

WOMEN'S ROLES IN THE 1998 CENTRAL FLORIDA TORNADO DISASTER RESPONSE AND RECOVERY*

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Abstract

This paper explores women's roles in Osceola County, Florida's response to and recovery from the community's worst documented tornado outbreak of February 1998. Six women were prominent in the community tornado response and recovery out of approximately 30 key players. Five of the six women performed traditional female work roles such as human services (coordinating personnel, feeding, and sheltering) and clerical duties. We found no evidence of formation of emergent organizations following the tornado disaster due in part to women's presence in the disaster response and recovery processes and the many innovative techniques that the community employed during response and recovery including free bus transit to the Disaster Relief Center and insurance coverage for volunteer workers. We foresee that the incorporation of more women and minorities into disaster management is likely to sensitize disaster practitioners' awareness of the disaster needs of varying groups and to satisfy the needs and concerns of all members of an affected community. Therefore, no needs of disaster victims will go unmet and thus no emergent groups will be necessary. We recommend more detailed research of women's contributions to innovative approaches to disaster management as well as further analysis of the relationship between a diverse disaster management structure and unmet disaster needs in a community resulting in emergent organizations.

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Conceptual Framework

Disasters do not affect everyone equally—such phenomena are discriminatory (Blaikie et al. 1994, Neal and Phillips 1990, White and Haas 1975, Oyola-Yemaiel and Wilson 2000). An individual's place within the social structure determines the likelihood of he or she becoming a disaster victim. Vulnerability to such events differs between social groups with disaster victims more likely to be groups of individuals who have the least amount of power and resources in the social system to recover or escape from natural or technological hazards. Additionally, disaster victims who belong to one or more of these less-powerful groups will have more difficulty in the recovery process. Researchers have also found that traditionally less-powerful groups are less likely to be part of existing disaster planning, response, and recovery efforts (Enarson and Morrow 1998a, Peacock, et al. 1997, Neal and Phillips 1995, Phillips 1990, Bolin and Bolton 1986).

For example, the elderly are more apt to lack the physical and economic resources necessary for effective response, are more likely to suffer health-related consequences, and will be slower to recover from the impacts of the disaster (Morrow 1998, Tobin and Ollenburger 1992). Poorer households more often live in sub-standard and inadequately maintained housing, increasing their vulnerability to hazards (Peacock, Morrow and Gladwin 1997, Phillips 1993, Bolin 1982, Bates 1982). And, while the economic losses of the poor will be less in absolute terms, even minor losses can be devastating, relative to a household's stock of resources and assets. Ethnic differences have been found to affect ways in which people process warnings and respond to disasters (Perry and Mushkatel 1986). Language barriers often limit the access of minority groups to disaster warnings and disaster information such as that related to the government aid process (Aguirre 1988, Bolin and Bolton 1986). Worldwide, the population most at risk to disaster events is women (Enarson and Morrow 1998a, Blaikie, et al. 1994). Women typically have fewer resources, less autonomy, and greater caregiving responsibilities which serve to accentuate their hazard vulnerability and victimize them disproportionately at all stages of disaster (Morrow 1998, Enarson and Morrow 1998a, Blaikie, et al. 1994).

Within the limited literature addressing women's roles in disaster preparedness, response, recovery, and mitigation, women have been found in several roles within "the gendered terrain of disasters" (Enarson and Morrow 1998a). The most commonly discussed role of women in disaster thus far is that of victim (Wilson 1999). Indeed, women are vulnerable to disaster impacts due to cultural norms and traditional gender responsibilities that give them little social influence or visibility in organizational and community decision- and policymaking. Because women are outside of the formal disaster planning, response, and recovery network, they may not have their voices heard or needs met.

In addition, women victims may often be considered dependents in need of saving by others rather than capable of participating in the disaster response and recovery. But many times these women who are victims do indeed help themselves to respond to and recover from disaster (e.g., Akhter 1992). There is significant evidence that groups of affected people who do not have their needs met through pre-existing social (organizational) means will organize among themselves in some fashion to satisfy them. Emergent or ad hoc organizations then arise (see Dynes' [1970] typology of organizational behavior in disaster) which form outside the structure of the official disaster relief network and are aimed to link with the "insiders" in order to acquire a fair share of the means for recovery. While commonly called emergent organizations, these groups often draw upon existing networks for labor and resources.

