Chapter 5 provides a conclusion and suggestions for further research. Appendix A contains the informed consent and interview used with participants. Appendix B contains a list of participant's demographic information.

Chapter 2: Literature Review

Literature on gender and social capital in post-disaster situations spans several different disciplines. This review is separated into three major overlapping yet distinct themes in the context of disaster including social capital, social vulnerability, and gender. Social capital theory and the contribution of social networks to the building of such capital, the role of geography in social networks, and a feminist critique of mainstream social capital theory inform the design of research and survey questions. The discussion of social vulnerability details how gender, race, and ethnicity may contribute to differential susceptibility to hazards. Few studies have brought these concepts together and addressed the intersection of gender, social networks and disaster in analysis.

The significance of gender in disaster vulnerability is manifest in several ways. Fothergill (1998, 11) observes that women, who are disproportionately represented among those living in poverty, who are more often the primary care-givers in a family, and who are most often the targets of sexual and domestic violence, often bear the brunt of disaster hardship given that disaster “strips away the veil” that usually obscures or disguises many social conditions. Gendered vulnerability to disasters is apparent in Oxfam’s findings that four times as many women as men died in Indonesia, Sri Lanka, and India as a direct result of the 2004 tsunami (MacDonald 2005; Rofi et al. 2006). The frequency of sexual and gender-based violence reported in tent communities and devastated villages in the aftermath of the tsunami lead researchers to conclude that not only are women and children more vulnerable to death while a disaster is ongoing, but

also during the post-disaster period (Pittaway et al. 2007; Fothergill 1998). Indeed, in addition to health issues concerning interpersonal violence following a disaster, environmental hazard researchers have long recognized that women and children are particularly vulnerable to environmental toxins, air pollution, malnourishment, and more generally, environmental degradation (Cutter 1995; Pimentel et al. 2007). Gender, as one aspect of social vulnerability, has been consistently acknowledged in recent research as worthy topic of exploration, however, it still remains relatively unexamined in comparison to other factors such as age, race and class (Tierney 2006). It also remains unclear how gender interacts with other factors that contributes to vulnerability in a disaster situation, such as race, social class, ethnicity, and disability (Weber 2001).

Among these research needs, this study aims to contribute by focusing on the influence of gender on people's ability to utilize social networks in post-disaster periods. This literature review begins by summarizing key elements of social capital theory, implications of network spatiality and feminist critiques as they inform the design of research questions. Then the concept of social vulnerability is presented as it relates to disasters. Gender and race/ethnicity are delved into as factors that increase social vulnerability. Finally, key existing research findings concerning the interaction of gender, social networks and disaster are reviewed. The aim of this section is to address research findings from related research locate crucial gaps between gender and social networks, gender and disaster, and disaster and social networks that need to be explored more deeply.

2.1 Social Capital Theory and the Contributions of Social Networks

Over the past decade, social capital is a concept that has gained considerable attention throughout academia, and while there are multiple definitions we can draw from, at its most basic level, it is acknowledged as relationships and interactions between people (in other words, within a social network) that result in mutual gain. Pierre Bourdieu, a French sociologist, views social capital as means of maintaining social class while reaffirming societal inequalities. The basis of his theory is that certain social connections yield better results than others and that these connections are used as a tool by upper classes to maintain social status (Field 2003). Coleman (1990), however, postulates that social capital is available and useful to people of any social status, including marginalized populations. Specifically, he describes social capital as maintaining six different forms: obligations and expectations, information potential, norms and effective sanctions, authority relations, appropriable social organizations, and intentional organizations (Coleman 1990). Putnam introduced social capital theory to the mainstream with his widely read book entitled *Bowling Alone* (2001), which described social capital as intrinsically tied to the “collapse and revival of American community,” a connection he highlighted by making the phrase the second half of the book’s title. According to Putnam (2001), because American society privileges individualism above all else, it has become marred by isolation and fragmentation, which promotes a corresponding decline in social capital, while diminishing health, happiness, and solidarity of the modern American society. Though the accuracy of this argument is debated, Putnam’s thesis suggests that a revival in social capital can rehabilitate a community after a devastating downfall. In fact, Norris et al. (2008) propose that

community resilience following disasters emerges from four principal adaptive capacities within a community: economic development, community competence, information and communication, and social capital, which they see as relying heavily on social networks.

Though there are many differences in these researchers' concepts of social capital, what remains consistent at the crux of their definitions is the vital role that social networks play.

Social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition....(Bourdieu 1983, 249)

Whereas physical capital refers to physical objects and human capital refers to properties of individuals, social capital refers to connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them. (Putnam 2001, 19)

More recently, Lin's (2001, 786) work elucidates the interaction between social capital and social networks, explaining that "social capital is conceptualized as (1) quantity and/or quality of resources that an actor (be it an individual or group or community) can access or use through (2) its location in a social network." Lin applied knowledge of social networks to research focusing on individual's differential access to social capital. He states,

Differential access to social capital deserves much greater research attention. It was suggested that social groups (gender, race) have different access to social capital because of their advantaged or disadvantaged structural positions and social networks (2001, 122).

This statement is further supported by Lin's research on social capital attainment by urban workers in China. The results of the study "confirm that Chinese women workers suffer a deficit in social capital as well as human and institutional capital" (Lin

2001, 122). The study also found that women tend to rely more on familial ties than men to access social capital. Lin postulates that further research on social capital that takes into account “institutional and cultural variations” will be integral to understanding how inequality emerges in uneven ways depending upon a community’s social, economic, and familial structures (Lin 2001, 123).

Dynes (2006) draws upon Coleman’s work in his essay relating social capital to disasters. In this work, Dynes discusses social networks as an element of social capital that can be a versatile and flexible resource when faced with an emergency situation. He notes that social capital does not necessarily *require* a certain amount of economic capital, which makes it accessible to all people, regardless of socio-economic status, gender, or ethnicity. Specifically, he discusses Coleman’s (1990) six different forms of social capital and the role that each one plays in an emergency situation. Two forms that focus on role of social networks are “obligations and expectations” and “information potential.” Information exchange in social networks following a disaster is particularly important given that people depend on rapidly changing information to make decisions about how they will “adapt to new situations; construct, manage, and resolve uncertainty; and confront adversity” (Beaudoin 2007). Obligations and expectations, or the exchange of favors within social networks, is also integral to recovery post-disaster. It is likely to be particularly important for people with children who are in need of childcare and stable housing during recovery and rebuilding.

2.1.1 Geography and Social Networks

Interconnectedness and communication are being redefined in an age where technology is both widespread and readily available to much of the United States

population. Dynes (2006) discusses social networks as including roles of place-based belonging, such as citizenship, while Norris et al. (2008) cite place attachment as one facet of “information and communication,” an adaptive capacity to creating a resilient post-disaster community. However, more recent literature on social capital has identified aspatial forms of social networks, such as those on the internet, which have “the capacity to sustain geographic community as much as any other communication tool” (Procopio and Procopio 2007, 82). Emerging research, such as that by Procopio and Procopio (2007) suggests that social networks may not necessarily be place-based, a finding which expands our definition of what is entailed by the idea of community, while raising questions about the effects of temporary displacement following a disaster.

Still, the spatial density of social networks remains significant to a person’s ability to access social capital. Following Hurricane Katrina, Barnshaw (2006) found that individuals with spatially concentrated networks had difficulty activating social capital post-disaster because most of the people within the network were affected similarly by the hurricane, rendering them all in need of the same types of assistance and incapable of exchanging such capital. On the other hand, Barnshaw found that individuals with geographically extensive social networks were able utilize their networks for temporary housing in areas that were not impacted by either Hurricanes Katrina or Rita. In addition to Procopio and Procopio’s (2007) research on the concept of community, Barnshaw (2006) suggests that those individuals who create more spatially dispersed network connections may have an advantage since they can access social capital outside of the spatially-bound context of a disaster situation.

2.1.2 Feminist Critiques of Social Capital

Feminists have often referred to the economy as a gendered subject, most often in the way that women historically were most active in unpaid domestic activities that often excluded them from the paid economy, but which contributed to its overall productivity. Feminist authors, such as Cameron and Gibson-Graham, see the World Bank's enthusiasm for the concept of social capital as a way of trying to extend the capacity of "economy" to women's realms (Cameron and Gibson-Graham 2003; World Bank 2008). Social capital, as a form of capital captured through social relations, is thought of as more available to women, and therefore useful as a tool for development agencies focused on issues of empowerment (Cleaver 2005; Molyneux 2002). However, there are several critiques of the social capital framework that question its conceptual usefulness, particularly with respect to its ability to account for gendered power relations and the positive/negative impacts on women.

Because the core texts describing what social capital is emanate from authors, such as Bourdieu, Coleman, and Putnam, whose social and economic positions render them among the most privileged, and least vulnerable in society, questions emerge regarding the accuracy of their theorizations. Significantly for this research, core texts do not direct attention to discourse surrounding issues of reciprocal relations between people who don't function within what they perceive as the dominant mode of understanding which doesn't incorporate lifestyle or culture issues of people of different ethnicities, sexualities, abilities or gender. In fact, O'Neill and Gidengil (2006, 3) state that:

It is not simply that the social capital literature has been relatively blind to the existence and implications of gender inequalities. Gendered critiques reveal that, far from being gender-neutral, there has been a distinct male bias.

Additionally, the definition of social capital, arguably “vague” (Wakefield and Poland 2005, 2820) upon conception, has led to the methodological interpretation of the concept by research practitioners who have, in turn, continued within the masculinist vein by not addressing this diversity in the terms of measurement of social capital, the hegemony inherent in social capital, and the gendered assumptions made in researching social capital.

Common measures of social capital are not sensitive to aspects of everyday life which are particularly important for women. Putnam popularized the idea of using formal networks, such as activity in civic organizations, as a measurement of social capital. For example, the current dominant mode of measuring social capital is through the occupational position generator (Lin and Erickson 2008), which makes the assumption that employment within the workforce garners more prestige and, therefore, more social capital. This measurement, however, does not account for how social capital is accessed by individuals positioned outside the workforce, and consequently does not address gendered divisions of labor and the way it is affected by and affects social networks. Some research has found that women, who are more likely to be poor and more likely to take on childcare duties, rely heavily on informal social networks for childcare and employment (Ciabaterri 2007). Hence, reliance on measurements in which social capital is converted into economic capital simply as job status or formal civic involvement lacks acknowledgement of the value of capital within the private domain as opposed to the public. The lost connections are particularly apparent in studies using large amounts of quantitative data, which fail to capture the quality and nature of network connections (Lowndes 2004). For example, Lowndes (2004, 53) notes, “when someone ‘does a

favour' for a neighbor, they may be posting a letter, or helping them to find a job or a college course." While these two scenarios receive equal weighting in quantitative research, arguably they carry different investments of capital and time, and should be treated accordingly.

Hegemony is defined within the field of geography as the ability of a dominant group to exert influence and control over subordinate groups through cultural, social, political and institutional inequalities (Johnston et al. 2000, 332). Hegemony in social capital was addressed within the first theorizations of the concept outlined by Bourdieu and later echoed by feminist theorists (Bourdieu 1983; Holt 2008). Bourdieu was preoccupied with questions related to social class and the hierarchical arrangement of society. He suggested that connections within social networks of people of the same class served to reinscribe the distinctions between the classes and make permanent social inequalities. Upper class individuals are more likely to be educated and take on leadership positions within the community, meaning their social capital is invested amongst other people occupying a similar situation, which functions to keep them in dominant positions, while marginal figures are left out of the equation. (Field 2003, 17). Though Bourdieu focused his theoretical efforts on social capital inequality and social class, he did not extend his efforts to the realm of gender. Placing such a heavy emphasis on a purely economic analysis of formal social networks lead him to overlook how disempowered groups such as women, children, and minorities have vastly different experiences when it comes to the availability of a supportive social network, which marginalization is not dependent upon economic status alone (Holt 2008).

For the World Bank, using social capital theory to inform development projects is viewed as a way to expand women's empowerment within their respective communities – it attaches the success of development projects to the recognition of women as proficient social capitalists (Cleaver 2005). While in many ways these methods encourage involvement within the community, there is also a danger in assuming that all people are equally able to access their social networks effectively to produce capital. That assumption can place the onus of empowerment and removal from marginalization on the individual rather than the community (Cleaver 2005); and, in essence, lead to victim blaming. Conversely, assumed vulnerability of a group of people, such as women, provides an essentialist account of the resources that women's networks may provide.

Acknowledging these flaws in traditional social capital theory, it is still possible to utilize the initial theoretical agenda set out by authors, such as Coleman, Bourdieu and Putnam, while offering a new perspective on gendered differences in information and favor sharing within social networks. Breaking the public/private barrier that traditional social capital research operates within, and recognizing the contributions of those working outside of formal networks, can delineate relationships that enhance our understanding of social capital and its contribution post-disaster (Lowndes 2000). Recognizing the diversity of ways that social capital may be accessed with social networks offers a more inclusive and progressive research approach that brings in critiques while also building on existing theory.

2.2 Social Vulnerability

Vulnerability and people's ability to react to and rebuild after disaster are linked to that person's available resources, whether social or institutional, and implied capacity

for rebuilding (Enarson and Morrow 1998). Cutter and Emrich (2006, 103) identify social vulnerability as a determinant in a person or community's ability to rebuild after a disaster:

Social vulnerability is the product of social inequalities. It is defined as the susceptibility of social groups to the impacts of hazards, as well as their resiliency, or ability to adequately recover from them. This susceptibility is not only a function of the demographic characteristics of the population (age, gender, wealth, etc.) but also more complex constructs such as health care provision, social capital and access to lifelines (e.g. emergency response personnel, goods, services).

