

Gender, Risk, and Disaster*

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Focusing on gender differences, this article synthesizes the literature on gender, risk, and disasters, and presents a comprehensive view of what is known in this area. Data are limited, yet, by using a nine-stage typology to delineate disaster preparedness, impact, and recovery, noteworthy findings are documented and discussed. The literature reveals a pattern of gender differentiation throughout the disaster process. The differences are largely attributed to childcare responsibilities, poverty, social networks, traditional roles, discrimination, and other issues of gender stratification. The emergent patterns have important implications and recommendations for future directions are offered.

Gender has profound impacts on all areas of social life and contributes to our understanding and knowledge of social processes. Traditionally, much sociological research and theory has taken a gender-neutral stance, overlooked women's perspectives of the social world, used "male" as a universal category of analysis, and rejected feminist scholarship (Stacey and Thorne 1985; Wallace 1989; Nielsen 1990). Despite the recognition of the importance of disasters' social dimensions (Mileti et al. 1975), the field of disaster research, to a large extent, also displays these weaknesses. Gender has been ignored or simply treated as a dichotomous survey variable in disaster research. Recently, however, this oversight has been acknowledged by some members of the disaster research community. These researchers agree that a gender-bias exists in hazard research and that women's roles, experiences, and perspectives need to be investigated and included (Nielsen 1984; Wiest et al. 1992; Burton et al. 1993; Morrow and

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Enarson 1994). The inclusion and clarification of gender issues in disaster research will foster a more complete understanding of risk and disaster in our society.

This goal of this article is to review and synthesize the literature on gender and disasters, to discuss the explanations the researchers attribute to gender differences, and ultimately, to illustrate the significant contribution the analysis of gender makes to disaster research. Moreover, by taking stock of what is currently known in this area, this review can help identify gaps, and inform and direct future scholarship. The data for this review come from a wide variety of sources. While most results are from larger, quantitative studies, other information is obtained from qualitative research or social service reports. One such report, *Women in Emergencies and Disasters* (1993), is a series of papers presented at an Australian symposium. The papers, written by a cross-section of women in the disaster services field, consider disasters from a female perspective and make recommendations for policy changes. This document, along with other social service reports, and smaller, exploratory studies, are included, despite their less systematic nature, as they make a valuable contribution to the review.

A Typology of Disaster Research

The findings of this review are organized in a typology based on the stages of a disaster event. This approach is based largely on the cyclical framework of the human ecological perspective, which uses the following categories: preparedness, response, recovery, and mitigation. This model, based on the life-cycle of the disaster event, has been used by many hazard researchers, disaster policy-makers, and social scientists.

The organization of this research is very similar, though not identical, to the life-cycle model. The typology uses the following categories to organize the findings: (1) exposure to risk; (2) risk perception; (3) preparedness behavior; (4) warning communication and response; (5) physical impacts; (6) psychological impacts; (7) emergency response; (8) recovery; and (9) reconstruction. This typology was changed slightly from the cyclical, four-category model for several reasons. First, the refined categories allow for more detail for the analysis, as well as for more precisely locating the gaps in our knowledge base. Second, several categories were added to elucidate issues of social stratification and gender inequities. The exposure to risk category allows us to examine how risk is distributed among members of the society. The impacts categories enable us to more carefully pinpoint who suffers negative impacts and why. These changes and additions will give us a clearer, more inclusive view and educate us as to who

is at risk in our communities and why, and specifically, how gender stratification molds, determines, and distributes risk of disaster.

Mitigation, a distinct and separate category in the previous typology, is now incorporated in other categories. Many disaster researchers and policy makers recognize the importance of conceptualizing mitigation as a process that occurs both before and after a disaster. The Federal Emergency Management Agency (FEMA) defines mitigation as “action taken to reduce the degree of long-term risk to human life and property from natural hazards,” noting that “the intent is to focus on pre- and post-event actions that produce benefits...” (1995, p. 1). Therefore, mitigation falls into several categories, such as preparedness behavior, recovery, and reconstruction. Some overlap exists in the typology. For example, some behavior may be both preparedness activities and a response to warnings; an action initiating in recovery may continue into reconstruction. The paper divides findings into categories based on logic and time-sequence factors.