Gillespie (1992) discusses how network structures in already existing organizations can shift their functions and modify their goals during disaster in adaptation to the new environment. This arrangement is more efficient and cost-effective than the formation of entirely new organizations. Bates and Harvey (1978) have labeled groups that form between existing organizations and play

coordinative roles to pool resources from many different sources coordinative interstitial groups. These groups serve to link the various social units that participate in a goal-oriented exchange relationship. An exchange interstitial group may or may not continue to exist contingent upon attainment of goals, expectations, and needs of the participants involved (Peacock 1991) as well as the scope of work, jurisdiction, and/or financial limitations of the parent organizations (Oyola-Yemaiel 2000). Following this concept, pre-existing women's groups or networks may be a source for leadership in such interstitial groups.

Women do indeed become actively involved in their communities and neighborhoods during disaster situations and have been key participants or leaders in emergent citizen groups in disaster-affected communities (Cox 1998, Viñas 1998, Neal and Phillips 1990, Massolo and Schteingart 1987). The emergent citizen groups fit into this traditional and local pattern of women's activism where women view their cause as an extension of their traditional gender role, as family caregiver (Poniatowska 1995). Enarson and Morrow (1998b), for example, found that women's formal and informal networks were central to both household and community recovery after Hurricane Andrew in 1992 where women's experience as community workers, informal neighborhood leaders, and social activists propelled them to take the initiative in organizing a disaster response coalition. Other women are highly involved as community workers and organizers in disaster-prone areas (Eade and Williams 1995), including neighborhood-based household preparedness programs (e.g., Faupel and Styles 1993).

Increasingly, women are becoming incorporated into the official disaster relief network as disaster volunteers, temporary relief workers, and permanent employees (e.g., Barnecut 1998, Robertson 1998). Due in part to professionalization, women are now more often found in official emergency management positions at the federal, state and local level (Wilson 1999, Enarson and Morrow 1998a, Enarson 1997, Drabek 1986). Women also continue to enter other emergency response organizations such as the police and fire departments in greater numbers (Chetkovich 1997, Martin 1980). These trends together with the fact that women traditionally participate in human service agencies such as the American Red Cross make their presence more prevalent in the emergency operations center (EOC) as representatives of important functional areas. Women's greater participation in the interstitial group of the EOC may provide less reason for outside ad hoc groups to form. Thus, women's needs may increasingly be met through existing organizations.

This phenomenon is not exclusive to emergency management. Increasingly, women participate in other arenas where interstitial groups are a key element of stakeholder participation. For example, the Florida Ecosystem (Everglades) Restoration Initiative utilized what Oyola-Yemaiel (2000) has described as network management coordinative interstitial groups (NetMIG). In these settings women contribute to the advancement of the greater goals, providing gender-specific expertise and reducing external pressures (Oyola-Yemaiel 2000).

In order to explore further the complex issues of women's roles in disaster recovery as well as in disaster-related emergent organizations, we examined a disaster-affected community to assess where women were located within the disaster response including emergent, ad hoc groups. Hence, the research question was: *What roles do women play in community disaster response activities?* Several sub-questions included: What roles did women have in the existing organizations?; Did emergent organizations form?; Were women involved in the emergent organizations?

Setting

Located adjacent to south Orange County (city of Orlando), Osceola County has a population of approximately 130,000 (Pierce 1995). Geographically the county contains two large lakes, West Lake Tohopekaliga and East Lake Tohopekaliga that rim the county's two largest cities, Kissimmee and St. Cloud. The two large lakes and many smaller lakes to the south comprise the

Upper Kissimmee Waterway Basin. Because of the many lakes, conservation areas and farmland in the southern part of the county, the population is small outside of the cities of Kissimmee and St. Cloud. Osceola County also contains half of Walt Disney World theme park, (the other half being in Orange County) located directly west of the city of Kissimmee.

Storms that swept across Central Florida in the early morning hours of Monday, February 23, 1998, spawned the deadliest round of tornadoes on record in Florida. Historically, ninety percent of Florida's tornadoes have winds under 72 miles per hour (Table 1). According to the National Weather Service, the several tornadoes that struck Florida on February 23, contained wind speeds ranging from 210 mph to 260 mph, due largely to the effects of El Niño atmospheric disturbances. According to Jim Lushine, a Miami-based National Weather Service warning meteorologist, in only two other instances has Florida been hit by tornadoes with wind speeds of more than 206 miles per hour: one in 1958 and the other in 1966. Both were El Niño years, and both times the storms hit Central Florida (*Sun-Sentinel* Feb. 24, 1998).