Hence, the social vulnerability to hazards is influenced by a myriad of concepts, both personal and geographical, seventeen of which were selected based on an analysis of the general consensus within the social science community by Cutter, Boruff and Shirley (2003). Many are demographic characteristics such as gender, ethnicity, family structure, and socioeconomic status, while others are place-based characteristics such as rural or urban location, infrastructure, and the quality of residential construction. Some of these factors mitigate social vulnerability while others exacerbate it. For example, highly educated people are more likely to have a higher income to draw from following a disaster while less educated people are not as likely to be able to access important disaster information and resources (Cutter, Boruff and Shirley 2003, 248). Multiple dimensions of vulnerabilities interact to affect the rebuilding of lives post-disaster and further knowledge of the processes at work to create or overcome such vulnerabilities is critical. A focus on gender and household composition would contribute to a clearer understanding of processes contributing to social

vulnerability. In recognizing the diversity and intersectionality of factors that may increase social vulnerability, this literature review continues by focusing on gender as an aspect of socially constructed inequalities and social vulnerability to disasters.

2.2.1 Gender

The term gender refers to the socially constructed roles, behaviors, and attitudes expected of males and females from the society in which they live. Because gender is culturally defined, it differs from the biological traits which define men and women respectively, and has created advantages or disadvantages that are sustained and reified through the exercise of power. Unlike biological sex, however, gender is a variable concept that can be changed through social, political and institutional processes (Bondi and Davidson 2003). Recalling this fluidity is fundamental to conducting research on issues of social vulnerability because it stresses how social processes can worsen the vulnerabilities of a group based on their social roles, which are defined, and often fixed, before the onset of a disaster. Another implication of gender-conscious research is that it potentially enables us to effect positive social and political changes that can potentially alleviate many of these vulnerabilities.

2.2.1.1 Gender and Childcare

Research, such as Wisner et al.'s (2004) and Cutter, Boruff and Shirley's (2003) have successfully established reasons for the variability of vulnerability related to gender, however, a question that demands exploration is whether gendered responsibilities, coupled with the presence of children in a household, affects a person's ability to maintain, reconstruct, or build new social networks after they have endured a life-altering

disaster. Because of the significance of gender issues in allocating parenting responsibilities, research is needed that focuses particular attention on social networks related to parenting in both partnered and single parent families. While a large amount of research focuses on the psychological effects of disaster on children (e.g. John, Russell and Russell 2007; Morris et al. 2007; Gaffney 2006), the topic still meriting detailed investigation is how families with children are affected by household composition in the process of recovery.

In most societies, the gendered division of labor is particularly evident in the way that women are considered to be the primary care-givers. Women's care-giving roles are not only defined within the home but also extend beyond nuclear family to elderly, people with disabilities, relatives and friends, including other children within the community (Zimmerman, Litt and Bose 2006). Care-giving is made more intense and difficult post-disaster given that childrens' and others' needs require greater attention at a time when resources are more scarce and/or harder to obtain (Enarson, Fothergill and Peek 2007).

As women bear disproportionate responsibility for childcare, female-headed single parent households are more common in the United States than male headed single parent households. They are also more likely to be below the poverty level (Figure 2.1), increasing their social vulnerability to hazards and diminishing their resilience post-disaster.

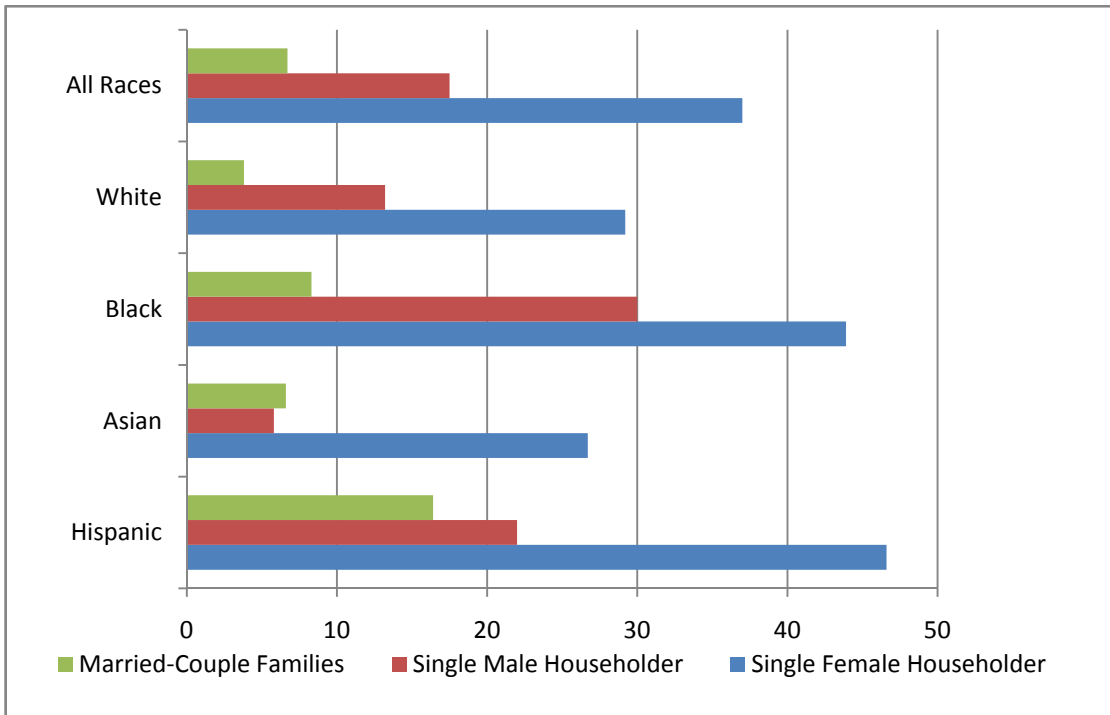


Figure 2.1 Percentage of families below poverty level by race and household composition, 2007

Source: U.S. Census Bureau 2007

Lowndes (2004) notes in her analysis of the British General Household Survey, which included categories of reciprocity and trust, social networks, informal social support, civic engagement, and views of the local area, the presence of dependent children in the household was related to high reciprocity scores. This result suggests that while single parents may possess less economic capital, they may be able to access social capital more effectively. Therefore, while gender and family structure may increase the parent’s social vulnerability, the degree to which parents are able to maintain social networks and high degrees of reciprocity in post-disaster settings may actually decrease vulnerability by boosting their capacity for resilience. However, as noted earlier, multiple factors may affect availability and access to social networks in post-disaster situations.

2.2.1.2 Gender and Housing

The division of labor in the home places additional burdens upon women. As well as care-giving roles and responsibilities, women are often charged with reconstructing the comfort and security of the “home”, frequently meaning that “it is women who ultimately stand in lines, negotiate the bureaucratic paperwork, and seek long-term help for family members” (Enarson, Fothergill, and Peek 2006, 136). Hence, when the home is compromised or absent, it is often the woman’s role to secure stability once again. However, governmental recovery efforts lack attention to women and housing issues, most specifically in not recognizing the link between care-giving duties and housing (Enarson 2008). This oversight is particularly an issue for single mothers who may have a harder time finding housing given the multiple roles they must fulfill as single householder such as childcare, employment, and economic responsibilities, often making them more dependent on temporary housing than men (Enarson 2008).

Women were also found to take on the role post-disaster of hosting others displaced by the event. As a result, many households expand in size as women able to do so offer temporary housing to kin, friends, and acquaintances (Enarson, Fothergill and Peek 2007; Enarson 2008). Extended post-disaster duties, in combination with lack of affordable housing, create complications for women, particularly single mothers, in regards to finding safe and stable housing for their family. Though the literature shows household composition and family structure as affecting people’s ability to recover, these aspects have attracted very little attention in social capital research and, up to this point, have served mainly as control variables (Halpern 2005).

Addressing gender when researching the factors that affect social networks, and analyzing the importance of those factors, will fill the gap in research by providing an evidentiary basis for the assumptions of gender discrepancy that we see in disaster literature today. The role of gender in post-disaster use of social networks and social capital, such as childcare and housing, begs for further investigation in order to ameliorate and facilitate disaster mitigation and preparedness practices in the future.

2.2.2 Race and Ethnicity

It is important to emphasize that no single factor is responsible for constructing social vulnerability. Cultural background, experience, and abilities, among other personal traits, all affect the way that people both perceive and react to disaster (Cutter 2005, Enarson 2007). Race and ethnicity as components of social vulnerability are significant as a substantial body of literature demonstrates that non-White and non-Anglo populations are more vulnerable to disasters (Peacock, Morrow and Gladwin 1997; Cutter, Boruff and Shirley 2003; Wisner et al. 2004; Bolin 2007). Bolin (2007, 113) describes race as a social construct that has historically marginalized populations on the basis of skin color and cultural background, producing both intentional and covert social, political and economic disadvantages. He suggests that these disadvantages have manifested through the function of class, as opportunities for employment and education are compromised. In addition, the classification of class as a function of institutionalized racism creates a deficit of power for most marginalized populations, making it more difficult for those who are non-White and/or non-Anglo to access resources post-disaster (Bolin 2007).

As an illustration of this point, Elliot and Pais (2006) concluded that job security following Hurricane Katrina was racialized, finding that Black/African American workers from New Orleans were four times more likely than White counterparts to lose their jobs after the storm. Looking more closely at these findings, when income differences and their effects were controlled for in the analysis, the results indicate that the “average” black worker in New Orleans was actually closer to seven times more likely to have lost his or her job than the “average” white worker (Elliot and Pais 2006, 317). Racial disparities such as these, manifested through class structure, have a definitive effect on a family’s ability to recover following a disaster.

2.3 Studies Incorporating Gender, Social Networks, and Disaster

Trust, sense of duty, responsibility, and communication are all notions that have different implications according to gender, race, class, and other socially constructed factors. Society has different expectations of men and women that directly affect their ability or inability to create social networks and utilize social capital. Given that significant research has established that certain populations are more vulnerable to disaster due to preexisting social structures (Peacock, Morrow and Gladwin 1997; Enarson and Morrow 1998; Wisner et al. 2004; Cutter 1995; Cutter, Boruff and Shirley 2003; Bolin 2007; Enarson 2007), it is imperative to take the larger social context into account when examining a household’s ability to rebuild post-disaster. As discussed earlier however, there is a lack of research that engages with the topic of gender as being a major determinant of how social capital is accumulated.

Currently, there are only a few studies and these offer potentially contradictory examples and limited explanations for the influence of gender on social networks. With

respect to disasters, in research conducted after the October 1999 severe flooding in southern Mexico, Norris et al. (2005) found that women affected by the flood perceived a less supportive social atmosphere than men following the flood. Unfortunately, the authors did not provide further explanation for why this occurred. Conversely, research by Cox (1998) and Serrat Viñas (1998) found that women organize more effectively and are able to access previously established informal social networks more effectively than men after a disaster. The following studies incorporate issues concerning gender, social networks and disaster and demonstrate the need for further research concerning the role of gender in social networking post-disaster.

2.3.1 Hurricane Andrew: Ethnicity, Gender and the Sociology of Disasters (1997)

Hurricane Andrew made landfall in Florida on August 24, 1992. Though it was the most destructive natural disaster in U.S. history when the research was published, Hurricane Andrew currently ranks as the second most costly hurricane next to Katrina and the fourth most intense hurricane in U.S. history (Blake, Rappaport, and Landsea 2007). Within a week of the storm hitting, a research team composed of sociologists and anthropologists from Florida International University was assembled. Their research findings, published in a book on the subject five years later, covers an assortment of post-disaster issues such as displacement, housing, gender and ethnicity (Peacock, Morrow, and Gladwin 1997). The most significant contribution to this literature review is Morrow's (1997) attention to kin support networks. Her research expanded on the finding in disaster literature that "the extent to which households are connected to the community, in terms of family, ethnic, and other social networks, is an important factor influencing disaster response and outcome" (Peacock and Ragsdale 1997, 21).

Morrow (1997) discusses the role of kin networks pre-disaster, citing them as important in the exchange of information and favors. The following three paragraphs draw on Morrow (1997, 141-169). She further suggests that, based on previous literature on the subject, the effects of disaster stress on network ties may prove to make strong bonds stronger and weak bonds weaker. She also notes that families with children, particularly those that are female-headed, were more likely to have discussed hurricane preparation with relatives. Ultimately, however, Morrow focused in on the aspects of race and class rather than gender in terms of social networks before the storm, finding that minority families were twice as likely to receive help from kin as Anglo families and about one and a half times more likely to offer help to kin. In this research model, neither household composition nor income exerted a demonstrable effect over the availability of social support. However, the location of a household within an evacuated area did increase the likelihood of favors exchanged among kin.

Regression analysis confirmed a nominal increase in assistance from relatives following Hurricane Andrew. Black families were about one and a half times more likely than Anglos to have provided help to kin. With respect to temporary housing post-disaster, respondents most frequently responded they were able to find shelter with kin; respondents occupying higher income brackets were more likely to stay in either an apartment or hotel, rather than at a relative's home.

Though the attention to race and class in this research was helpful, the lack of substantial analysis concerning gender differences in social networks further confirms it is a gap that needs to be filled. Gender was considered as a factor in the survey design yet did not load significantly in the logistic regression. Therefore it did not receive further

exploration within the context of the research she presented. In addressing gender as a theoretical topic, Morrow includes examples of single female-headed households and alludes to some of the obstacles they faced but was not able to incorporate this knowledge into the analysis on the exchange of information and favors within kin networks. This omission demonstrates that a concerted approach to gender as a research topic is imperative to identify its connection to disaster recovery and social networks.