The purpose of the revised typology is to shift to a hazards paradigm that provides a more comprehensive, critical, and holistic approach. The traditional natural hazards paradigm is currently being transformed by some disaster scholars in order to integrate the concept of sustainability, which includes inter-and intra-generational equity and the notion that all people deserve adequate standards of living. This nascent, yet popular, paradigm proposes that the ever-increasing losses from natural hazards are predominantly due to unsustainable development (Mileti et al. 1995). The emerging perspective advocates radical economic shifts towards societal equity, the redistribution of resources, drastic changes in values and priorities, and an improved quality of life worldwide and for generations to come (Carley and Christie 1993). Therefore, it is important that we understand how our society’s unsustainability and stratification contributes to the unequal distribution of risk and losses. This literature review contributes to such an understanding in terms of gender.

Research Findings

Exposure to Risk

This section examines the existing literature on women and their exposure to various types of risk. The specific findings of the literature review, which are elaborated on in the subsequent paragraphs in this section, lead to the conclusion that gender directly influences vulnerability in disasters and exposure to risks. The investigations argue that women’s heightened exposure results from gender inequality, social roles, especially as caregiver, and a lack of mobility.

Women are disproportionately living in poverty in both the United States and worldwide, and female-headed single parent households have a poverty rate four times that of male-headed households (U.S. Bureau of the Census 1994; World Resources and United Nations 1992). Indeed, so many women are poor that the phenomenon is referred to as the feminization of poverty (Pearce 1979). Research finds that the poor and people of color in society are at greater risk to disasters, both natural and human-made, and suffer disproportionately when they occur (Logue, Melick, and Struening 1981; Bullard 1990; Phillips 1993; Zimmerman 1993; Orr 1994). Those who live in mobile homes, for example, are much more likely to die in a tornado than those who live in sturdier, more expensive housing (Glass et al. 1980; Schmidlin 1993; Schmidlin and King 1994). In addition, the poor and people of color are at greater risk to industrial disasters as they are more likely to live near hazardous facilities (Bullard 1990). Thus, the poor, who are predominantly women and children, are more exposed to risks and are more vulnerable to disasters. Morrow and Enarson (1994), for instance, found that poor, minority women were most at risk to Florida's Hurricane Andrew because they lacked status, power, and resources.

Women's role as the primary family caregivers contributes to their exposure to disasters. In the United States, the vast majority of single-parent households are headed by women (U.S. Bureau of the Census 1994). As such, women's responsibilities for caregiving are great. Even in households with both a male and female parent present, the woman, regardless of her paid work status, has almost sole responsibility for the domestic sphere, including childcare duties (Hochschild 1989). Several studies disclose that women, as a result of caregiving, are at greater risk in many disaster situations, as they must stay with, assist, protect, and nurture family members (Rivers 1982; Miyano et al. 1991; Millican 1993).

In lower income countries, women face even greater vulnerability, which is compounded by and caregiving responsibilities (Noel 1990; Wiest et al. 1992; Chowdhury et al. 1993; International Federation of Red Cross 1994 and Red Crescent Societies). A lack of mobility and social isolation can augment women's risk exposure and vulnerability (League of the Red Cross and Red Crescent Societies 1991). Gray (1993) established in her work that many women in Africa are more exposed than men to the effects of a drought, as they must stay in the village and care for the children, while the men are able to migrate to find work. In these circumstances, those most exposed to the risks of drought are poor women.

Risk Perception

Social research demonstrates that one's perception of risks is influenced by social factors, cultural biases, and network relationships. This section addresses men's and women's differences in perceiving hazard and disaster risks. The literature demonstrates that women perceive disaster events or threats as more serious and risky than men, especially if it threatens their family members. It is possible that women are more concerned because of their relative lack of power and control in society. The specific research record, on which these statements rest, follows.

As men and women view the world differently, it follows that they will also perceive risks differently (Cutter et al. 1992). Women are ambivalent about taking risks, while men view risks and hazards as part of life (Szalay et al. 1986). Indeed, since women are more concerned about destructive technologies and war and men more prone to aggressive or risky behaviors, it may be generalized that men are "risk-takers" and women are "risk-avoiders" (Cutter et al. 1992, p. 10).