Table 1: Osceola County, Florida Tornadoes 1950-1995*

All times are Central Standard Time; add one hour for Eastern Standard Time

Date	Event #	Time	Dead	Injured	F**	County
					Scale	Number(s)
JUN 08, 1960	017	1730	0	1	F1	097
APR 12, 1961	008	1515	0	1	F1	097
APR 04, 1966	001	0900	0	0	F3	097
APR 04, 1966	002	0715	0	0	F2	097
JUN 28, 1971	031	1430	0	0	F0	097
AUG 24, 1971	045	1630	0	0	F1	097
JAN 28, 1973	006	1115	0	7	F2	097
APR 15, 1975	036	0515	0	0	F0	097
APR 15, 1975	037	0850	0	0	F0	097
MAY 14, 1975	042	1850	0	0	F1	097
MAY 13, 1976	022	1800	0	0	F0	097
JAN 10, 1977	002	0550	0	0	F1	097
FEB 24, 1977	004	0804	0	0	F0	097
MAY 04, 1978	039	1350	0	1	F0	097
MAR 19, 1981	008	0100	0	11	F2	097
MAR 24, 1983	030	0510	0	0	F2	097
MAR 24, 1983	031	0550	0	0	F1	097
SEP 01, 1987	040	1440	0	3	F1	097
AUG 02, 1995	041	0304	0	0	F1	097

* Source: Tornado Project Web Link

<http://www.tornadoproject.com/fujitascale/fscale.htm#top>

** Scaling of event based on Fujita Tornado Scale

Florida is far from "Tornado Alley" where the nation's most severe tornadoes usually occur, yet is among the most tornado prone states. Unfortunately, Florida does not have tornado sirens such as those found in Texas, Oklahoma and Kansas, which sound to warn sleeping citizens of approaching tornadoes. Despite tornado watches and warnings all day and throughout the evening of February 23, many Central Floridians went to sleep on Sunday night with apparently little concern for such extreme weather.

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Early the next day, tornadoes touched down in Brevard, Dixie, Manatee, Nassau, Orange, Osceola, Seminole, Sumter, and Volusia Counties. Forty-two people were killed and more than 250 were injured throughout the Central Florida area (*St. Petersburg Times* Feb. 24, 1998). Osceola County experienced the most severe impact of the tornadoes where 25 people were killed and 148 injured. Osceola County Office of Emergency Management estimated that the county sustained more than \$37 million in severe damage to 150 homes, 200 mobile homes, 15 recreational vehicles, a strip mall, and about 30 businesses. Some damage was inflicted upon an additional 225 homes, 60 apartments, and 25 mobile homes (*The Osceola Sentinel*, March 6, 1998).

The path of the storm traveled from southwest to northeast crossing the mid-section of Osceola County. The tornado first passed over a restricted elders-only subdivision near the Poinciana Office and Industrial Park causing minor damage to some homes. It then proceeded to damage a few homes in the Campbell area southwest of Kissimmee proper. The tornado continued northeast heavily damaging The Shops at Kissimmee strip shopping mall with one entire wing completely collapsing. At that point the tornado passed over the northern tip of West Lake Tohopekaliga causing the heaviest damage to a neighborhood of lakeside homes as it reached the opposite shore.

After crossing an open field, then Highway 441, and leaving the Osceola County Stadium and Sports Complex unscathed, the tornado touched down around 2:00 a.m. at the Ponderosa Pines mobile home park near Boggy Creek Road where it caused the highest number of fatalities. Amidst virtually complete devastation, rescue workers recovered 10 bodies in the park. Nearly all of the community's 200 mobile homes and recreational vehicles were destroyed. The tornado then moved northeast crossing the Florida turnpike and touched down in the Lakeside Estates subdivision of single-family homes in the Buena Ventura Lakes area damaging about 400 homes and the Cypress Creek Elementary School. Rescuers and residents awoke to find flattened cars, wrecked homes, and aluminum siding embedded in trees.

Methodology

We visited Osceola County, Florida, on four different occasions for two days each on March 13-14, 21-22, 27-28, and April 3-4, 1998 in order to study this community's response to and short-term recovery from the tornado disaster. The research for this project was qualitative in design including interviewing, document analysis, and participant observation. Qualitative methods allow social scientists to learn by observing as they participate in a natural setting because many features of the social world are difficult to investigate with experiments or surveys. Rather some of the greatest insights into social processes can result from what appear to be very ordinary activities: observing, participating, listening, and talking (Schutt 1999).

