

Ice Storm Experiences of Persons with Disabilities: Knowledge is Safety

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Abstract: Questionnaire responses of ice storm victims with and without disabilities were compared and 15 women with disabilities were interviewed about their experiences. Results are examined from the Social Model of Disability perspective in terms of dealing with unexpected environmental barriers to inclusion.

Key Words: ice storm, disaster, social model

January is one of the coldest months of the year in Eastern Canada. In January, 1998, however, Montreal had an unusual weather event. In less than 24 hours the city was covered with freezing rain. Its accumulation during this brief period caused a crisis. A considerable part of the population of Montreal and the southern portion of the province of Quebec was without electricity and heating for homes and offices. For some, this lasted up to three weeks. This incident became widely known as “the ice storm” and it differed from other natural disasters in that it did not cause massive death or famine. Canadians who lived through the ice storm went back to their regular routines relatively quickly once weather conditions returned to normal. But the ice storm had dramatic effects on the everyday lives of those who experienced it.

To examine these effects, in Study 1 we administered a battery of questionnaires to individuals with and without disabilities immediately after the ice storm. In Study 2, we examined unstructured interview responses of women with various disabilities. Some of these interviews involved retrospective recollections of the incident while others were obtained through informal conversations with women recorded during the 1998 ice storm.

Theoretical Assumptions: Social Model of Disability

The Union of the Physically Impaired Against Segregation (1976) defines *impairment* as “lacking part or all of a limb, or having a defective organ or mechanism of the body,” and *disability* as “a disadvantage or restriction of activity caused by a contemporary social organization which takes no or little account of people who have physical impairments and, thus, excludes them from the mainstream of social activities” (cited in Oliver, 1990, p. 11). This definition of disability is commonly associated with the social model of disability, which states that the problems of people with disabilities are primarily socially constructed. A lack of access to resources for persons with disabilities, which are otherwise available to nondisabled persons,

creates unequal distribution of opportunities in society. The term *disabling environments* (Oliver, 1993) refers to physical, social, and cultural environments that impose barriers to participation by people with disabilities.

This definition of disabling environments is assumed to apply under “non-crisis” conditions. It is expected that unexplained crises exacerbate these situations. Based on data from the 1998 ice storm (Office des personnes handicapées du Québec,¹ 1998a; 1998b; Kailes, 1996) and on findings of studies dealing with persons with disabilities and other types of disasters (e.g., Takahashi, Watanabe, Oshima, Shimada, & Ozawa, 1997), several recurring factors emerge as important for disaster preparedness: (1) awareness of where persons with disabilities are during the time of the crisis (for example, home or work); (2) a well-planned early rescue, and (3) accessible resources that allow disaster workers to act in a safe and speedy manner.

Background

Most of the literature regarding emergency preparedness and emergency evacuation and disabilities refers to the acquisition of disabilities as the result of disasters such as hurricanes, earthquakes, and wars (e.g., Center for Disability Issues in the Health Professions (CDIHP), 2004). Very little research has been devoted to such incidents as the ice storm or to situations where people with disabilities are forced to live in environments associated with unaccustomed stressors and in environments which do not facilitate their getting around.

Discussion of the specific situation of the 1998 ice storm was found in three documents of Canadian origin, only one of which reported empirical findings (Gignac, Cott, & Badley, 2003). The other two documents are official reports by the Office des personnes handicapées du Québec presented to the Commission scientifique et technique² (1998b) and to the Commission sur la crise du verglas³ (1998a).

Gignac, Cott, and Badley (2003) examined individual perceptions of pain levels and outcome measures of pain management and impairment from a medical model perspective. Their paper describes the impact of the 1998 Canadian ice storm on the physical and psychological health of older adults (age 55+) living with osteoarthritis and/or osteoporosis. Responses of 59 ice storm victims were compared to those of 55 matched controls living outside the ice storm area. Assessments of disability, pain, self-reported health, helplessness, depression, and independence were performed prior to the ice storm and approximately 17 months later. This study showed that 60% of ice storm victims lived with others, 33% were divorced, 10% were widows and 2% were never married. From a health perspective, it was found that those who reported better health before the ice storm were less likely to report that the ice storm had an adverse impact on their chronic condition, whereas those who reported greater helplessness reported having been adversely affected by the ice storm.

The study's authors refer to external environmental barriers that had an impact on the outcomes of ice storm victims as *objective impact*. These include loss of heat, electricity, and phone service, damage to property, and whether people had to leave their homes. Half of the sample of ice storm victims reported receiving no support during the storm, while the other half reported that they did receive support.

In its report the Office des personnes handicapées du Québec (1998a) told the commission that, generally, service provision to persons with disabilities during the 1998 ice storm had gone relatively well, with the exception of several issues. First, although the major Montreal social service agencies, the “Centre local de services communautaire⁴” (CLSCs), and

rehabilitation centres, were ready with emergency plans, some had not updated these in a long time. Except for those cases where individuals were not registered with these social service organizations, persons with disabilities were reached the first day of the ice storm. Second, services to Deaf and hard-of-hearing persons were inadequate due to a lack of captioning and sign language interpretation on television programs that informed the rest of the population about disaster updates. Third, also problematic was the lack of adequate means of transport to serve those who needed it. Police and fire departments had difficulty helping people with mobility disabilities who were also overweight. Fourth, problems were identified with respect to the ability of shelters to adequately provide services to persons with disabilities.