Women are more likely to perceive a disaster event or threat as serious or risky (Leik et al. 1982; Howe 1990; Cutter et al. 1992; Flynn et al. 1994). At Mt. St. Helens, women were more concerned about the mountain, rated its threat as higher, and felt that its ash was uncontrollable (Leik et al. 1982). Women report higher levels of fear and concern about earthquakes, even though men have more hazard awareness, and women are more likely to believe that scientists can accurately predict earthquakes (Turner et al. 1986). Women in Long Island, New York, expressed more concern than men about chemicals in their environment and the possible pollution, exposures, and health affects from them (Howe 1990). Women are more likely to consider nuclear power and pesticides to be "dreaded risks" and to desire more restrictive regulations on their use (Cutter et al. 1992, pp. 14–15). Women also perceive a risk as more threatening if it affects their family members; they more strongly oppose food irradiation in connection with family consumption than with self-use (Bord and O'Connor 1990). Flynn et al. (1994) surmise that women and people of color discern risks as larger because of their relative lack of control and power in the society, while white males sense risks as smaller since they create, manage, and control so much of the world.

Preparedness Behavior

Preparedness, the period involving pre-disaster preparation efforts and many mitigative actions, includes the identification of evacuation paths and shelters, the gathering of emergency supplies, the training of response

organization members, the education of citizens and family members, and conducting practice drills (Mileti et al. 1995). Since the disaster mitigation process is strongly linked to power differences, political-economic forces, and social inequalities (Tierney 1993), it is probable that gender stratification affects preparedness behavior. While the literature on gender and preparedness behavior is minimal, there is some indication that women prepare their families and communities for disaster more than men. However, they are more poorly represented in more formal emergency preparedness organizations.

Limited research assesses gender and preparedness on the individual or household level. Turner et al. (1986) discovered that, in a study on public response to earthquake threats, men and women do not differ in preparedness, though having children elicits preparedness. However, men are more concerned than women with the specifics and technical aspects of any preventative or protective measures (Szalay et al. 1986). Slightly more recent work evokes a different view. Morrow and Enarson (1994) disclose that before Hurricane Andrew, women were responsible for preparing their family members, stocking supplies, and getting the household ready for the storm. If men were present, they were responsible for the external areas of the house. Leik et al. (1982) found that more women than men tried to obtain additional information on the risk of Mt. St. Helens and how to protect their homes. It may be that women prepare more due to their heightened perception of risk.

Research on community involvement relates that women are slightly more likely to be trained and to volunteer for disaster preparedness programs in their communities (Nehnevajsa 1989). Neal and Phillips (1990) find that women outnumber men in the leadership and membership of "citizen emergent groups," grassroots organizations working on community disaster issues. Women become active in these groups through female friendship networks and because disasters pose a threat to the home and the community; thus, women's membership is seen as an extension of their traditional domestic roles and responsibilities. The female-dominant groups, however, are not always seen as legitimate; outside officials often perceive them as "hysterical housewives" and trivialize their disaster work.

In larger, more formal, emergency planning organizations, women are less well represented. Several reports and studies assert that the female perspective needs to be included in emergency response planning and that women are markedly absent in the decision-making positions, leadership roles, and higher levels of such organizations (Noel 1990; League of the Red Cross and Red Crescent Societies 1991; Wiest et al. 1992; Dann and

Wilson 1993; Williams 1993; Morrow and Enarson 1994). Researchers argue that women are not effectively utilized by the emergency management field and in formal response efforts (Morrow and Enarson 1994) and that while women in this field face many obstacles, such as the “old boys’ network,” they can still succeed (Phillips 1990, p. 87). Her study maintains that to overcome stereotypes, women need to be assertive, use networking skills, obtain female mentors, and to be careful of gendered speech patterns, as polite often appears weak.

Warning Communication and Response

The warning response stage involves the reception of and the immediate actions in response to disaster warnings, such as tornado sirens or radio emergency broadcasts. The warning communications and the subsequent actions are critical for saving lives, protecting property, and helping to mitigate damage. Gender is an important variable in this stage; the material illustrates that women are more likely to receive risk communication, due to their social networks, and to respond with protective actions, such as evacuation.

Risk communication research concludes that males and females do not hear, believe, or personalize disaster warnings in the same ways. Because of their social networks and roles, women are more likely than men to hear warnings (Turner et al. 1979, 1981). Women are more likely to hear warnings from their peers, such as friends, neighbors, and relatives, and subsequently relay the warnings to their husbands. Their husbands, however, are skeptical of these peer warnings (Drabek 1969). Women are more likely to believe disaster warnings and to take disaster announcements seriously (Mack and Baker 1961; Drabek 1969; Turner et al. 1981). They are also more likely to perceive the probability of a disaster recurrence (deMan and Simpson-Housley 1987). Moreover, women are more likely than men to interpret warning signals as valid, to accept them (Mack and Baker 1961; Drabek 1969), and to personalize the warnings (Flynn 1979; Hodge et al. 1981). Again, this behavior may be linked to women’s heightened perception of risk.