Data were primarily collected through semi-structured, open-ended, face-to-face interviews. We sought to hear the answers to our questions in the respondents' own words. Thus, we did not ask standard questions in a fixed order but allowed the specific content and order of questions to vary from one interviewee to another. We employed snowball and purposive sampling techniques to gather interview data. We began by interviewing some customary leaders in the community (purposive sampling) such as the county emergency manager, the heads of the local Salvation Army and American Red Cross, other local volunteer organization leaders, and the police chief. During each interview, we asked the respondent if he/she thought there was someone else in the community that would be important for us to talk to (snowball sampling) regarding coordination of the community's tornado response. Our interviews included emergency management organization personnel, government and non-profit disaster relief organization personnel, as well as citizen/victims. In total, we conducted ten interviews. During our interviews we observed social interactions at the Disaster Relief Center (DRC) and at the Emergency Operations Center (EOC).

In order to avoid biasing our respondents, we did not reveal that we were primarily interested in women's roles in Osceola County's disaster response. Rather, we only asked our respondents whom they thought were the key individuals involved in the community's response. As expected, our respondents suggested more women participants in human services and more men participants in response activities, confirming the traditional division of labor patterns in disaster that has been documented elsewhere (Wilson 1999, Enarson and Morrow 1998a, Enarson 1997, Phillips 1990).

To supplement and further establish credibility and trustworthiness of ethnographic data (Erlandson, et al. 1993, Lincoln and Guba 1985), we gathered documents such as emergency management organizational reports, media accounts, census data, weather reports, some informational documents printed by volunteer organizations for citizen/victims, and other useful materials (Plummer 1983, Webb, et al. 1981). These documents illustrate the use of triangulation in support of the primary data source (e.g., interviews). Triangulation is the use of a number of different types of data gathering approaches in the study of the same phenomenon to corroborate, elaborate or illuminate the research (Erlandson, et. al 1993, Marshall and Rossman 1989, Kirk and Miller 1986, Lincoln and Guba 1985). In cases where we used news accounts, notoriously unreliable in disasters (Fischer 1994), we compared them to our interview data to assess their accuracy.

Findings

We found no evidence of formation of emergent organizations in Osceola County, Florida following the February tornado disaster. The response was handled using pre-established organizational channels. Conditions for the formation of emergent organizations were not present, thus, the opportunity for women to participate in these groups was nonexistent.

Why were there no emergent groups?

The Osceola County emergency operations center (EOC) Operations Manager stated: "Initially it was overwhelming. The sheer volume of...needs was tremendous...This county has never experienced anything like this...Were we prepared? No, we weren't." However, all indications from other respondents were that the official response was immediate and thorough. Victims with whom we informally interacted during our observations at the Disaster Relief Center were highly satisfied. Furthermore, the Salvation Army and the American Red Cross respondents believed that the response went extremely well, despite the lack of preparation.

Although historically this county has rarely experienced a disaster of this proportion, there were some very innovative techniques utilized during the response. For example, the Osceola County Office of Emergency Management (OEM) established a storeroom for citizens whose homes were destroyed to stow their possessions until they could find replacement housing. In addition, the OEM established two warehouses--one for incoming donations and one for outgoing donations. Osceola OEM was aware that the county would receive large amounts of unusable donations that could then be forwarded to other agencies that would be glad to have them. The OEM Operations Manager who was in charge of the activated EOC said that, "at one point we had nearly twenty semi's coming in and twenty semi's going out each day" with donations received and then subsequently forwarded.

Another unique or unusual response by Osceola County OEM was the coordination of volunteers. The OEM arranged to have photo identification badges made for each volunteer. This was accomplished through the development of a database, which kept track of volunteers' names, what skills and/or equipment they were able to provide, and their assignments. The database also tracked the volunteer needs within the community. In addition, the OEM covered volunteers with accident insurance and workman's compensation insurance during their volunteer work. According to the

Operations Manager of Osceola County OEM, there were close to 3000 volunteers who did 19,000 hours of work in the county in response to the tornado disaster.