2.3.2 Women and Post-disaster Stress (1998)

Ollenburger and Tobin (1998) in their study of communities recovering from flooding found that men consistently exhibited lower levels of stress than women in post-disaster situations. The reasons that were cited for this outcome in the research were: age, family living environment, and disability. Given that women are more likely to live longer than men, they are also more likely to live alone as a senior, on a fixed income, and with a disability or some sort of health complication that limits their mobility. In the Ollenburger and Tobin (1998) study, the family living environment became a source of stress after the flooding because women were more likely to take on child care responsibilities and inhabit single headed households with dependents than men. In short, there were many more factors complicating women's rebuilding than there were men's, which became a source of high stress levels for women post-flood.

Schachter's (1959) influential psychological studies find that people under stress tend to affiliate more. Given Ollenburger and Tobin's (1998) evidence of gendered differences in stress levels after flooding, Schachter's hypothesis would suggest that women stressed by flooding in would interact much more with their communities, yet Ollenburger and Tobin observed barriers to those interactions. When they inquired about

the positive outcomes from the storm, they discovered that “more men than women indicated more involvement in their community, having made new friends, and having found more cooperation and helpfulness in the neighborhood” while “women were more likely to indicate that the flooding brought the family closer together” (1998, 106)

In considering these findings, the authors rightly suggest that the long-term consequences of this difference need to be studied in detail. Although Ollenburger and Tobin’s study did an excellent job of demonstrating the connection between age, health, family status, and gender, the research did not consider related issues in social vulnerability, such as ethnicity, race, and access to resources. Their results show differences between male and female perceptions of connectedness with others post-disaster, suggesting that the explanation for these gendered differences might be uncovered within a further analysis of issues of social vulnerability.

2.3.3 Heads Above Water: Gender, Class, and Family in the Grand Forks Flood (2004)

Fothergill (2004) extensively documents the role of women post-disaster, the social and economic obstacles they face, and how these impact on recovery within the context of the 1997 flooding event that inundated more than 1.7 million acres in and around Grand Forks, North Dakota. Importantly, instead of grouping all women under a single analytical heading, she places the focus on the uniqueness of each person, which allows her to capture the particularities of their stories and experiences on a case-by-case basis (Fothergill 2004, 10). Conducting research in this manner avoids the pitfalls of essentialism. Nevertheless, she does note that there are commonalities among their

experiences, as these women all operate in a shared community where gendered assumptions are reinforced.

Fothergill (2004, 35) conceptualized women as maintaining roles in three separate spheres: domestic, workplace, and community. However, disaster disrupts all areas of a victim's life, causing the reinterpretation of normalized gender roles. Therefore, the woman's community role included sandbagging (a man-dominated task), preparing food and supporting sandbaggers, and providing assistance to neighbors and other nonfamily members. The assistance to friends and neighbors often included taking care of neighbor's children or their children's friends, loaning items such as food or tools, emotional support, and temporary housing (Fothergill 2004, 39). This community role directly engages the building of social capital by way of accessing social networks to exchange information and favors. Fothergill's research validates the linkage between gender and a person's expected use of social capital following a hazard event; women in her study were more likely to engage informal networks such as childcare, emotional support and temporary housing.

Based on their research on everyday circumstances, Hanson and Pratt (1991, 22) postulate that the gendered domestic division of labor prompts women to use their social networks differently from men, particularly in terms of economic opportunities. In her research, Fothergill also explores women's access to formal professional networks, noting that although the women's community role often included making connections between the family and community agencies and services, home recovery was most dependent on the women's *husbands'* network ties. Fothergill (2004, 47) uses the example of Lisa, whose husband was a prominent businessman. Lisa attempted to repair

the house while her husband was at work and couldn't get any calls back or attention directed to her home. Ultimately, she realized that she had no power or control over these network connections and that she needed to use her identity as her husband's wife to get a response from repair professionals. Thus Fothergill's research following the Grand Forks flood supports the feminist critique of social capital research, suggesting that undertaking the investigation of both formal and informal networks may provide a more comprehensive observation of social capital (Lowndes 2000).

2.4 Summary

Social capital has been linked to community resilience post-disaster (Norris et al. 2005), with some scholars even suggesting that social capital may be the "missing link" to disaster recovery (Nakagawa and Shaw 2004). Lin (2000) notes that social inequalities may play a role in the acquisition of social capital while Cutter and Emrich (2006) identify social vulnerability to disasters as a product of social inequalities. Hence a comprehensive understanding of the role of social capital in post-disaster recovery cannot be achieved without a focused analysis of social inequalities, such as gender, and its effect on how people access and utilize social capital to recovery following a hazard event. Gender is particularly influential to this endeavor as the social construction of the concept illuminates processes of responsibility and role-taking that are often adopted by individuals post-disaster. Childcare, often a female-dominated enterprise, can lead to economic challenges and complicate the search for post-disaster housing. Still, the literature suggests a linkage between children in the household and robust social networks (Lowndes 2004), alluding to the possibility that the development of social

network support can be attained in order to mitigate the increased challenges of searching for housing.

Some researchers (e.g. Morrow 1997; Ollenburger and Tobin 1998; Fothergill 2004) have attempted to bridge the gaps between social networks, gender and disaster, yet there is still a substantial amount of ambiguity in the connections as all three concepts have yet to garner equal attention within one research project. My research addresses this deficiency, and takes an important step towards illuminating the connection between gender and social capital. This approach not only provides a better understanding of the factors influencing post-disaster resilience, but also imparts normative guidance, which can assist policymakers in determining the best ways to mitigate social vulnerability.

Chapter 3: Research Design and Methods

This project was designed to 1) determine the influence of gender on the exchange of information and favors within social networks in the searching and acquisition of childcare and stable housing, 2) investigate the differences between the social networks of partnered and single parent households in the exchange of information and favors, and 3) explore the role of kin, friendships and recent acquaintances as well as the spatial or aspatial configuration of social networks for sharing information or trading favors. This chapter presents the survey instrument, case study, study sample, data analysis methods and recruitment bias.

3.1 Survey Instrument

As a dimension of social capital, “obligations and expectations” focuses specifically on the “interconnectedness” of community members based on trust and a sense of duty and responsibility developed between people over time (Dynes 2006). “Information potential” concentrates specifically on the interactions between people that involve communication of knowledge (Dynes 2006). These two forms of social capital were operationalized through survey questions (Table 3.1). Interview questions focused on the manner in which subjects gather information and exchange favors within their social network with the goal of procuring stable housing. Particular attention was given to responsibilities for caring for children.

The survey included multiple choice questions, closed-ended questions, and qualitative probes. For questions 1, 2, 3, 6, 9, 10, 11, 12, 13, 15, as well as the participant

information form, participants were asked to check a box that represented the most appropriate response for their situation. Of those check-box questions, numbers 1, 2, 11, 12, and 15 requested one written line of justification for their response. On the other hand, participants were asked to respond to questions 4, 5, 7, 8, 10, and 14 with the names of sources outside their social network and/or the names of or relation to people within their social network. Questions 4, 5, 7, and 8 were followed by qualitative probes which were: where does that person live, how are they supportive, and how do you usually interact with them? On a case by case basis, qualitative probes that are not included on the survey instrument were used to clarify the participant's use of social networks. For a more detailed view of the question format and the demographic information requested, the interview schedule is included in Appendix A.

Table 3.1: Survey questions

0. Please list the members of your household as well as their sex, age and relation to you
1. Does your current household composition differ from before the hurricane?
2. Is there anyone in your household with special needs?
3. How far away do the most supportive members of your family live?
4. In answering that question, what family members come to mind and in what way are they supportive?
5. Are there other family members who may not necessarily be the most supportive but live close enough to ask for help or favors?
6. How far away do your most supportive friends live?
7. In answering that question, what friends come to mind and in what way are they supportive?
8. Are there other friends who may not necessarily be the most supportive but live close enough to ask for help or favors?
9. Which of the following reasons most accurately describes why you decided on FEMA temporary housing?
10. In your search to find or rebuild stable housing for you and your family, what is the first, second, and third most important source of information for you on opportunities?
11. Have your childcare or child's schooling needs changed compared to before the disaster?
12. Who currently provides you with regular childcare?
13. Who provides you with emergency, last minute, or occasional childcare?
14. Please rank the first, second and third most important sources of information for you on childcare opportunities.
15. Would you say that your childcare situation influences your search for stable housing?

Questions 11, 12, 13, 14, and 15 directly addressed the question of childcare while questions 9, 10 and 15 addressed the question of stable housing. Specifically, questions 4, 5, 7, 8, 9, 12, 13 of the interview address the exchange of favors within social networks. Questions 10 and 14 operationalize the exchange of information by assessing how communication of information within social networks affects the search and acquisition of childcare as well as stable housing. For example, to answer question 14, the research subject identifies a variety of options including friends, family members, and the internet. Then participants are asked to elaborate on the subject by including

where and how they usually interact with this source. The assortment of response options available to subjects was designed to allow analysis of who was included in their social network, how it was being maintained or rebuilt, and whether the network was spatially dependent.

Pretesting of the survey was conducted with 3 interviews. The first was completed with a recently relocated married couple from Texas with a newborn child. The second was with a woman who is a geography PhD student with 3 children. The third was with a recently displaced same-sex couple with 2 children. All of the participants were well-educated, white and middle class. However, because of their education level and familiarity with scholarly research, all provided detailed insight on how to make the survey more in-depth, accessible and easily administered. Pretesting showed interviewer questioning to be the most effective and easily understood manner of survey administration.

3.2 Study Area

Hurricane Ike made landfall as a strong category two in Texas over Galveston and Chambers County on September 13, 2008. Texas, labeled the one of the most “disaster prone states” (Thomas and Mitchell 2001, 152), had also experienced the nation’s most deadly and historic hurricane in 1900 with over 8,000 deaths (Blake, Rappaport, and Landsea 2007). With the experience of the Galveston 1900 hurricane and Hurricane Katrina in America’s collective memory, the Galveston mayor along with public officials in several other surrounding counties issued a mandatory evacuation on September 10, 2008 (Galveston County Office of Emergency Management 2008). Though the National Weather Service (NWS) predicted that “persons not heeding evacuation orders in single-

family, one- or two-story homes may face certain death,” nearly 200,000 people in evacuation zones declined to evacuate, including as many as 40,000 people in the “certain death” area identified by the NWS (Drye 2008). At landfall, wind speeds measured approximately 110 miles per hour and, though the storm was labeled as a category two on the Saffir-Simpson Scale, the storm surge was more consistent with that of a category four, with water rises around 15 to 20 feet in Chambers County, and 10 to 15 feet in Galveston County (Berg 2008; Cutter and Smith 2009). As Figure 3.1 shows, vast amounts of the research area were inundated with storm surge from the hurricane.

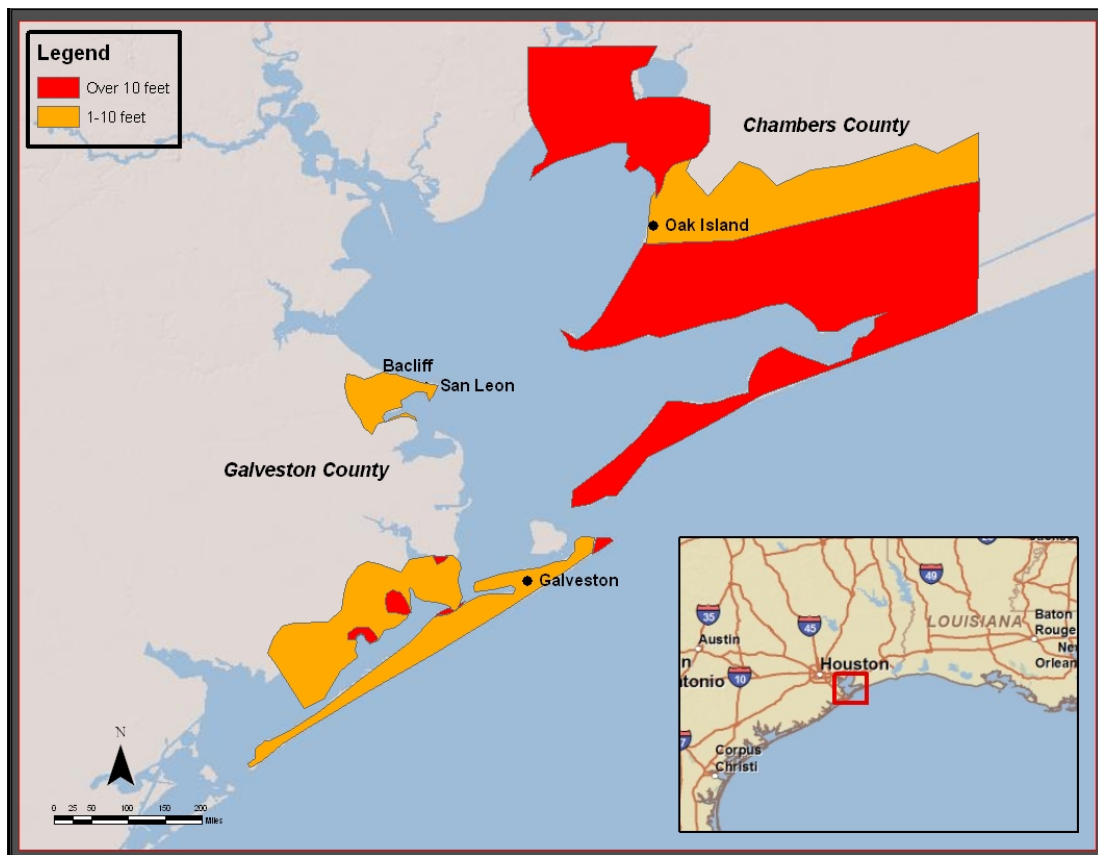


Figure 3.1 A generalized representation of storm surge levels due to Hurricane Ike

Source: Berg 2009

Though Hurricane Ike hit the Galveston, Texas area in the fall of 2008 and though there were still over 2,000 families still displaced by the storm as of January 2009 (Associated Press 2008), FEMA had yet to establish any temporary housing communities in Galveston or Chambers counties, however, one community opened February 12, 2009 in Bridge City, Texas (approximately sixty miles east of landfall) and several others were under construction as of February (FEMA E-News 2009). Unfortunately, construction on temporary housing sites was continually held up by weather and contracting issues. The lack of affordable, viable housing in Galveston and along the Gulf Coast region affected by Hurricane Ike left many people whose homes were damaged by the storm without permanent housing for a significant time period after the storm.