Documentation on who responds to warnings illustrates clear gender differences. In most disaster situations, women respond to warnings more than men (Wilkinson and Ross 1970; Flynn 1979; Flynn and Chalmers 1980; Neal et al. 1982; Beady and Bolin 1986). Since information from social networks influence the adoption of protective measures and hazard adjustments (Perry and Lindell 1986), these findings are consequential. While one study documents that women are more likely to take cover, both at home and at work (Goltz et al. 1992), the majority of the literature

concerns evacuation behavior. In Denver's 1965 flood, women were more likely to consult with peers in the evacuation decision (Drabek and Boggs 1968) and to want to evacuate (Drabek 1969). Some findings illustrate that women will not evacuate their homes in an emergency without their families (Drabek 1969; Millican 1993). One report noted that women wait for their entire family, or all of the children and the reassurance that the husband is informed of the family's destination, before they evacuate (Millican 1993). If men are home, it was found that they reluctantly agreed to evacuate in order to "shut her up" or to "keep the peace" in the family (Drabek 1969, p. 346). Prior to the Mt. St. Helens eruption, more women than men wanted to leave the area, though the men's preferences had the strongest influence on family decisions (Leik et al. 1982). Research on Hurricane Frederic found that of the Alabama residents surveyed, women were slightly more likely to evacuate than men (Beady and Bolin 1986). In the Camille Hurricane in 1969, those who stayed in the area were more likely to be male (Wilkinson and Ross 1970) and in the Denver flood of 1965 if a family member stayed behind it was the father, and in some cases, also an older son; often they stayed for fear of looters.

Physical Impacts

The physical impacts stage in a disaster cycle focuses on who is hit hardest and suffers the most severe consequences of the event. This section addresses the significance of gender in rates of mortality, morbidity, and injury in disasters. The limited data on the relatively low rate of fatalities in the U.S. are inconclusive. However, women in lower income countries are more likely to die in disasters. Critical factors for mortality are discriminatory practices in lower income countries, as well as one's location in a disaster, often determined by childcare responsibilities. Several recent studies also show increased rates of domestic violence in times of disaster.

Gender variation in mortality and morbidity rates in the U.S. vary by disaster type and location in the disaster. In 1994, twice as many males as females died in weather-related hazards, such as flash floods, winter storms, thunderstorms, and lightning (U.S. Dept. of Commerce 1995). For lightning, an earlier study concurred; Coates et al. (1993) found that men were more likely to die from lightning as they participate in more work and leisure activities outside. The government statistics also point to the critical nature of location; most of the 1994 deaths occurred outside of homes, in vehicles, and in the open (U.S. Dept. of Commerce 1995). Research on tornado mortality and morbidity are mixed. Several studies show that women, especially older women, are more likely to die in tornadoes (Glass et al. 1980; Schmidlin 1993); others find that men died more often (Beelman

1967; Topp and Sauve 1988). Another study reports no relationship between gender and death and injury in tornadoes, although it agrees that being outdoors is a significant risk factor for death and injury (Carter et al. 1989).

Location is significant in other countries and for other disasters. More females than males died in the 1946 Nankai Earthquake Tsunami in Japan (Miyano et al. 1991). The researchers maintain that women were more active in protecting children and the elderly and this contributed to their deaths. Two Russian earthquakes also had high female mortality. Rivers (1982) reports that in the Ashkabad earthquake in 1948, 33,000 died: 47 percent women, 18 percent men, and 35 percent children; in the Tashkent earthquake 20 percent more women died than men. Rivers attributes this large difference in mortality rates to women's responsibility for the children. While not explicitly stated in these studies, it appears that childcare may require staying in buildings, which are particularly dangerous in earthquakes; conversely, remaining indoors may be protective in some weather-related disasters.