In all, respondents had very few negative remarks concerning the response to the tornadoes. Rather, the respondents to whom we spoke praised the coordinated efforts among the community's organizations. Indeed, according to our respondents there was a high amount of coordination among existing agencies or organizations. For example, "town meetings" jointly organized by the city and county were instituted immediately after the event (the next day) in order to facilitate communication among all the agencies and organizations involved. Respondents reported that there were only minor communication problems that were resolved quickly. This may be due to the fact that the EOC was expressly utilized for coordination purposes among the victims, volunteers, and response organizations.

Coordination was further facilitated because most of the Osceola County departments and offices were involved in the response in some way. These departments included human resources, parks and recreation, road and bridge, collections, solid waste, billing office, and others. These offices provided labor, equipment, and communication to the response effort.

Another reason for the quick and thorough response is the fact that several of the key response agencies had members of their regional and state offices come into the county in order to facilitate the response. The Florida State Department of Emergency Management had a representative come in "almost immediately" after the tornadoes to work with Osceola County OEM in instituting the state-designed response plan. This same procedure occurred at the American Red Cross and the Salvation Army that both had members of their regional disaster response teams arrive within twelve to thirty-six hours of the tornado disaster. These teams' expertise in disaster response and their assistance in Osceola County were evident in the coordinated and swift response of these organizations for sheltering and donations (American Red Cross) and feeding (Salvation Army).

There was substantial evidence that the responders were concerned with making recovery from the disaster as easy as possible for individual victims in the community. One way in which this was accomplished was through the local bus system, LYNX, which established separate routes to transport tornado victims to the Disaster Relief Center (DRC). In addition, the DRC contained representatives from the Red Cross, the Salvation Army, Federal Emergency Management Agency (FEMA), Small Business Administration (SBA), some state agencies such as the Insurance Department, and United Methodist Disaster Relief (UMCorp) all in the same building. Such integrated and localized coordination of relief is significant in improving community recovery because it allows 'one-stop shopping'. In other words, cooperation and communication between agency members in the same location resolves victims' problems and requirements in a timely and convenient fashion. In this particular case, it was possible to coordinate in such a way because of the localized nature of the damage whereas in other disaster events the magnitude of damage may require relief efforts over an extended impacted area. In other cases, lack of space and/or unwillingness to work so closely together hinders this type of integrated relief coordination (Wilson, Neal and Phillips 1998).

Furthermore, 'coordination' took on a new meaning when most of the local social service agencies decided to set up a disaster relief fund for the donations they received. Every agency was then able to draw from this fund to practice their individual disaster relief work (e.g., mental health, food bank). This procedure was taken in order to balance the amount of disaster relief donations received by individual agencies since some received large amounts of funds and some received little or no donations. This is a significant component of the coordinative effort as non-profit agencies often have difficulty obtaining adequate operating funds.

As evidenced in the foregoing, the need for emergent groups did not exist in the aftermath of the tornado disaster in Osceola County due to the high degree of coordinated recovery efforts including

town meetings among the participating agencies, quick regional and state assistance, and innovative techniques for meeting victim's recovery needs. Further, women played a part in the tornado disaster response and recovery possibly contributing to the non-necessity for emergent groups, which is described in the next section.

The role of women

Following Gillespie's (1992) thesis, a few women in the 1998 Central Florida tornado disaster became key participants within their existing organizational positions. For example, the director of the county personnel office was key in organizing the county's volunteer program. Kissimmee's assistant city manager was essential in facilitating the working relationship between city workers and the Osceola County Office of Emergency Management's response plans. In addition, the director of the local American Red Cross played an integral part in shelter provision. One of the co-directors of the local Salvation Army was crucial in providing food to both victims and rescuers. And, finally, the sheriff department's EOC representative served to link her department's response efforts with the OEM.

In total, six women were prominent in the community tornado response in Osceola County, Florida out of approximately 30 key players. Although the total number of important female responders is small compared to the total number of key responders, half of those six women (three) occupied non-traditional female working roles in their official positions. Three were in the more traditional female line of work of social services (director of personnel, director of the local American Red Cross, co-director of the local Salvation Army) but the remaining three occupied less-traditional female working roles: a police officer, a horticulture agent, and an assistant city manager (public official). Due to societal gender differentiation and the sexual division of labor, some kinds of work often become defined in people's minds as belonging to one sex and inappropriate for the other (Reskin and Padavic 1994, Lorber 1994). Thus certain occupations and jobs are typically performed by men and others by women. Traditionally female lines of work that employ millions of women include secretary, retail sales, food preparation, school teaching, nursing, and cashiering and bookkeeping (Reskin and Padavic 1994). Traditionally male lines of work include carpenter, automobile mechanic, truck driver, construction laborer, and firefighter (Reskin and Padavic 1994).