Hurricane Ike, as well as the affected Gulf Coast region of Texas, represent some of the challenges and successes U.S. coastal areas face with hurricanes. Prior to the event, evacuation demanded additional resources, some of which might have been provided by social capital and networks. Following the event, housing and childcare needs were challenges to recovery. In addition, the economic and social diversity of the population required flexibility to accommodate a range of needs.

Preceding landfall in the continental U.S., President Bush made an emergency declaration, which opened the way for the state to receive federal assistance during the evacuation process. Buses were used to evacuate over 12,000 people to shelters, military planes transported special needs populations out of the area, and many citizens used their own private transportation to evacuate (Cutter and Smith 2009). While there was adequate preparation for evacuation, many residents disobeyed evacuation orders, opting instead to stay in at-risk areas as the hurricane approached. Ike was a moderately strong

hurricane that made landfall in a touristic coastal area close to a large urban area. Despite generalized planning by FEMA, housing and childcare post-disaster remained obstacles to recovery (FEMA 2009), creating a post-disaster circumstance that any coastal county in America could find itself in. In addition, the coastal counties' demographic statistics are comparable to the United States. Poverty levels and racial diversity in Chambers and Galveston counties represent a similar situation to the U.S. as a whole (Table 3.2).

Table 3.2: Chambers and Galveston County, TX and U.S. Demographic Characteristics

	Chambers County	Galveston County	United States
Median Family Income	\$63,815	\$64,958	\$60, 374
Families Below Poverty Level	8.8%	10.2%	9.8%
Race: White	80.2%	75%	74.1%
Race: Black	11.1%	14.3%	12.4%
Hispanic or Latino (of any race)	15.3%	20.5%	14.7%

Source: American Factfinder 2007

3.3 Study Sample

A total of 61 interviews were conducted; 59 interviews were conducted in person and 2 over the phone. One phone interview was conducted with a participant in Friendsville who did not feel comfortable meeting in person for the interview and the other phone interview was carried out approximately a week after the research trip to Texas with a woman who wanted to participate in the research after I had already left the study area. Five interviews were not recorded at the participants' request.

I traveled to Texas from February 19th to 27th, approximately twenty-one weeks following the landfall of Hurricane Ike within the continental United States. Identification of interview locations was gained using a snowball technique asking contacts for suggestions of other locations and individuals who might assist me in meeting potential

study participants. Once at a location, I used convenience sampling methods requesting interviews of those present. Recruitment locations included FEMA, Disaster Housing Assistance Program (DHAP), a local faith-based disaster relief organization named The Jesse Tree, and two churches, San Leon Community Church and Oak Island Baptist Church (Figure 3.2). The DHAP field office was created as a result of FEMA's policy of directing housing assistance inquiries through the U.S. Department of Housing and Urban Development program (HUD). Both FEMA and DHAP field offices were housed in a large community center at 4700 Broadway Street, Galveston. My interaction with participants recruited from FEMA and DHAP took place in the waiting area while people waited for their appointments with one of the disaster response agencies. During intervals when I was not conducting interviews, I approached people sitting in the waiting area with three questions in an effort to recruit new participants:

- 1) Are you a parent whose children still live in the home with you?
- 2) Did you have to move out of your home because of Hurricane Ike?
- 3) Would you like to participate in a research study on the way people use their social connections after the hurricane?

The Jesse Tree, a nonprofit community aid organization, which is also based in Galveston, added disaster relief efforts to its agenda following Hurricane Ike because of the great need in the area. Food fairs were held two to three times a week in five different locations: Galveston, Hitchcock, La Marque, Texas City, and Bacliff. I attended one Galveston and one Bacliff event, yet was only able to recruit three participants at the Galveston event.

San Leon, about three miles east of Bacliff, uses their community church as the primary organizing point of disaster relief activities. On the day I visited the church, they held an all day disaster relief event in which FEMA, Boat People SOS, Lutheran Family Services Disaster Response, and other local organizations were in attendance. The diversity of organizations represented at these events drew in people from a variety of different backgrounds with a variety of social networks, rather than centering on solely church networks. At this event, I received contact information for Pastor Eddie Shauberger at Oak Island Baptist Church. Oak Island is a small community comprised of 255 people (Reynolds 2008), and as such this church was an integral part of coordinating relief efforts, and other related projects. With the guidance of church members, I walked around the community, knocked on FEMA trailer doors and recruited participants. While not all community members belonged to the church, many viewed the church as a vital resource, particularly in the case of disaster recovery.



Figure 3.2 Map of recruitment locations

I made a diligent effort to recruit people of different social, ethnic and economic backgrounds. While these recruitment venues resulted in interviews with more low income people, they also yielded considerable ethnic diversity. My sample included participants who were primary care-givers and guardians who did not give birth to the children they cared for. Nevertheless, they will be referred to throughout this analysis as “fathers” and “mothers”. I interviewed 10 partnered fathers, 4 single fathers, 16 partnered mothers, and 31 single mothers. The small sample size for men could be a result of a variety of factors such as the daytime hours used to recruit research participants, employment patterns, and gendered roles in seeking government assistance. The sample included a large number of women. That may reflect Enarson, Fothergill and Peek’s

(2007) observation that women are more often charged with standing in lines and negotiating bureaucratic paperwork.

A breakdown of the household composition, race/ethnicity and household income of research participants is provided in Table 3.3. It is important to note that the sample reflects a population very different from the demographic proportions of Galveston and Chambers counties noted in Table 3.2. In fact, rather than being majority White, middle and upper class, much as are these Gulf Coast counties, the sample includes a much higher percentage of socially vulnerable populations—minorities, working class, and poor populations. For a more detailed view of the question format and the demographic information requested, the interview schedule is included in Appendix A. A summary of responses to closed ended questions is provided in Appendix B. A list of participants' demographic characteristics is provided in Appendix C.

Table 3.3 Selected demographic characteristics of research participants

N= 61	
Household Composition	
Single mothers	51%
Partnered mothers	26%
Single fathers	7%
Partnered fathers	16%
Race/Ethnicity	
White	22%
Black	39%
Latino	26%
Vietnamese	8%
Mixed	5%
Household Income	
Under \$20,000	62%
\$20,000 – 35,000	18%
\$35,000 – 45,000	10%
\$45,000 – 60,000	3%
\$60,000 – 85,000	0%
Above \$85,000	7%

3.3 Data Analysis Methods

In order to allow the interviewer to more fully engage the participant and encourage details regarding the gendered processes at work, interviews were noted on the paper survey for simple answers as well as recorded and transcribed to capture more complex answers to the few open-ended questions. The resultant interviews were coded for comparative analysis using both quantitative and qualitative techniques.

Each survey response was entered into a Microsoft Access database and subsequently coded. The coding process consisted of listening to interviews while viewing the accompanying paperwork. Many times, in response to asking how a person is

supportive, participants would use the same wording to describe support such as “emotionally” or “financially.” However, in those circumstances where examples were used to indicate support, responses were grouped into distinct categories representing popular descriptions of support (Table 3.4).

Table 3.4 Coding guide for forms of social support

Category of Network Support	Examples Presented by Participants
Child’s needs	Baby supplies Diapers Pampers Toys
Childcare	Babysit Watch the kids
Emotional	Advice Comfort Conversation Listening
Employment	Help finding a job
Financially	Money Help buying something
Housing	Temporary housing Somewhere to stay A room Rent free
In Every Way	Anything Everything In any way
Labor/Repair	Help moving Physically Repairs Fix things around the house
Spiritually	Goes to church with me Pray together
Transportation	A ride Borrow the car Gas

There were several instances during the research process where the participant portrayed their network connection as supportive “in every way”. Probes to this response

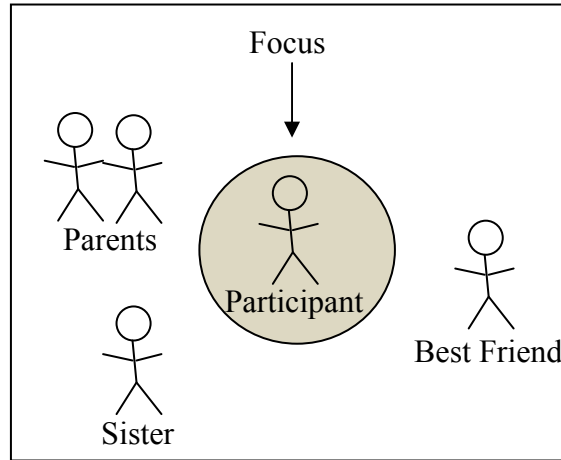
revealed that, for all of these responses, the participant meant that the supporter would do anything within their power to help them if they asked, but only within the supporter's means. Hence, this form of support should not be taken to mean that the supporters themselves have excess resources and time to provide favors and support, but rather portraying the dedication of that person as a reliable network connection.

The question design in the survey was meant to distinguish the difference between close friends and family and other network connections such as work friends, acquaintances, and neighbors. Throughout the analysis, the *most supportive* friends and family are considered to be one level of network association while friends or family that live close enough to ask for help or favors are considered another level of connection. This depiction is conceptually important as it provides a distinction between the people that the participant relies on most heavily and the other network connections they have established as valuable, but that are only engaged sporadically.

Following the categorization of support, codes were counted. Depending on the research question being addressed, the counts were preformed in three different manners.

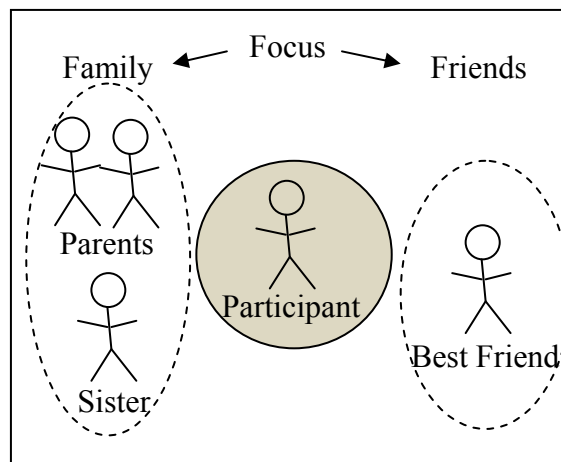
- 1) When the focus of analysis is on the *person* reporting support, one count of support was registered per person. For example, a father might report that his parents, sister, and best friend provide childcare support. In the case that the focus of analysis was, for example, on race, he would be counted as, for instance, one Black/African American participant with childcare as a network support (Figure 3.3).

Figure 3.3 Method one: Social support count diagram



- 2) When the focus of the analysis was on the location of support from within their network, one count of support was registered as friends or family, per report of type of support. For example, using the same example from above, one count would be registered for childcare support under family and one count under friends (Figure 3.4).

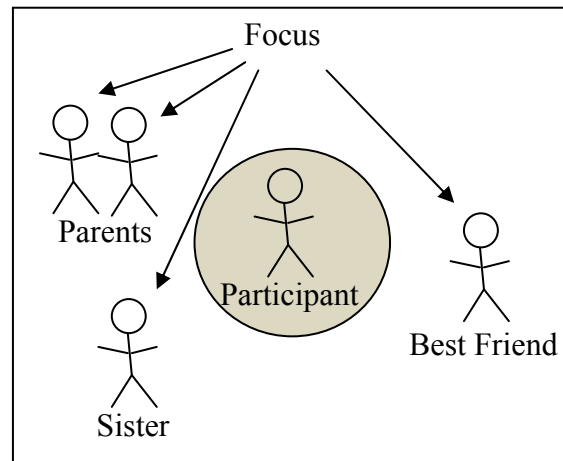
Figure 3.4 Method two: Social support count diagram



- 3) When the focus of analysis was on the *frequency* of support for each person, there was the possibility of multiple counts of network support on multiple levels of network engagement. Using the same example from

above, the father would be considered as having four counts of childcare support, three for his family and one for his friend (Figure 3.5).

Figure 3.5 Method three: Social support count diagram



These methods of counting interview and survey codes were used for all categorizations of network support.

The sample size and response characteristics limited the type of statistical analysis possible. When possible, nonparametric tests such as chi square and difference in proportion were used. Pearson’s chi square test assesses whether two observations are independent of each other (Rogerson 2006). The difference in proportion test assesses whether there is a significant difference between two proportions from two data sets that represent independent samples (Burt, Barber and Rigby, 367).

Themes within this research project were identified by combining quantitative findings with qualitative findings. Elaboration and personal stories were essential to finding reasoning behind the survey responses. Because “gender often introduces issues that are not quantifiable, like emotions and context-specific events” (Hesse-Biber and Leavy 2004, 44), qualitative coding was instrumental in elucidating emergent themes. Coding concentrated on the breadth of the social networks of these individuals. The

subsequent analysis was representative of emergent themes because qualitative coding highlighted what participants identified as the most important forms of social network support following Hurricane Ike.