In lower income countries, women face discrimination, abuse, and hardship in disaster periods; they receive less medical attention, food, and physical protection, and have fewer resources and rights (Rivers 1982; Schroeder 1987; League of Red Cross and Red Crescent Society 1991; Wiest et al. 1992; Gray 1993). Schroeder's (1987) study of Hausa women in Africa found women are more affected by droughts and famines than men, largely due to a lack of power and ownership in their work, educational restrictions, and economic disadvantages. In western Sudan, rural women's vulnerability is caused by drought, economic instability, and gender inequality (Gray 1993). During a two year drought in India, men's wages stayed constant, while women's fell due to their lack of occupational mobility (Bidinger et al. 1991). In the Bangladesh Cyclone of 1991, 42 percent more females died than males (Chowdhury et al. 1993), and in the Maharaashtra earthquake in India, women were 55 percent of the dead, with women aged 25-59 most affected (Parasuraman 1995). Rivers' (1982) study also reveals higher morbidity and mortality rates for women and female children. She discusses how girls have great physiological advantages over boys, yet they still have higher death rates; she attributes this variation to discrimination against women and female children.

Haider et al. (1991) provides further insight into the causes of females' greater mortality in lower income countries. The following excerpt from the Bangladesh Cyclone of 1991 illustrates how gender stratification plays out in a disaster:

A father reported that he held on to his son and daughter for dear life to keep them from being swept away by the tidal surge. When it became impossible to hold on to both of them, he helplessly released one—his daughter. He said, “this son has to carry on the family line” (Haider et al. 1991, p. 64).

In addition, many women perished with their children at home in this cyclone, as they had to wait for their husbands to return and make the evacuation decision, and finally, many women died because of their dress, the saree, which restricted their ability to move (Haider et al. 1991; Chowdhury et al. 1993). Parasuraman’s (1995) work on the Indian earthquake found men were less likely to die as they were in the fields, guarding crops, and or outside of the village, working or attending school, when the earthquake hit.

The negative physical impacts of disasters on women, according to several recent studies and reports, includes domestic violence. The investigations report that the rates of violence against women, especially spousal abuse, increase in times of disaster (Honeycombe 1993; Dobson 1993; Palinkas et al. 1993; Williams 1993; Morrow and Enarson 1994). Compounding this, in the disaster aftermath there is a decrease in police protection, as social control norms change after a disaster and laws regarding domestic disputes are often not enforced (Wenger 1972).

Psychological Impacts

The impacts of a disaster may also produce emotional distress and trauma. This section evaluates literature on the gendered nature of disasters’ psychological impacts. The work in this area is extensive, relative to the other sections of the typology, and the findings are mixed. The majority of the studies show that women and female children relate somewhat more emotional problems, while men may be more likely to suffer from alcohol abuse in times of disaster.

Many researchers (Logue, Melick, and Struening 1981; deMan and Simpson-Housley 1987; Krause 1987; Green et al. 1991; Green 1993; Honeycombe 1993; Anderson and Manuel 1994; Shannon et al. 1994) find that females express more mental health problems from disasters, such as stress, depression, Post-Traumatic Stress Disorder (PTSD) symptoms, and anxiety. In the Loma Prieta earthquake, women expressed greater amounts of stress than men (Anderson and Manuel 1994), females in the Buffalo Creek dam collapse communicated more PTSD symptoms than males (Green et al. 1991), and women reported higher anticipated anxiety levels than men in response to a tornado prediction (deMan and Simpson-Housley 1987). In Hurricane Hugo, girls, especially African-American girls, were

more emotionally affected, while boys experienced some behavioral difficulties, such as attention problems (Shannon et al. 1994). Other studies of Hugo indicated that adolescent females communicated somewhat higher PTSD symptoms than adolescent males (Garrison et al. 1993; Hardin et al. 1994).

On the other hand, several studies state that men experience greater decreases in mental and physical well-being (Logue et al. 1979, 1981; Phifer 1990), and have increased rates of depression and alcohol abuse (Miller et al. 1981; Solomon et al. 1987) after a disaster. In addition, women may be better able to cope in disasters due to their "flexibility" and "adaptability" skills and because the traditional role division in nuclear families better prepares women for disaster (Clason 1983). One study illustrated that both men and women experience acute anxiety when they are separated from their families in periods of disaster or crisis (Fritz and Marks 1954). Green's (1993) literature review of research on gender and mental health in disasters found mixed results. Some studies demonstrated that females had more depression and anxiety, while the males rated higher for belligerence and alcohol abuse. In studies of children, girls were higher for PTSD, while boys acted out more or had more sleep disturbances. Overall, the review concluded that female adults were somewhat more likely to develop psychological problems than male adults.