Even though three of the key female participants regularly occupied "less-traditional" working roles, two of them fulfilled more traditional female roles during the disaster response. One woman was responsible for coordinating volunteer workers and the second handled phone communication at the EOC. However, the third woman performed a much more substantial "non-traditional" role during the disaster response as the mediator between city workers and the county OEM response process. Thus, five of the six women performed typically traditional female roles during the disaster response. From what we know about women's participation in the formal disaster preparedness, response, recovery, and mitigation network this proportion of traditional female role performance could probably be expected. Not because women do not have the capacity to perform roles usually performed by men in disaster contexts, but rather due to lack of access to participate (Wilson 1999) because of the gender division of labor.

Women played a major part in the disaster recovery performing traditional female work roles such as human services (coordinating personnel, feeding, and sheltering) and clerical duties as an extension of their organizational positions. Conversely, none of the Osceola County emergency managers were women. Only one public official was a woman. Few public works or public safety workers were women. Thus, women did not play a major part in the disaster response and recovery performing non-traditional female work roles such as search and rescue, debris clearance, transportation problems, infrastructure repair, and public information, among others.

Discussion

Why did the majority of the women involved in the response and recovery operation in Osceola County, Florida perform traditional female work roles? For a long time a male workforce and work culture has traditionally dominated disaster management agencies (Barnecut 1998, Robertson 1998, Wraith 1997, Gibbs 1990, Phillips 1990). Thus, women have only recently begun to be involved in structurally significant disaster management roles (Wilson 1999).

Although a general pattern of underutilizing women's capacities in disaster preparedness, mitigation, response, and recovery exists, women's traditional roles in paid and unpaid labor often prepare them to be primary contributors to disaster management. Even today, women continue to do most of the household and family caregiving work so that an unequal division of domestic responsibility persists even when women participate in the formal labor force in post-industrial societies. The "second shift" occurs when working women return home after a full day in the paid labor force to begin their "second" full day of cleaning house, cooking meals, and caring for children (Hochschild 1983). Running a household with children in today's fast paced world has become a challenging activity. Motherhood is as an excellent school for management, demanding many of the same skills: organization, pacing, teaching, guiding, leading, monitoring, handling disturbances, and imparting information (Helgesen 1990). Experience in balancing work and family develops skills to deal with conflicting demands.

Similarly, women's experiences as community workers, informal neighborhood leaders, and social activists equip them to respond to community crisis (Poniatowska 1995). Enarson and Morrow (1998b) found that women's formal and informal networks were central to both household and community recovery after Hurricane Andrew in 1992.

In addition, women have been part of the paid labor force for a long time especially when their family's economic need makes it necessary for women to seek outside income (Dunn 1997). Now, women not only work in traditionally held positions such as nursing and teaching, but are increasingly gaining entry into higher paid, more prestigious public and private occupations and professions including management level positions. According to Colwil (1997), women form one third of the management work force in the United States. However, such progress does not seem to have filtered into disaster management in which we find a much lower percentage of women in high-ranking positions. For instance, the state of South Dakota only has one full-time county emergency management director in the state of 66 counties.

When women have participated in emergency management organizations, the work culture has reflected an implicit gender division of labor (Enarson and Morrow 1998a, Barnecut 1998, Robertson 1998). Most women are placed into jobs addressing special needs and mass care or human services rather than being represented throughout the entire spectrum of disaster management functions. Women may be deterred from moving into positions and developing their careers in the high priority areas that are considered "more masculine" such as radiological or other hazardous materials, terrorism, communication, transportation, and mass evacuation.

Thus, although women play crucial private and public roles managing households and as part of the paid labor force, their voices have been largely absent in organizational and community policy-making, including decisions about disaster response and recovery (Enarson and Morrow 1998a). This is in spite of the fact that the technological and managerial skills women use in their daily lives can be used in disaster management and their contribution can greatly help a community's response effort. Efficient and effective disaster management systems depend on the knowledge and skills of all those who can make a positive contribution (Robertson 1998). Utilization of women's skills and capacities throughout the disaster management network has the potential to significantly increase the efficacy of disaster preparedness, mitigation, response, and recovery.