3.4 Recruitment Bias

Because the participants were not randomly recruited through assistance programs, there is the possibility of some bias in the sample towards people with needs that required attention from the government. For example, the majority of people I encountered in the FEMA and DHAP waiting areas were low-income individuals and women. The high representation of these groups does confer a major benefit: it provides for in-depth consideration of the situations of those seeking out government assistance. While I recognize this as a limitation, it allows for a thorough examination of disaster on a particularly socially vulnerable group. Referrals to participants outside of FEMA and DHAP were also not random yet were helpful in the way that it provided more insight into the functioning of their social systems. For example, gaining entrance into small Vietnamese communities in both San Leon and Oak Island allowed for some examination of how ethnicity affects social networks and, in turn, how these isolated populations viewed their ability to recover. Using four different recruitment sites minimized potential bias associated with interviewing only those seeking one type of assistance. Accordingly, 20% of participants were interviewed at DHAP, 57% at the FEMA Disaster Recovery Center, 5% at the Galveston Food Fair, 10% in the Oak Island community, 5% at the San Leon Community Church, and 3% over the phone.

Chapter 4: Results and Analysis

This chapter addresses the way that participants used their *existing* social networks following Hurricane Ike to support their search and acquisition of childcare and housing. I begin first with the broader foci of the research, exploring the connections between gender, social networks and childcare, and follow this with a section on gender, social networks and housing. These two foci are then studied more exhaustively by examining the role of kin, friends and acquaintances in providing information and favors post-disaster, which is followed by an analysis of the spatial versus aspatial configuration of networks. Single parents and partnered parents are then compared and contrasted in how they utilize social networks. Finally, while not an initial focus of research design, given the characteristics of the research participants, race and ethnicity are examined for variation in the utilization of networks.

The majority of participants in this study did not identify new social network connections following the storm. One notable exception, however, was a partnered upper/middle class Latino father (Interview W8) whose church found members to volunteer their home to his family for two weeks. In fact, there were two participants who mentioned that the storm helped them realize who their “real” friends and family were after the people they initially looked to for support and assistance turned them away.

4.1 Gender, Social Networks and Childcare

Securing childcare through daycare centers following Hurricane Ike was particularly hard given that most facilities had suffered extensive damage. Many facilities

had to close their doors forever while some had to wait for gutting and repairs before reopening (GuidryNews.com 2009). FEMA estimated that over 68% of childcare facilities were damaged by the storm and, of those, 12% incurred damage was so extensive that it prevented them from reopening (FEMA 2009). Many people in this study found it hard to negotiate finding or repairing housing while also finding someone to care for their children or caring for their children themselves.

In this research, 45% of single women noted childcare as a form of support provided by their social networks while 44% of partnered women, 30% of partnered men, and 25% of single men reported that form of support (Table 4.1). However, the difference between single mothers and the other groups is more apparent when counting the frequency of network connections within each group that provided childcare. Out of the fourteen single mothers reporting childcare as a type of network support, five listed childcare in multiple levels of network support, bringing up the total frequency of childcare support in this group to twenty-one. Conversely, partnered mothers and all fathers who mentioned childcare as a network support each listed only one person in their social network providing this type of support (Table 4.2). A chi square test of data represented in Table 4.1, comparing single mothers, partnered mothers and all fathers, approached statistical significance ($\chi^2 = 1.166$, $p = .0558$). This finding may be due to the small sample size of men in this study, particularly in the case of single fathers. Arguably, a larger sampling of the population may have yielded results that were more likely to attain statistical significance.

Table 4.1 Childcare as a form of network support

	Yes	No	Total
Single Mothers	45% (14)	55% (17)	100% (31)
Partnered Mothers	44% (7)	56% (9)	100% (16)
Single Fathers	25% (1)	75% (3)	100% (4)
Partnered Fathers	30% (3)	70% (7)	100% (10)
Total	25	36	61

N values in parentheses

Table 4.2 Childcare as a form of network support by number of people and frequency of support, grouped by household composition*

Group	Number within the group listing childcare as a network support	Frequency within network of childcare as support
Single Mothers N= 31	14	21
Partnered Mothers N=16	7	7
Single Fathers N= 4	1	1
Partnered Fathers N= 10	3	3

**Insufficient cell size for chi square analysis*

Single mothers were the least likely to turn to friends for emergency childcare support, preferring instead to rely on women family members (Table 4.3). In an emergency or short notice childcare situation, gender also plays an important role in terms of the person granting the favor. Women family members were overwhelmingly called on by all groups, most particularly single mothers. Seventy-nine percent of all respondents identified female family members as sources of support while only 25% mentioned male family members. A difference of proportions test comparing these

percentages was significant at $p = 0.000$. When men emergency care-givers were mentioned, they were referenced as either the children's father or as a male family member with children of their own (Table 4.3).

Table 4.3 Providers of short notice or emergency childcare as a form of network support^{1,2}

Sources of short notice or emergency childcare support	Single Mothers N= 27 ³	Partnered Mothers N= 14 ³	Single Fathers N= 3 ³	Partnered Fathers N= 9 ³
One Female Family Member	48% (13)	86% (12)	33% (1)	44% (4)
Two or More Female Family Members	30% (8)	7% (1)	33% (1)	22% (2)
Male Family Member	30% (8)	21% (3)	0% (0)	22% (2)
Friends	19% (5)	29% (4)	33% (1)	44% (4)

¹ Cell sizes are insufficient for chi square analysis.

² Participants were allowed to identify as many categories as applied.

³ Reason for sample size adjustment in calculations: sample size does not include people whose children are too old to need emergency childcare, people who used a paid childcare provider, and people who said they would take their children with them in the event of an emergency or short-notice occasion.

N values in parentheses

Half of partnered mothers and all fathers took advantage of network sources for information on childcare. Fathers cited their mothers, wives, and word of mouth for information while partnered mothers cited friends and family as network sources. Though single mothers have the most extensive network support in terms of childcare, when it came to finding *information* on childcare, single mothers as a group were the least likely to use their network. Only 30% took action based on social network sources of information. This low percentage coupled with a low sample size meant that the

difference in proportions test would not be valid. Rather than using people that they know for information, many single mothers used a local social service agency called “Worksource” to find information. Unfortunately, the qualitative data in this research does not provide insight into the reasoning behind this lack of network informational support. This result may be influenced by the location of some of the interviews as “Worksource” is also located in the community center with FEMA and DHAP. However, fathers and partnered mothers were also interviewed there. Other non-network sources cited by participants included FEMA, the newspaper, and driving around.

The question “have your childcare or child’s schooling needs changed compared to before the disaster” was included in the survey to uncover how participants may use their social network to respond to a change in children’s needs. Because every participant in this study lost their housing and many of their personal belongings due to the hurricane, and because many local schools are closed or overcrowded, it should follow that children’s needs among participants’ families have changed. However, only 50% of participants noted a change in their child’s needs due to the hurricane. Of those that did report a change, the most common alterations were a change in school and childcare situation, loss of school supplies, and emerging transportation problems. In reference to the change in children’s needs, 7 out of the 30 (23%) participants who answered “yes” cited transportation either to new schools, from new housing, or both. A little over one-fourth of all participants listed transportation as a form of network support and those who did were all women. Further research looking at gender and social networks would benefit from including transportation needs as a factor of analysis, particularly in the case of those who are low-income. When asked how far away her incredibly supportive

mother and sister lived, one Black/African American single mother asked if the question specified by car or by public transportation. She explained that the time difference between the two forms of transportation was significant, exemplifying the point that for many low-income individuals, access to transportation may create an obstacle to accessing some forms of support from social network sources.

In summary, with regard to the influence of gender on social networks in terms of childcare following Hurricane Ike, this research found women more likely than men to list childcare as a form of support (Tables 4.1 and 4.2). Single mothers, in particular, had more people in their social networks providing both regular and emergency childcare support than other groups. Kin networks emerged as an important source of childcare support, especially in the case of single parents (Table 4.2). Fathers, both single and partnered, used social networks most extensively for information on childcare, followed by partnered mothers, then single mothers. With the disruption of childcare, children's schooling, and housing needs following the hurricane, transportation seemed to be an important source of social network support for many women.

4.2 Gender, Social Networks and Housing

The housing situation after Hurricane Ike was chaotic with many units in the process of being either demolished or gutted and reconstructed to prepare for sale or rental. Participants noted that the combination of thousands of people still displaced with a lack of housing made it difficult for newspaper, internet sites and even FEMA to keep their lists of viable housing up to date. Some participants reported that driving around and searching for "For Rent" or "For Sale" signs was the easiest and quickest way to find housing during this time period. Thirty-three percent of partnered mothers were able to

take advantage of this direct engagement, much more than the percentages of other groups (Table 4.4). Yet another reason transportation should be included as a factor in future social capital research, it turned out that housing post-Hurricane Ike rendered indirect forms of information sharing such as the internet, newspapers, and magazines, less useful than direct engagement with the local area. Of those single women who did not use their social network to find housing and also did not drive around, 13 out of 18 (72%) either stayed at home with their children during the day or noted that they have a job.

Table 4.4 Sources of information on housing by household composition

Source of Information on Housing	Single Mothers N= 31	Partnered Mothers N= 16	Single Fathers N= 4	Partnered Fathers N= 10
Social Network	35% (11)	27% (4)	25% (1)	30% (3)
FEMA	39% (12)	47% (8)	75% (3)	40% (4)
Internet	29% (9)	33% (5)	25% (1)	10% (1)
Riding Around	19% (6)	33% (5)	0% (0)	20% (2)

Question wording: *In your search to find or rebuild stable housing for you and your family, what is the first, second, and third most important source of information for you on opportunities?*

N values in parentheses

In searching for stable housing, only 19 people mentioned social network as sources of information. As noted earlier, they relied on existing social networks. The rest (42) used only non-network sources such as the newspaper, DHAP, FEMA, and driving around. The recruitment of participants from FEMA and DHAP waiting areas may have been another source of bias on this point since those in contact with these agencies

proved to be more familiar with the information they provided. Single mothers drew from a more varied group of network sources, which included family, friends, neighbors, acquaintances, and members of their church, while other respondents did not report this kind of diversity (Table 4.5).

Table 4.5 Sources of social network information on housing opportunities by household composition

Single Mothers N= 11	Partnered Mothers N= 4	Single Fathers N= 1	Partnered Fathers N= 3
Family	Work friends	Acquaintances	Family
Family member's networks	Acquaintances		Church members
Acquaintances	Friends		Neighbor
Church members	Church		
Friends			
Neighbors			
Apartment office manager			

Sharing housing temporarily is a significant favor needed from a network and is considered to be tied to social capital in the form of “obligations and expectations.” Temporary housing during and following Hurricane Ike consisted of many forms. All but two participants in this study evacuated for the event. Some participants discussed staying at a hotel or shelter, while others mentioned staying with family and friends. Of those participants who stayed with people in their social network temporarily, the majority stayed in multiple different locations, activating multiple levels of their social network. Women in this study utilized their social network more frequently than men during the housing search, with 86% of partnered mothers and 76% of single mothers using friends or family as a source of temporary housing, compared with 50% of fathers. A difference in proportions test comparing all mothers with all fathers in the use of their

social network showed the two groups as significantly different above the 95% confidence level ($p = 0.024$).

For those who did not use their social network to obtain temporary housing during or after the hurricane, or used it for a brief period of time, children were the primary reason for seeking other housing options. A majority of the participants reasoned that children were an imposition, and felt uncomfortable staying with family or friends for an extended period. Some spoke of moving on so they didn't "wear out their welcome" (Interview T11). Many times, just the number of children was an issue because it increased the number of people in the house. Others described the need for privacy, both for the hosting family and guest family. For example, one Black/African American single mother succinctly described her way of thinking:

Interviewer: Can you tell me the reason why you didn't end up staying with friends or family [after you evacuated] and you stayed in a hotel instead?

Participant: Because either people don't want to be bothered with your kids or they have problems of their own after the storm. (Interview Th3)

Other reasons cited for not using network sources for housing were pets and not having a network source available to offer such housing. Another reason participants were unable to draw on their social network was due to the fact that the people they *would have* otherwise relied on had been forced to evacuate from the area as well. This scenario affirms ideas advanced earlier in the literature by Barnshaw (2006): reliance on social networks constructed within a tight geographical space increases the likelihood that people that someone in distress is most likely to for help are also in need of assistance themselves.

The housing situation following Hurricane Ike was chaotic. As a result, directly engaging the local landscape was important, since formal networks were not able to provide accurate information in a timely manner. Single mothers, who were least likely to drive around and look for housing, used their social networks most extensively for information. Partnered and single mothers were more likely than fathers to use friends and family for post-disaster temporary housing. Children, pets and weak network ties were cited as reasons why some participants changed temporary housing often or relied on shelters and hotels. Further discussion of the use social networks follows.

4.3 Role of Kin, Friends, and Acquaintances

In seeking to elaborate understanding of the roles of kin, friends, and acquaintances post-disaster, participants were asked to identify who was the “most supportive” of their friends and family, and which friends or family were not necessarily the most supportive but were close enough to ask for help or favors. When it came to the types of support offered by friends and family within networks, there were some clear divisions. Within families, mothers were most frequently considered to be the “most supportive” family member by both men and women within this study. Sisters often occupied the second position (Table 4.6). Overall, kin within networks provided favors concerning the participant’s children twice as often as friends (Table 4.7). Family also provided financial support to the participant more than twice as often as others within their network.

Table 4.6 Breakdown of most supportive family members by relation

Most Supportive Family Member	Single Mothers N= 31	Partnered Mothers N= 16	Single Fathers N= 4	Partnered Fathers N= 10	All Participants N= 61
Mother	52% (16)	56% (9)	25% (1)	0% (0)	43% (26)
Sister	32% (10)	25% (4)	25% (1)	20% (2)	28% (17)
Dad	16% (5)	31% (5)	0% (0)	20% (2)	20% (12)
Brother	13% (4)	25% (4)	0% (0)	20% (2)	16% (10)
None	10% (3)	6% (1)	25% (1)	20% (2)	11% (7)

N values in parentheses

However, there were a significant number of participants who characterized their friends as supportive “in every way” as compared to family members with similar characterizations (Table 4.7), demonstrating that, while kin support was important following Hurricane Ike, so was the support of friends.