Various explanations are offered for the gender differences in psychological impacts. A common one purports that both males and females suffer from emotional distress but females report and express types of psychological upset more than males (Moore and Friedsam 1959); a notion which corresponds with traditional socialization. Additionally, some literature points to the burdens of caregiving as contributors to stress, fatigue, and overall declines in emotional well-being (Cook 1993; Dobson 1993; Williams 1993; Honeycombe 1993; Morrow and Enarson 1994). Women often suffer from physical and emotional exhaustion in the post-trauma period (Cook 1993), women in the traditional role of homemaker and caretaker are most at risk of losing their "sense of self" after a disaster, as they always put the family needs before their own (Honeycombe 1993, p. 25), and the demands on women are an "extreme version" of their pre-disaster obligations (Dobson 1993, p. 36). Morrow and Enarson (1994) found that women's caregiving roles expand dramatically after a disaster. An older study (Form and Nosow 1958, p. 103) attributed the "high degree of conflict," or internal anxiety, experienced by women aged 25 to 44, to being forced to make immediate, independent decisions without their husbands.

Yet, this internal anxiety may stem from the requirements of childcare, as most of the women in that study were mothers with young children.

Emergency Response

The aftermath of a disaster is a unique opportunity to observe social patterns, roles, processes, and behaviors. The post-impact, emergency-response stage of a disaster is characterized as the immediate aftermath of a disaster, typically including the first hours or days, perhaps up to one week, depending on the event. Gender proves to be significant in understanding response behavior. There is evidence of a gendered division of labor, with women helping more in the home, and men assisting more often outside the home. In addition, some in the disaster field call for formally integrating more women into emergency response groups.

Studies investigating helping behavior typically address outside-the-home collective action. One of these, concerning the Loma Prieta earthquake aftermath, reveals that gender has no bearing on who helps with emergency response (O'Brien and Mileti 1992). Other results demonstrate that men are more likely to volunteer and participate in certain response work, such as search and rescue, than women (Fritz and Marks 1954; Form and Nosow 1958; Wenger and James 1994). While Perry et al. (1983) did not find that men are more likely than women to help people they do not know, several older studies did. Barton (1969) concluded that men with children help more outside the home than those without children, while women with children are the least active in helping people outside the family. Form and Nosow (1958, p. 107) reported that men are more likely to help those they do not know personally and that women aged 25 to 44 have the "lowest orientation toward general others" in their helping activities. Women are more likely than men to receive help from strangers (Perry et al. 1983) and women are more likely than men to seek assistance from neighbors (Paulsen 1981). Form and Nosow (1958) assess that women aged 25 to 40 are most likely to have dysfunctional behavior in the response period. The assumption of men helping and women being helped, according to one researcher, corresponds to an old notion in hazard literature that women are the hysterical victims, while men are seen as the rational heroes (Nielsen 1984). These traditional roles reflect the normative bias in disaster research concerning "appropriate" gender role behavior (Nigg 1984).

Other research reveals that men and women are helping in different spheres. Studies allege that women's and men's responses to a disaster follow traditional gender lines (Form and Nosow 1958; Hill and Hansen 1962; Paulsen 1981; Drabek and Key 1983; Neal and Phillips 1990; Goltz et al. 1992; Wenger and James 1994). Research on post-impact behavior in

fires shows that women were more likely to warn others, while men were more likely to attempt to fight the fire (Paulsen 1981). In emergent groups following a disaster, "role carryover" determines tasks; thus, women "perform supportive tasks, childcare, and food preparation," while men assume the roles of leaders (Forrest 1978, p. 117). After the 1985 Mexico City earthquake, men participated in more traditionally male jobs, such as search and rescue, while women were more likely to help with the provision of supplies (Wenger and James 1994).