Professionalization of emergency management, which includes improved communication and coordination practices, will likely incorporate more sensitivity to needs of all sectors of a community among disaster response practitioners. One aspect of the professionalization process of emergency management, according to Drabek (1994), is the greater linkages between researchers and practitioners due to the growing number of professional associations, publications, seminars and workshops, and advisory committees in which both practitioners and researchers are able to share ideas, practical problems, and research results. Social science research of the vulnerabilities of some groups in society, which cause them to experience greater disaster impacts (e.g., works cited in first paragraph of Conceptual Framework section), should increase disaster response practitioners' awareness of these issues.

In addition, professionalization is fostering major changes in disaster management education and training (Drabek 1994, Neal 2000, Wilson 2001, Wilson and Oyola-Yemaiel 2001). In the past, emergency managers have had little formal disaster management training. This new era of professionalism is indicated by the availability of intensive courses at the Federal Emergency Management Agency's Emergency Management Institute, by the institutionalization of emergency management certification programs, and by a growing number of degree-based university programs, both traditional (i.e., Institute of Emergency Administration and Planning at the University of North Texas) and online (i.e., the Institute of Emergency Preparedness at Jacksonville State University). Increased access to disaster management careers through formal education should increase the number of women, minorities, and other marginalized group members involved in the disaster response network. This occurrence should in turn increase the likelihood that the unique disaster needs of varying groups will not be overlooked or ignored. Therefore, no needs of disaster victims will go unmet and thus no emergent groups will be necessary.

Conclusion

In the relatively small community of Osceola County, the coordinative effort of local agencies was supported and assisted by the convergence of outside experts. The tornado, although severe and devastating for some, was localized and did not have a large magnitude catastrophic effect in which the entire social structure/institutional fabric ceased to operate (Bates 1982). In contrast, a disaster of the scope of Hurricane Andrew in 1992 caused devastation so widespread that the social-organizational structure of everyday life was virtually dismantled (Peacock, Morrow and Gladwin 1997). The 1998 Osceola County tornado left clusters of localized heavy damage, but the majority of the community was left intact and able to concentrate relief efforts on the damaged areas. This resilient community was able to respond effectively, solving problems at hand that otherwise could have created unmet needs for sectors of the population. In doing so, unmet needs and the resulting emergent organizations never appeared.

Among the reasons that emergent organizations did not form in Osceola County, is existing organizations adapted to meet the basic needs of the affected community. In short, the exchange relationship was conducted both within existing organizations and between these organizations so that outside or ad hoc groups were not needed. This type of relationship may have been accomplished in part because of a high degree of flexibility, ingenuity, cooperation, and communication by community organizations evident in such innovative practices as free bus transit to the Disaster Relief Center and insurance coverage for volunteer workers. Moreover, women adapted their organizational roles to become integral parts of the coordinative interstitial group (EOC) that handled the disaster response and recovery.

In particular, the female horticultural agent of the Department of Agriculture made a substantial contribution to the innovative techniques that the Osceola County community employed in the disaster response and recovery. She designed and maintained the computer database program that

kept track of the volunteer workers' skills and assignments. This was an essential component to the management of volunteer work in the community after the tornado disaster especially in light of the implementation of workman's compensation and accident insurance coverage for the volunteers.

Yet, women's roles in disaster management activities are still largely understudied. Women's vulnerabilities that make them more likely to become disaster victims have now been well documented (e.g., Enarson and Morrow 1998a, Blaikie, et al. 1994). However, we have very little understanding of the impacts of gendered expectations, roles, and interactions on disaster management. There is still not much evidence that women's knowledge, ideas, and abilities are being integrated into disaster response and recovery. As women become incorporated into the official disaster management network due to the professionalization process, how does women's participation make a difference in disaster management practice and policy? How do gender differences affect interagency coordination? Do women perform disaster response and recovery roles differently than men? Specifically, how do women's contributions (ideas and actions) have an effect on disaster mitigation, preparedness, response, and recovery activities? We recommend more detailed research of women's contributions to innovative approaches in disaster management.

In addition, we wonder what effect professionalization of disaster management will have on the future appearance of emergent organizations after disaster. As a result of the professionalization process, we foresee that the incorporation of more diverse and adaptive disaster managers are more likely to be sensitive to and take action to satisfy the needs and concerns of all members of an affected community. The knowledge, ideas, and skills of women and minorities will renovate and improve the disaster management structure so that the disaster needs of all community groups are met. Future research should further analyze the relationship between a diverse disaster management structure and unmet disaster needs in the community resulting in emergent organizations.

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