Table 4.7 Number of family or friends providing categorized types of network support

Form of Support N= 61	Family	Friends
Childcare	22	11
Child's needs	4	1
Conversation	1	2
Emotionally	25	26
Employment	1	1
Financially	31	14
Food	6	7
Housing	17	11
In every way	6	12
Labor/repair	7	4
Mentally	2	2
Paperwork	1	1
Spiritually	1	4
Transportation	6	10

Probes after statements such as those mostly yielded greater emphasis on “anything” or “everything” within that supportive person’s power. Elaborations included childcare, financial support, and emotional support—even from those supporters that were over 45 minutes away or in another state. Friends were particularly supportive in terms of emotional and spiritual support, as well as transportation.

As mentioned before, single mothers were found to have broader network support than other groups with respect to childcare (Table 4.2). This support can be explained by recalling the immense diversity found in the single mothers’ social networks. Many single mother participants cited both friends and family as helping to provide childcare while partnered mothers were more dependent on kin to help them with childcare (Table 4.3). Fathers were more likely than mothers to report not having any supportive friends or family. When asked about the number of supportive friends or family they could depend upon, 8 out of 14 men (57%) indicated they had none, whereas 15 out of 47 (32%) women provided a similar response. A difference in proportions test found this distinction significant above a 95% confidence level, $p = 0.045$. Men were also more likely to acknowledge labor and repair as a form of support than women, exemplifying the gendered division of labor in their response. While they identified emotional and financial support often, the recognition of labor as a resource reinforces the conception of men as more active in physical roles while women rarely acknowledged labor as support.

This research found kin providing favors involving participants’ children twice as often as friends. Within families, all participants considered women to be the most supportive network participants. Friends were characterized, more often than family, as supportive “in every way”, meaning that social network support from friends cannot be

discounted. Partnered mothers had more social network support than other groups in the form of finances and housing from both friends and family. However, single mothers showed a diversity in their social networks that was not evident with other groups. Fathers in this study were the most likely to claim the lack of social networks available to exchange information and favors for childcare and housing. They were also more likely than women to cite labor as a form of social network support. Both friends and family are important to post-disaster support and we can see gendered divisions in both the nature of favors provided and the types of support identified.

4.4 Spatial Versus Aspatial Configuration of Network Support

Locations of social network support were not consistently recorded for each support reported among participants. However, distance in minutes from the research participant was recorded for each person providing network support. Therefore, distance is being used as a surrogate for spatial data. There was a clear indication that distance made a difference in both financial and childcare support offered by friends and family. The proportion of childcare resources drawn from within a 10 minute radius is significantly greater than that of financial resources with a difference in proportions test resulting in a p-value of 0.047. Statistical tests did not reveal significance in the spatiality of other network supports included in Figure 4.1.

In the case of financial support, cases increase from 2 to 11 to 12 to 13 (with the 21-30 minute away category considered an outlier at 1) (Figure 4.1) and a chi square test yielded a significant difference between financial and childcare support at the 90% confidence level ($\chi^2 = 7.846$, $p = 0.097$). Judging from participant's qualitative responses, it seems that parts of a person's social network located in close proximity to

participants were also affected by the hurricane and therefore less able to offer support to others. For example, one 60 year old White woman who was primary guardian for her 15 year old grandson noted that her son and brother, who live on the same street as her, are supportive of her emotionally and occasionally with labor and transportation. In reference to her neighbors, she characterized the situation as follows:

Participant: I have some good neighbors. So right down the road I have some good friends.

Interviewer: So less than 5 minutes?

Participant: Yes.

Interviewer: So you have some good neighbors you would ask for help or favors from?

Participant: Well, not so much ask for help because they're kind of in the same boat I am, I wouldn't dare do that. But emotionally- there's ladies that are single, they're widows too so... (Interview M5)

Those people willing to give financial support, including her daughter and best friend, both live well over 45 minutes away. For this individual case, we see that a support network centered at a great distance from the participant did not prevent its members from providing her financial assistance – this increased distance is important because it suggests her parts of her social network were not directly impacted by the hurricane such that it would have deterred them from aiding her.

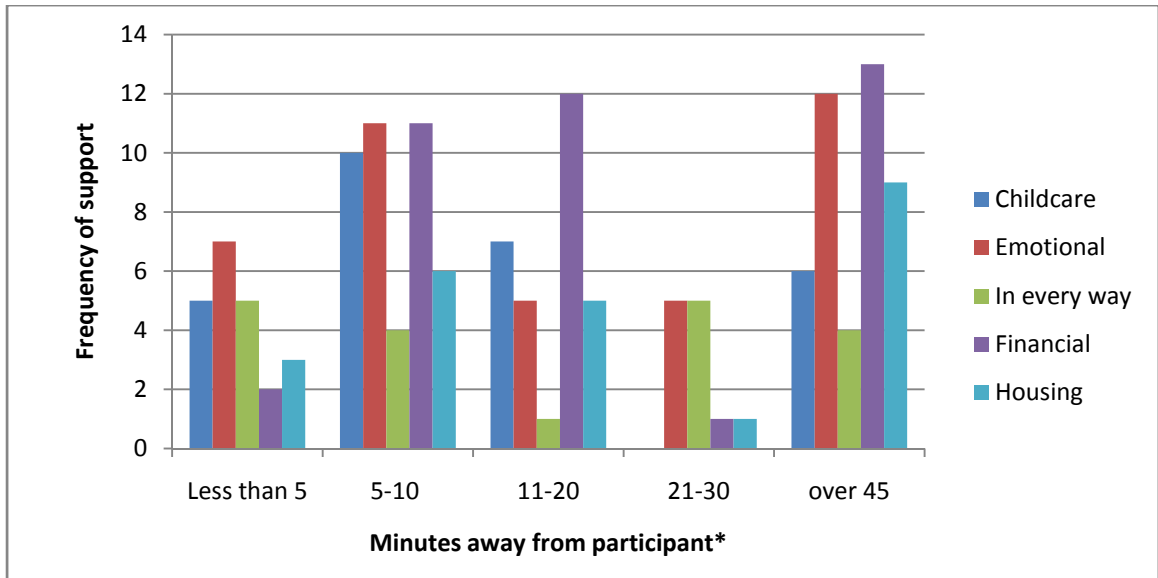


Figure 4.1 Frequency and category of support grouped by minutes away from reporting participants

**There were no responses of network support from within the 31-45 minute range.*

Another case similarly illustrates the difficulty that arises from having those people one can depend on for support – emotional, but especially financial – living in close proximity to the affected resident. In this instance, a white partnered mother (Interview 5) pointed out that her family, who resided in Arizona, was extremely supportive, however, family members who lived in the area impacted by the hurricane, were going through a similar ordeal, and while they could offer emotional support, financial assistance was out of the question.

Participant: [The kid’s grandparents] are just so concerned and wanting to help, even if the help isn’t needed. They’ve been there for us since that day, since the hurricane. It’s really just their support, they’ve been wonderful.

Interviewer: So mostly just emotional support?

Participant: Mmmhmm

Interviewer: If you needed financial support-

Participant: Oh yeah, they're there. Oh yes.

Interviewer: Are there other family members who may not be the most supportive but live close enough to ask for help or favors?

Participant: Yes, his side lives here. His sister and his mom lived here in Galveston, we all lived in Galveston, but they live in Texas City now. I would say support-wise, in communication, but if we really needed something financially, they wouldn't be able to help us. They're in the same boat we are.

Interviewer: Okay, so not because they don't want to but just because they can't.

Participant: Right. All of our family that was here, which is mostly his side, are all in the same situation.

In this research spatiality of social networks affects the some of the types of support received. Participants, who were affected by Hurricane Ike, were not likely to seek support from those who were also affected. However, childcare support was mostly received by network sources within a close radius while financial support came from social networks located farther away. These findings reveal the importance of spatiality in the configuration of social network support and how it relates to post-disaster recovery.

4.5 Partnered Versus Single Parent Households

Lin (2000) theorizes that men and women have differential access to social capital due to gendered social inequalities; therefore partnered parent households must be able to access social capital more effectively than single parent households because of their ability to make use of two discrete social networks. This contrast is especially pronounced if we compare heterosexual partnerships to cases in which a single woman heads the household. While differences between partnered and single parent households in this study might have been more distinct with a larger male participant population, there are clear differences in the use of social networks between single and partnered

mothers. To highlight these differences, the responses from fathers are combined in Table 4.8. One question included in interviews was how the participant’s childcare situation affects their search for stable housing. Respondents were asked to rank the effect on a scale from 1 (None) to 4 (Very Much). Among participants, 69% noted that their children influenced their housing search in *some way* and 28% of all respondents used the terms “Quite a bit” and “Very Much”. Though the logical expectation would be that the search for stable housing by single mothers is complicated by childcare because of the amount of responsibility resting on one care-giver, only 32% of single mothers acknowledged such a complication. However, 75% of partnered mothers said that their childcare situation influences their search for stable housing “Quite a bit” or “Very much”. A difference in proportions test finds the proportion of single mothers versus partnered mothers citing little influence of childcare on their housing search to be significantly different above the 99% confidence level ($p = 0.007$).

Table 4.8 Influence of children and childcare on housing search, by household composition

Influence of Children and Childcare on Housing Search	Single Mothers N= 31	Partnered Mothers N= 16	Fathers N= 14
None/A Little	52% (16)	19% (3)	36% (5)
Quite a bit/Very Much	32% (10)	75% (12)	50% (7)

Question wording: *Would you say that your childcare situation influences your search for stable housing?*

N values in parentheses

Further qualitative analysis on the subject reveals that the reasons given by the single mothers for responding “No” or “A little” were very similar to those answered by

partnered mothers in the “Quite a bit/Very much” category. These results show that while some participants were responding with relatively low measurements of childcare influence, their justification for these responses remains comparable to the participants who highly ranked childcare’s impact on their housing search. For example, a partnered Latina mother who responded with an influence of 5 (Very Much) reasoned that she had a 3-4 hour time limit on how long she can leave her child with her godmother to look for housing (Interview 7). Meanwhile, a single Latina mother responded with an influence of 2 (A Little) reasoning that her child’s daily routine doesn’t fit in with the housing search so in order to go out to look, she has to find childcare.

Some single mothers even presented equally stressful situations as partnered mothers, yet still classified the affect as not having much influence. For example, a partnered Latina mother responded with an influence of “Quite a Bit” (4) reasoning that because of her children’s new transportation issues after the storm, she doesn’t have time to go searching. Also, she cannot take her children along while she looks, forcing her to search out childcare beforehand (Interview Th 8). On the other hand, a single White mother responded with an influence of “A Little” (2) reasoning that she does not have transportation or childcare so she has to take her 6 year old child with her while searching for housing. Lacking transportation and needing to bring her daughter along increased the time needed to search for a house, which heightened the stress for mother and child alike.

While single mothers in this study had more extensive childcare support from their social network than other groups, it is clear that the acquisition of childcare still presented a challenge. These examples demonstrate how an individual’s situation influences their perception of the barriers preventing them from rapidly identifying

housing opportunities. It is possible that the normalization of the burden of both housing and childcare responsibilities understood by single mothers causes them to perceive their children's influence over the housing search as having less impact comparatively. A closer look into the data reveals that single mothers reporting "Not at all" or "A little" have a frequency of network childcare support of 62% while partnered mothers report 50%, bringing up the possibility of strong social network support in childcare as a possible reason for the differences in perception we're seeing between single and partnered mothers. From the perspective of a single father interviewed, he saw his experience as a man trying to attain resources for his housing and child's needs as more difficult than a woman in his same situation. Therefore, it seems that it is not the responsibilities of housing or childcare that are burdensome in the case of all parents in this study, but the context within which these issues are shaped.

4.6 Race and Ethnicity

Research participants engaging in this study were ethnically and racially diverse. To assess whether social network support post-disaster varies by race or ethnicity, incidents of network support for minority participants in this research were summed and compared. Participants who considered themselves to be Black or African American were much more likely to report that they had friends or family who were supportive in every way possible: 8 Black/African American participants out of 24 total Black/African American participants as opposed to, for example, 2 out of 13 White participants. Furthermore, Black/African American participants also reported higher frequency of social network support in terms of childcare and money than other groups (Table 4.9). One Black single mother in particular brought attention to her most supportive friends,

but she also stressed that her family was very generous and willing to provide her with any form of emotional or material support she requested. This indicates an extremely strong kin network, one she places the greatest reliance on despite having dense social ties, which extend in many directions. In fact, there was a greater than 15% increase in number of minorities who reported receiving support from family members as opposed to friends (88% and 71% respectively).

White participants, with respect to specific types of support, noted the highest frequency of emotional and housing support from their social network while Black/African American participants noted the lowest amount of support in the area of housing. Latino participants noted high levels of emotional support as well from their social network (Table 4.9). Unfortunately, Vietnamese participants observed particularly low levels of network support across the board. Both the pastor at San Leon Community Church as well as the one at Oak Island Baptist Church described the Vietnamese in their community as accepted, though socially isolated due to linguistic and cultural barriers. One Vietnamese man was particularly distressed about his situation because he felt that marrying a Latina further isolated him and his family. He was very adamant about not having a place within either community and, as a result, identified his wife's family his only source of network support.