Often men help outside the home, while women work inside the home. Nielsen (1984) asserts that young men take on a "rescue the community" orientation after a disaster, and the most public aspects of clean-up, claims Dobson (1993, p. 38), are a "male affair." Following an earthquake, men's roles included helping in "problem spots" in the community, turning off gas lines, and taking what they saw as a more "active" role (Dull 1994). Dann and Wilson (1993) relay that men are involved in more visible "town projects" and receive much more recognition and media attention for their work; women, contrarily, often do the "unheralded clean-up duty" at home, sweeping up glass and doing minor repairs, work which is not visible, receives no media attention, and remains largely unrecognized (Dull 1994; Dobson 1993). Some studies credit women with holding their families together (Dann and Wilson 1993; Morrow and Enarson 1994); following a flood, one researcher observed that women have an "unenviable task; men build the roads, towns and houses, but the task of putting lives together becomes the women's role" (Cook 1993, p. 73).

Women, it is argued, serve a positive function in emergency service organizations, citing their greater sympathy, sensitivity to victims, and household management skills. Female victims, when needing sensitive support, have found that it is best provided by other women (League of the Red Cross and Red Crescent Societies 1991; Williams 1993). A survey of Canadian college students found females expressed greater sympathy and recommended more financial assistance for disaster victims (Russell and Mentzel 1990). Phillips (1990, p. 90) found that women are "sensitive to victims' and workers' needs, such as knowing when to say a word of encouragement or support"; and "female presence introduced more civility and an emotionally supportive environment." In terms of management contributions, Noel (1990) ascertains that the technological and managerial skills women use to run their households and families can be used in disaster management and their contribution can greatly help a community's response effort.

Recovery

The recovery phase, typically the one year period following a disaster, is generally when life returns to a somewhat operative, normal, or improved level. This section is concerned with the role of gender during this time of rebuilding, lifeline repair, and the allocation of resources. Much of the available literature, which is skeletal, addresses issues of relief and assistance. Several inquiries demonstrate that women may be more likely to seek out assistance for their families, as men may view assistance as a stigma, and poor women face the greatest obstacles in recovery.

Several gender differences emerge around the issues of family relations and post-disaster relief. Women may be more likely to receive assistance from family members, as discovered in a study of kin relationships in the 1966 Topeka, Kansas tornado (Drabek et al. 1975). Several studies noted that women collect the emergency payments and seek help for the family more than men do (Honeycombe 1993; Williams 1993; Morrow and Enarson 1994). Many men, one researcher noted, view the financial aid as a stigma and feel the payments challenge their role as breadwinner (Honeycombe 1993).

The most insight available on gender and recovery comes from the Morrow and Enarson (1994) research on Hurricane Andrew. They report that in Andrew's aftermath the responsibility for relocating the family unit from one temporary housing situation to another fell largely on women. Men were more likely to collect the money immediately following the disaster, yet women completed the long-term follow-up work to get assistance; they stood in long lines and made numerous visits over a period of several months. Men did not always use the relief money to help their families; some purchased cars, liquor, airplane tickets, and various personal items; others sent the money to relatives out of the country, leaving no relief funds for their wives and children. Many of the recovery programs, which based their assistance on a nuclear family model and a "head of household" policy, did not work well for many poor women. Men, who had fewer childcare responsibilities and more access to transportation, were able to pick up and use the household's sole relief check. Morrow and Enarson (1994) found that, in general, poor, minority women tended to be the last to recover.

Reconstruction

Reconstruction, the final stage in the disaster cycle, is an often-overlooked period, even though the consequences of the event can be felt for years. This final section examines the relevance of gender during recon-

struction; a period characterized by rebuilding infrastructure, restoring community services, securing loans and long-term assistance, and attempting to return to a somewhat normal life and routine. The literature posits that poor women have the most difficult time returning their lives to normal, and female business owners may have more trouble acquiring loans than their male counterparts.

Women, especially low-income women, often fare poorly in the reconstruction phase. The poor, of which women are the majority, have less insurance, less savings, and thus less likelihood of a full, long-term recovery (Bolin and Bolton 1986). After Hurricane Andrew in Florida, women, especially those with low-wage jobs, had trouble finding replacement employment, while men landed reconstruction-related work (Morrow and Enarson 1994). Higher-income victims are more likely than low-income victims to seek and receive federal aid program relief during reconstruction, as they have more access to aid centers and are more aware of their eligibility for aid (Bolin 1982). An Oxfam representative postulates that in effect, those members of society who are stretched thin before the disaster have less resiliency after the disaster (Orr 1994). Morrow and Enarson (1994) describe the long-term situation for poor, minority women after Hurricane Andrew:

Two years later the poorest areas are far from recovered, and thousands of families are still living in damaged, crowded, and/or substandard temporary housing.... According to personnel from the public and private agencies working to help victims find housing, the families who are left tend to be the poorest of the poor, most of whom are minority women (p. 8)

The situation may be similar, or worse, in lower income countries. Women in Bhopal, India, struggled with the long-term effects of the 1984 Union Carbide poisonous gas leak. Because of sterility caused by the leak, some women were abused by their spouses for their inability to conceive, and some feared they would be replaced by a new wife (Kapoor 1992).