Table 4.9 Frequency of categorized support by race

		Frequency Of Network Support				
	N	Childcare	Emotionally	Every Way	Financially	Housing
Black	24	21	25	10	28	7
Latino	16	7	14	2	12	8
Mixed	3	2	2	0	3	2
Vietnamese	5	1	1	1	0	2
White	13	7	18	3	6	11

This study uncovered differences in the way that different minority groups interact with their social network. Bolin (2007) suggests that racialized disadvantages are manifested through social class. While it would have been interesting to pursue differences in income, Table 4.10 below illustrates that the sample characteristics those did not include sufficient diversity for comparative analysis. It does suggest similarity in the types of support received by income groups except in the case of financial support for those households earning over \$85,000.

Table 4.10 Types of social network support by income level

	N	Childcare	Emotional	Housing	Financial	Every Way
Under \$20,000	36	44%	53%	44%	61%	22%
\$20,000-30,000	11	55%	55%	27%	45%	18%
\$35,000-45,000	5	0%	60%	40%	60%	40%
\$45,000-60,000	2	0%	50%	50%	50%	50%
\$60,000-85,000	0	0%	0%	0%	0%	0%
Above \$85,000	5	40%	60%	60%	20%	0%

Sample size and distribution resulted in cell sizes that were not valid for chi square tests, even when the top 3 income categories were collapsed.

This chapter addresses this project's three main research questions and related issues. Analyses of 61 interviews involving both partnered and single parent households provides a basis for findings and also revealed areas of potential interest in query. In the concluding chapter, a summary of results are provided, as well as implications and considerations regarding future research. Findings highlight gendered differences in the way that social capital is utilized and social networks are accessed, as well as differences between partnered and single parents.

Chapter 5: Conclusions

5.1 Significant Findings

This thesis addresses three specific research questions:

- 1) Does gender influence the exchange of information and favors within social networks in the search for and acquisition of childcare?
- 2) Does gender influence the exchange of information and favors within social networks in the search for and acquisition of stable housing?
- 3) Do social networks of partnered and single parent households differ in the exchange of information and favors in terms of searching for and acquiring childcare and stable housing?

Within this framework, there was also specific examination of the influence of gender and parenting situations in the role of kin, friendships and acquaintances as well as spatial or aspatial configuration of social networks for sharing information or trading favors. The following sections provide a succinct overview of the findings in this research, both those that are directly related to research questions as well as those that were found serendipitously, followed by a general discussion of themes, observations for practical applications, and directions for future research.

5.1.1 Findings Directly Related to Research Questions

The following are significant findings that directly address the research questions:

- Gender **does** influence the exchange of information and favors within social networks in the search for and acquisition of childcare.
 - All of the fathers in this sample used their social networks for information on childcare opportunities whereas only 50% of partnered mothers and 30% of single mothers used their networks for this purpose.
 - Mothers in general reported high amounts of childcare support (Table 4.1), particularly single mothers who reported higher frequencies of childcare support in both normal and emergency/short notice situations than all other groups (Tables 4.2 and 4.3).
- Gender **does** influence the exchange of information and favors within social networks in the search for and acquisition of stable housing.
 - Single mothers demonstrated more diversity in their sources of network information than did other groups (Table 4.5).
 - Both partnered and single mothers used their social networks as sources of temporary housing during and after Hurricane Ike more than fathers did.
- Social networks of partnered and single parent households **do** differ in the exchange of information and favors in terms of searching for and acquiring childcare and stable housing. Because women were represented more than men in this study sample, differences between single and partnered mothers were more apparent.
 - Partnered mothers, more often than single mothers, directly engaged the landscape in an effort to find information on stable housing (Table 4.4).

- Single and partnered mothers perceived the barriers of children and childcare on their housing search differently from each other (4.8).
- Kin, friends and acquaintances **do** provide different kinds and amounts of social network support.
 - Kin networks supported favors concerning participants’ children twice as often as friends.
 - Kin networks provided financial support to participants twice as often as friends.
 - Friends were more likely than kin to be characterized as supportive “in every way.”
- There are spatial aspects of social network support, specifically in the context of childcare and financial support.

5.1.2 Related Findings

The following are significant findings that do not directly address the research questions:

- Fathers were more likely than mothers to report not having supportive friends or family at all.
- Emergent networks following the disaster were uncommon.
- Mothers were most often named among groups as the “most supportive” person within the participants’ social networks, followed by sisters.
- Social network support varied by race and ethnicity.

5.2 Overarching Themes

As a result of the diversity of factors referenced in this research, several themes emerged in the analysis. These themes provide the context for the summary of the research questions. Through a focused engagement of gender in this research, the importance of gender in socially constructed post-disaster roles is made more apparent and, therefore, remains an overarching theme to address. The first emergent theme is only one participant in this study made any reference to making new social network connections post-disaster, a finding that brings our attention to the importance of access to social capital post-disaster. The second emergent theme is the apparent difference between partnered and single mothers in this research and the way they use their networks to sustain their post-disaster needs.

5.2.1 The Importance of Gender in Social Network Support

Gender is an important factor in the examination of social vulnerability to disasters. Despite the small sample size of fathers in this research, there were a few points of difference between the ways in which fathers and mothers utilized social networks that may lead to statistically significant findings in a larger research study. For one, fathers were more likely than mothers to report that they did not have any supportive family or friends. Because this research focused most specifically on informal networks, this finding could contribute to the formal versus informal networks debate provided by feminist social capital theorists such as Holt (2008). Fathers in this research also did not acknowledge childcare support in their social network to the extent that mothers did (Tables 4.1 and 4.2), possibly reinforcing gendered expectations of childcare duties.

Conversely, all single and partnered fathers in this study used their social networks to find information on childcare in this study, whereas, despite their extensive support from network members offering childcare, most single mothers didn't utilize their network for this purpose at all. Fathers also acknowledged labor as a form of network support more often than mothers, demonstrating the adherence to gendered roles that Fothergill (2004) theorized men adopt following disaster. However, mothers demonstrated a significant difference from fathers in their utilization of their social network for temporary housing. These women took advantage of multiple different levels of their social network for temporary housing and many stayed in several different locations during their displacement from Hurricane Ike, while only 50% of fathers in this study used their social network in such a manner. Hence, these results point to the probability of gendered diversity in the way that social networks are utilized post-disaster.

Initially my intent had been to focus on the gender of the participants but throughout this research, it became apparent that the gender of people providing information and support within the participant's social networks was equally important. Participants in this study were asked to specify which family, friends, or other social network connections offered childcare. In response to that question, all participants identified exactly *which* friend, family or associate provided that support. Consequently, I was able to analyze the gender of the people supporting the participant with childcare, finding that the vast majority were other women. Table 4.3 documents that divide, detailing the reliance of all groups on women family members, chiefly mothers and sisters, as care-givers. All the fathers in this research noted that they relied on their social

network for information on childcare but it must be reiterated that the people within their network upon whom they relied were their mothers and wives for the most part. In general, post-disaster support, including childcare support, mostly originated from mothers and sisters of participants in this study (Table 4.6).

5.2.2 Social Capital and Networks Following a Disaster

Though the expectation of increased community cohesion in some post-disaster locations assumes the expansion of social networks, many participants in this study noted specifically that they would not ask for favors from other people within their network that were also affected by the storm. In this study, those network connections located farther away from research participants were able to provide more financial support than those that were local (Figure 4.1). Statements in this research such as “I have family nearby but they’re in the same situation” (T8) were common, highlighting that this research supports the importance of geography in access to social networks because “social capital has both resting and active potential, but acting social capital may be the only beneficial form within the disaster context” (Barnshaw 2006, 14).

Looking at Table 4.7, friends are willing to be supportive “in every way.” Yet analysis demonstrated that friends within social networks were not as avid about providing material or tangible support such as childcare and money. As Morrow (1997) proposes, kin networks are important in the post-disaster setting but the contributions of social network support by friends should not be overlooked as this study confirms that they provide emotional support integral to psychological recovery.

Additionally, assertions like “I know who my friends are now” also occurred. Reports such as this support Morrow’s statement in her analysis of social networks post-

Hurricane Andrew: “Lasting effects tend to reflect pre-disaster relationships: in other words, strong bonds get stronger while tenuous ones become weaker and ultimately break under disaster stress” (Morrow 1997, 144). Therefore, access to social capital post-disaster is directly related to the strength of social network connections *pre*-disaster as well as the geographic locations of those connections and the quality of capital they provide, regardless of the familial or amiable nature of these ties.

5.2.3 Differences Between Partnered and Single Mothers

The number of mothers participating in this study was significant in that it allowed for a closer look into how women variously assemble social networks. Partnered mothers in this study had a few advantages in securing childcare and housing opportunities. The first is that they were able to drive around and look for housing more than single mothers. As previously noted, being able to engage directly looking for available housing was a much more reliable and faster way following Hurricane Ike considering the combined lack of affordable housing and widely available information on such housing (Table 4.4). Partnered mothers were able to do this more than other groups and also had much more temporary housing support than single mothers, predominantly in terms of friends providing housing.

Single mothers, on the other hand, had very strong childcare support networks for the most part, both in terms of everyday circumstances and emergency or last minute childcare (Tables 4.1, 4.2 and 4.3). However, they did not use their social networks to find information on childcare to the extent that partnered mothers did, preferring instead listings from a local nonprofit. Single mothers also saw their children as not having much influence on their housing search while partnered mothers overwhelmingly did (Table

4.8). Surprisingly, both groups had similar reasoning behind their disparate rankings. I suggest that this difference can be attributed to the context within each woman evaluated obstacles concerning their children. Since single mothers are the primary care-givers for their children, issues such as taking their child with them to find housing or establishing childcare before searching may seem like little inconveniences compared to other issues faced as a single mother.

The difference between the way that single and partnered mothers in this research utilize their social networks is significant as the information may also be applicable to everyday life, not only disaster situations. Single mothers, while lacking the financial and transportation resources that partnered mothers experience, demonstrate a diversity in their approach to social networks, accessing multiple levels while other groups did not (Tables 4.2, 4.3, and 4.5). Nevertheless, it seems that partnered mothers in this study do benefit from their household situation, particularly following a disaster. Their ability to secure temporary housing from their network, drive around to look for housing, receive network information on childcare, and have network financial support, provides them with an immense amount of support that can be transferred into capital whereas single mothers seem to have strong network childcare support. While childcare support from a social network is important and integral to disaster recovery, it does not address many other issues often faced by single mothers such as employment, finances, transportation, housing, and availability of time.

5.3 Suggestions for Further Research

This research provides further insight into the dynamics between social capital and gender post-disaster. Still, there are several limitations to the analysis and future

research is necessary to address these and validate findings in other situations. First, the low numbers of male participants did not allow for statistical analysis of gender differences on many questions. Though qualitative examples of gendered differences informed much of the analysis, the small statistical sampling does not provide for a full examination of the differences between populations, and how they are significant. Because this study identified the differences in social capital between single and partnered mothers, there is room to conduct further inquiry, zeroing in a larger number of fathers, especially single ones, which can improve our understanding of how social capital is gendered. Several times during this research, transportation was identified as a social network support. In addition to noting that driving around was the most effective way to find housing following the hurricane, access to social networks by personal or public transportation was also an important point brought up during interviewing. In the case of childcare and schooling needs in post-disaster circumstances, transportation was a pivotal issue given the damage that both daycare centers and schools sustained. Children often had to be transported farther on a daily basis than before the hurricane. Because of the interconnections found in this research between transportation, childcare and housing, and because of the reliance of these three topics on social networks, a study that incorporates transportation in a gendered analysis of social networks would provide a more complete picture of social capital post-disaster.

Race, ethnicity, and income are also determinant factors of social vulnerability in the face of hazards, and should be incorporated into future studies looking at how social capital circulates. Through contacts I initiated, I obtained an ethnically diverse population. Those contacts clarified aspects of social network access as it relates to

isolation, such as in the case of the Vietnamese communities which reported almost no support from social network sources. Conversely, Black/African American participants were found to have high levels of social network support in terms of childcare, emotional support and financial support. Latinos described a high level of emotional support while White participants reported high levels of emotional and housing support. Minorities in this study were more dependent on kin than friends. Analysis on access to social capital by race and ethnicity are incomplete due to the dominant focus on gender rather than race and ethnicity in research design. Similarly, a sample that provided more economic diversity among households would have lent a deeper insight into the interaction of race and class. However, the insights provided in this document delve into the way that social network support varies by race and ethnicity and provides concrete evidence that cultural background and social construction of racial class effects the way that people associate with their social networks following a disaster. Ultimately they may hold implications for the rate of recovery in differing populations.

5.4 Practical Applications of this Research

Confirming the findings of previous literature on the subject (e.g. Fothergill 2004, Enarson 2008), childcare and housing are very much linked both to each other and also to gender and recovery following a disaster. The majority of parents in this study noted that their children influenced their housing search *in some way* and almost half said that children *greatly* influenced their search. While the magnitude of influence seemed to be normalized differently by single and partnered parents, the experience of searching for stable housing remains an issue aggravated by the responsibilities of childcare.

The findings provided by this research allow for some practical suggestions for NGO's and other place-based organizations on using social capital as a focus in post-disaster resilience. Given the finding that emergent networks in the aftermath of Hurricane Ike were uncommon, focusing NGO disaster recovery support on assisting survivors in creating and maintaining new social network connections may contribute to the resilience of socially vulnerable populations. The process of exchanging information and favors post-disaster can be facilitated and ameliorated by providing support programs that concentrate on encouraging relationships between participants while also engaging the issues presented by childcare and housing search directly. For example, a community program that provides childcare for participants' children while transporting adults around the area to locate potential housing would engage multiple levels of concern: engaging the landscape to find stable housing, alleviating the barrier of childcare on the housing search, and promoting the creation of new social network connections. Creating an avenue for new social network connections to emerge increases the potential of reducing vulnerability on an individual level in a way that, if implemented effectively, can lead to community-wide resilience.

Governmental responses to disaster often focus on making temporary housing available. However, individuals might have a better chance of accessing permanent housing if policymakers deem the issue of obtaining childcare a priority worth pursuing. Providing childcare at a time when childcare facilities, employment, and finances have been compromised by disaster offers the time and resources necessary to obtain stable housing. As investigation of social networks addresses both formal and informal access to post-disaster needs such as childcare and housing, examination of post-disaster

recovery through the framework of social capital is a viable way to address social vulnerability. Given that women often take on the care-giving role within the community following a disaster, focusing relief efforts on providing childcare could play a valuable role in reducing social vulnerability to disaster.

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Appendix A

Study Title: Gender and Social Capital: Rebuilding Networks Post-disaster

Dear Research Participant,

My name is Christina Griffin. I am a graduate student in the Geography Department at the University of South Carolina. I am conducting a research study as part of the requirements of my degree in Geography, and I would like to invite you to participate. This study is funded by the Women's and Gender Studies Department at the University of South Carolina.

I am studying ways in which people maintain and expand their social ties to rebuild their lives following a disaster with the ultimate goal of finding safe and stable housing for their families. If you decide to participate, you will be asked to participate in a brief interview. In particular, you will be asked questions about your household composition, your supportive friends and family, important sources of information and basic demographic information such as your age, approximate yearly income, ethnicity and education. The meeting will take place over the phone or at a mutually agreed upon time and place, and should last about 15-25 minutes. The session interview will be audio taped so that I can accurately reflect on what is discussed. The tapes will only be reviewed by members of the research team who will transcribe and analyze them. They will then be destroyed.

You may feel uncomfortable answering some of the questions. You do not have to answer any questions that you do not wish to. Although you probably won't benefit directly from participating in this study, we hope that others in society in general will benefit from the analysis of how social networks are maintained and utilized following a disaster and how they might contribute to resilience.

Participation is confidential. Study information will be kept in a secure location at the University of South Carolina. The results of the study may be published or presented at professional meetings, but your identity will not be revealed.

Taking part in the study is your decision. You do not have to be in this study if you do not want to. You may also quit being in the study at any time or decide not to answer any question you are not comfortable answering.

We will be happy to answer any questions you have about the study. You may contact me at (803)777-5012 and griffin.ce@gmail.com or my faculty advisor, Dr. Kirstin Dow, Associate Professor of Geography at (803)777- 2482 and dowk@mailbox.sc.edu if you have study related questions or problems. If you have any questions about your rights as a research participant, you may contact the Office of Research Compliance at the

University of South Carolina at 803-777-7095 or Tommy Coggins, Director of the Office of Research Compliance at the University of South Carolina, at (803)777-4456.

Thank you for your consideration.

With kind regards,

Christina Griffin
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Columbia, SC 29201
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Interview Questions: Gender and Social Capital

Participant Name _____ Survey Id # _____

THIS PAGE WILL BE SEPARATED FROM THE SURVEY AND KEPT IN A
SEPARATE LOCKED FILE

Interview Questions: Gender and Social Capital

Survey Id # _____

Date ____/____/____

Interview Location: _____

Please list the members of your household as well as their sex, age and relation to you:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

1. Does your current household composition differ from before you the hurricane?

- No
 Yes

How? _____

2. Is there anyone in your household with special needs?

- No
 Yes

What are their needs? _____

3. How far away do the **most supportive** members of your family live:

- Less than 5 minutes
 5-10 minutes
 11-20 minutes
 21- 30 minutes
 31-45 minutes
 More than 45 minutes

4. In answering that question, what family members come to mind and in what way are they supportive?

Family member	Where do they live?	How are they supportive?	How do you usually interact with them?

5. Are there other family members who may not necessarily be the **most** supportive but live close enough to ask for help or favors?

Family member	Where do they live?	How are they supportive? <i>Prompt: advice; helping with tasks; listening</i>	How do you usually interact with them? <i>Prompt: phone, visit, email, text</i>

6. Your **most supportive** friends live:

- Less than 5 minutes
- 5-10 minutes
- 11-20 minutes
- 21- 30 minutes
- 31-45 minutes
- More than 45 minutes

7. In answering that question, what friends come to mind and in what way are they supportive?

Friend	Where do they live?	How are they supportive? <i>Prompt: advice; helping with tasks; listening</i>	How do you usually interact with them? <i>Prompt: phone, visit, email, text</i>

8. Are there other friends who may not necessarily be the **most** supportive but live close enough to ask for help or favors?

Friend	Where do they live?	How are they supportive? <i>Prompt: advice; helping with tasks; listening</i>	How do you usually interact with them? <i>Prompt: phone, visit, email, text</i>

9. Which of the following reasons most accurately describes why you decided on FEMA temporary housing? (check all that apply)

- My friends did not have any room available
- My family members did not have any room available
- I felt uncomfortable imposing on friends or family
- I did not have any friends willing to offer temporary housing
- I did not have any family willing to offer temporary housing
- The cost of hotel rooms/temporary rentals were too high
- I did have temporary housing for a while but needed my own place

10. In your search to find or rebuild stable housing for you and your family, what is the first, second, and third most important source of information for you on opportunities?

Source of Information	Notes
1.	
2.	
3.	

11. Have your childcare or child's schooling needs changed compared to before the disaster?

- No
- Yes

How so? _____

12. Who currently provides you with regular childcare? (check all that apply)

- My children are old enough to not need childcare
- Family members

Which family member? _____

- A childcare facility

How far away is it located? _____

- Neighbors

How long have you known this neighbor? _____

- Friends

How long have you known this friend? _____

- Other _____

13. Who provides you with emergency, last minute, or occasional childcare? (check all that apply)

- My children are old enough to not need childcare

- Family members
Which family member? _____
- A childcare facility
How far away is it located? _____
- Neighbors
How long have you known this neighbor? _____
- Friends
How long have you known this friend? _____
- Other _____

14. Please rank the first, second and third most important sources of information for you on childcare opportunities.

Source of Information	Notes
1.	
2.	
3.	

15. Would you say that your childcare situation influences your search for stable housing?

- No
- Yes- check one of the following options:
 - ___ 1- Not at all
 - ___ 2- A little
 - ___ 3- Somewhat
 - ___ 4- Quite a bit
 - ___ 5- Very much

Notes:

Participant Information

Age _____

Gender

- M
- F

What is your ethnic background? _____

Do you consider yourself to be Hispanic, Latino, or Spanish origin?

- No
- Yes

Which racial category best describes you?

- White
- Black, African Am., or Negro
- American Indian or Alaska Native
- Asian Indian
- Chinese
- Filipino
- Japanese
- Korean
- Vietnamese
- Other Asian
- Native Hawaiian
- Guamanian or Chamorro
- Samoan
- Other Pacific Islander
- Some other race: _____

What is the highest level of schooling you have completed?

- Some high school
- High school diploma
- GED
- Voc/Trade/Business School
- Some college or 2 year degree
- Finished 4-year degree
- Master's degree or equivalent
- Other advanced degree

How would you describe your marital status?

- Married or living with a partner
- Never married and never lived with a partner
- Separated
- Divorced or formerly lived with a partner
- Widowed

Approximately what is the yearly income for your household?

- A- Below \$20,000
- B- \$20,000 - \$35,000
- C- \$35,000 - \$45,000
- D- \$45,000 - \$60,000
- E- \$60,000 - \$80,000
- F- Above \$80,000

Thank you very much for your time. By sharing your story you will help us to better understand the disaster and to contribute to new strategies to make the transition and recovery easier for future survivors of disasters.

May I contact you again later in the research process?

- No

Thank you for your participation

- Yes

Please turn to next page

Survey # _____

If yes, please let me know the best way to contact you:

- Phone Number _____

- Email address _____

THIS WILL BE SEPARATED FROM THE SURVEY AND KEPT IN A LOCKED FILE.

Appendix B

1. Does your current household composition differ from before the hurricane? Yes: 20% No: 80%
2. Is there anyone in your household with special needs? Yes: 18% No: 82%
3. How far away do the most supportive members of your family live? Less than 5 minutes: 20% 5-10 minutes: 13% 11-20 minutes: 16% 21-30 minutes: 13% 31-45 minutes: 0% Over 45 minutes: 51% No supportive family: 8%
6. How far away do your most supportive friends live? Less than 5 minutes: 14% 5-10 minutes: 26% 11-20 minutes: 13% 21-30 minutes: 6% 31-45 minutes: 0% Over 45 minutes: 16% No supportive friends: 3%
9. Which of the following reasons most accurately describes why you decided on FEMA temporary housing? (check all that apply) My friends did not have any room available: 13% My family members did not have any room available: 13% I felt uncomfortable imposing on friends or family: 11% I did not have any friends willing to offer temporary housing: 5% I did not have any family willing to offer temporary housing: 3% The cost of hotel rooms/temporary rentals were too high: 0% I did have temporary housing for a while but needed my own place 70%
11. Have your childcare or child's schooling needs changed compared to before the disaster? Yes: 52% No: 48%
12. Who currently provides you with regular childcare? Myself/No one: 62% My children are old enough to not need childcare: 15% Family members: 15% A childcare facility: 10% Neighbors: 0%

Friends: 0%
Other: 2%

13. Who provides you with emergency, last minute, or occasional childcare?

Myself/No one: 3%
My children are old enough to not need emergency childcare: 7%
Family members: 78%
A childcare facility: 0%
Neighbors: 3%
Friends: 25%
Other: 2%

15. Would you say that your childcare situation influences your search for stable housing?

No: 36%
A little: 8%
Somewhat: 10%
Quite a bit: 17%
Very much: 29%

Appendix C

Survey ID #	Marital Status	Sex	Age	Location	Education	Race	Income*
1	Single	M	55	Galveston Food Fair	HS/GED	Black	A
2	Married	F	31	Galveston Food Fair	Some Coll	Latina	B
3	Single	M	41	Galveston Food Fair	Some Coll	White	B
4	Single	F	41	DRC	HS/GED	Black	A
5	Married	F	31	DRC	Some Coll	White	B
6	Partnered	F	19	DRC	Some HS	Mxd	A
7	Partnered	F	18	DRC	Some HS	Mxd	A
8	Married	F	40	DRC	College	Black	C
9	Separated	F	30	DRC	Some Coll	Black	A
10	Married	M	64	San Leon Comm Church	HS/GED	Viet	A
11	Married	M	40	San Leon Comm Church	Some HS	Viet	B
12	Married	M	65	San Leon Comm Church	Some HS	Viet	A
13	Married	F	45	Phone	College	White	F
M1	Divorced	F	50	DRC	HS/GED	Black	A
M10	Single	F	23	DRC	Some Coll	Latina	A
M11	Single	F	25	DRC	Some HS	Black	A
M12	Married	F	40	Phone	College	White	F
M13	Married	F	40	DRC	HS/GED	Black	A
M14	Partnered	M	23	DRC	HS/GED	Black	A
M15	Single	F	19	DRC	HS/GED	Latina	A
M16	Single	F	32	DRC	HS/GED	Latina	A
M2	Separated	F	39	DRC	College	Latina	C
M3	Divorced	F	33	DRC	HS/GED	White	A
M4	Single	F	55	DRC	Some Coll	Black	C
M5	Widowed	F	60	DRC	Some HS	White	A
M6	Separated	F	34	DRC	Some Coll	Latina	A

M7	Separated	F	31	DRC	HS/GED	White	B
M8	Single	F	23	DRC	Some HS	Black	A
M9	Single	F	44	DRC	HS/GED	Black	A
T1	Married	F	42	DRC	Some Coll	White	B
T10	Married	M	52	Oak Island	HS/GED	White	F
T11	Widowed	F	62	Oak Island	Some Coll	White	A
T2	Single	F	58	DHAP	HS/GED	Black	A
T3	Single	M	30	DRC	HS/GED	Latino	A
T4	Married	M	40	DHAP	HS/GED	Latino	B
T5	Single	F	44	DHAP	Some Coll	Black	A
T6	Married	F	32	Oak Island	Some Coll	Latina	C
T7	Single	M	20	Oak Island	HS/GED	Latino	D
T8	Married	M	48	Oak Island	HS/GED	Viet	F
T9	Married	F	34	Oak Island	HS/GED	Viet	B
W10	Single	F	20	DRC	Some Coll	White	A
W11	Divorced	F	62	DRC	Some HS	Latina	A
W12	Married	F	30	DRC	College	Latina	C
W2	Single	F	33	DHAP	Some HS	Black	A
W3	Single	F	26	DHAP	HS/GED	White	A
W4	Separated	F	53	DHAP	HS/GED	Black	A
W5	Single	F	23	DRC	HS/GED	Black	A
W6	Single	F	44	DRC	HS/GED	Latina	A
W7	Single	F	37	DRC	HS/GED	Mxd	A
W8	Married	M	52	DHAP	Some Coll	Latino	F
W9	Single	F	37	DRC	College	Black	D
Th1	Single	F	28	DHAP	HS/GED	Black	B
Th10	Single	F	21	DHAP	HS/GED	Black	A
Th2	Single	F	30	DHAP	Some HS	Black	A
Th3	Single	F	24	DRC	HS/GED	Black	A
Th4	Married	F	28	DRC	HS/GED	Black	A
Th5	Married	F	32	DRC	HS/GED	Latina	A
Th6	Married	M	22	DHAP	Some Coll	Black	B
Th7	Partnered	M	23	DHAP	Some HS	White	A
Th8	Married	F	34	DRC	Trade School	Latina	B
Th9	Single	F	35	DRC	Some Coll	Black	A

***Income**

- A: Under \$20,000
- B: \$20,000 – 35,000
- C: \$35,000 – 45,000
- D: \$45,000 – 60,000
- E: \$60,000 – 85,000
- G: Above \$85,000