Women who own their own businesses also face obstacles during reconstruction. Nigg and Tierney (1990) establish that female-headed businesses are less likely to receive Small Business Administration (SBA) disaster loans than male-headed businesses. The authors posit that many female-headed businesses are relatively new, therefore, they have no track record to prove they can repay the loan. Twenty years ago, Mileti et al. concluded that little sociological inquiry had been pursued in the area of reconstruction, but that the findings suggested "exciting research leads" (1975, p. 126).

This point holds true today in terms of gender; little is known about gender and reconstruction, yet important research possibilities remain.

Discussion

Gender is a significant, explanatory variable in disaster research. The literature reviewed in this paper informs us of a myriad of gender differences in the nine stages of a disaster. Briefly, some of the major points follow.

Women, especially poor women, are more exposed to risk. Women's vulnerability, especially in lower income countries, is largely attributable to gender inequalities, caregiving roles and responsibilities, a lack of mobility, and limited access to resources. Women are more likely than men to perceive a disaster threat as risky and serious, especially if it will affect their families. This heightened perception of risk may be a result of a relative lack of power and control. Women may be more likely to prepare their families and to be involved in local preparedness groups. Women are more likely to receive, believe, and personalize disaster warnings than men and to respond with protective actions, particularly evacuation. Women's differential perception, preparedness, and warning response may be seen as an aspect of their traditional domestic role, which includes the responsibility for the well-being of their family and immediate communities.

Once the event occurs, women in lower income countries have higher mortality and morbidity rates than men. This difference is attributed to traditional roles, childcare responsibilities, and gender discrimination. In higher income countries, while the data are mixed, there is some indication that women die more than men in earthquakes, and less than men in weather-related disasters. Women are more at risk to domestic violence and more likely to be responsible for childcare. In all countries, location and childcare are critical risk factors during the impact stage. Women are more likely to express emotional distress and psychological trauma, while men may suffer more alcohol abuse, thereby conforming to socialized gender norms. In the response stage, helping behavior often corresponds to traditional gender roles, with women engaging in largely-unrecognized work in the home, while men volunteer in more public arenas. In addition, women hold fewer leadership positions in formal response organizations and are excluded from community decision-making. Women, during recovery, are more likely to seek assistance for their families, while men may view public funds as a stigma, or decide not to use relief funds for recovery purposes. Finally, in the reconstruction stage, female-headed businesses are less likely to receive SBA loans, many women have trouble finding replacement employment, and poor women are most likely to encounter obstacles in

restoring their lives. In all stages, the hardships are more profound for women in poverty and for those in lower income countries.

Taking stock of our research in this area allows us to identify what remains unknown or underresearched. Several smaller, exploratory studies discussed here raise new issues that have not been systematically researched. Domestic violence, intensified in a disaster, is one such issue that needs further investigation. In addition, the areas of preparedness, recovery, and reconstruction contain gender differences, yet the data are minimal and the gaps are large. Furthermore, the relationship between childcare responsibilities, location in the disaster, and chances of survival deserves greater analysis, as such a connection would have great practical and methodological implications.

Yet, while more research is needed, the observed empirical differences outlined here demonstrate a pattern of gender differentiation and stratification that warrants acknowledgment and explanation. The synthesis illustrates the documented differences, however, as social researchers we cannot be satisfied with an array of empirical facts; we need a theoretical perspective to help explain the differences. It is necessary to move beyond the descriptive, to ask why, and to begin placing the disaster findings within larger, structural contexts.

It is recommended that future research in this area utilize theoretical tools that integrate and explain the data. Sociological stratification theories, especially those which incorporate the interlocking systems of gender, race, ethnicity, and class, may prove useful for disaster researchers pursuing the topic of gender in disasters. These theories may help to explain women's experience in disasters and elucidate the issues of gender stratification. This analysis of gender differences in disasters is a first step; now, however, we must call for a theoretical explanation to guide further research.

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