Manuals and guides exist to assist in the case of future disasters (e.g., LeBlanc, 1996; Masson, 2001; Laroche, 2005). Most of these are meant to educate workers about impairments. For example, the Montreal Urban Community's (Masson, 2001) manual devotes some 30 pages to the description of impairments and another 20 to explaining how to evacuate people from long-term care facilities, their own homes, and other locations. These manuals assume that rescue workers and volunteers most likely do not have much experience with different types of impairments.

An important component that is often missing from the literature is self-assistance skill-building. Incidents such as the terrorist attacks on the United States on September 11, 2001 (CDIHP, 2004) and hurricanes (Takahashi, et al., 1997), among others, have shown that in the initial moments of a disaster and afterward persons with and without disabilities must often fend for themselves. Self-assistance skill-building and pre-planned evaluation of needs, such as described by the American Red Cross Disaster Services in their publication, *Disaster Preparedness for People with Disabilities* (n.d.), are likely to be useful tools in the face of disaster.

Present Investigation

The present investigation explored the experiences of Montreal residents with disabilities who endured the 1998 ice storm. In a quantitative investigation, Study 1 examined the experiences of 10 ice storm victims with disabilities via a structured questionnaire. Their responses were compared to those of 93 individuals without disabilities. Study 2 presented qualitative data gathered through semi-structured interviews about the experiences of women with disabilities during the ice storm.

Study 1

Method

Participants

Participants consisted of a convenience sample of 10 individuals, 5 men and 5 women, who self-reported at least one impairment and 93 nondisabled individuals, 42 men and 51 women. All participants were recruited from the greater Montreal community by students enrolled in "Introduction to Psychology" courses at Dawson College, a large English-speaking junior/community college, and by one of the authors (D.J.). The students recruited individuals in their neighborhoods. Students did not receive any monetary compensation or marks for helping to recruit participants.

Participants with disabilities were those 10 individuals who answered "Yes" to the question, "Do you have a disability?" Participants indicated the nature of their disability or disabilities on a self-report checklist. The mean age of participants with disabilities was 40 years (range 20-48). Mean age of participants without a disability was 37 (range 16-63). Six persons had a visual impairment, two had a mobility impairment, one had a hearing impairment, and one had both a mobility and a hearing impairment.

Materials

Demographic items. Ten items evaluated demographics and socio-economic status such as sex, age, education, marital status, income, disability status, rural/urban location, and pre-ice storm living arrangements (for example, alone or with spouse/partner).

Ice Storm Diary. A daily diary was used to record responses to questions inquiring about whether participants had electricity (yes/no/partial), whether they went to work (yes/no), where they slept that night (own home/public shelter/friend or family home/hotel/other location), whether they sheltered others in their home (if yes, how many), and whether they had telephone service (yes/no) and tap water (yes/no).

Ice Storm Experiences. A questionnaire, developed specifically for this investigation, focused on the nature and quality of participants' overall experiences during the ice storm period. Items used 6-point Likert-type scales or an open-ended format and inquired about the nature and frequency of good/positive and bad/negative experiences, perceived physical and psychological coping during the ice storm period, number of moves, volunteer experiences, physical injuries and property damage, responsibility for the welfare of others, and consultations with health care and mental health professionals.

Good Things and Bad Things Checklists. Two checklists each included 35 items. Participants indicated as many items as applied. The "Good Things Checklist" included events that could have made people feel good during the ice storm period (e.g., reading or hearing of people helping others, finding a warm place, knowing there were shelters to which one could go). The "Bad Things Checklist" included events that could have made people feel bad (e.g., feeling alone or uncared for, not having a hot shower or bath, reading or hearing about people taking advantage of the situation). Items were generated based on unstructured interviews and group discussions with approximately 100 individuals, including college students, middle-aged and older adults, and people with visual impairments. Several items appear on both the "Good" and "Bad Things Checklists" (including going to a shelter and going to work).

Procedure

Data were collected during late January and early February, 1998, within 1-2 weeks of most Montreal area residents regaining electricity. Participants were asked to use the period of January 5 to 17 as a frame of reference.

Results

The educational background of the 10 participants with disabilities varied from less than high school to a Master's degree. All ten participants were employed at the time of the ice storm; five full-time and five part-time. Four were married or lived with a partner. The other six were

either divorced or separated. Five participants reported living alone, four lived with a spouse, partner or child, and one did not respond to this question.

Similarly, the educational background of the 93 nondisabled participants varied from less than high school to a doctorate. Sixty-seven participants (i.e., 72%) were employed at the time of testing and 54 (i.e., 58%) were married or lived with a partner.

Nine of the ten participants with disabilities lost power in their homes for some portion of the two-week ice storm period, seven for more than two days. Four of these participants went to work for at least a portion of the two-week period. Similarly, 80 of the 93 participants (i.e., 86%) lost power at some time during the ice storm period, 76 (i.e., 82%) for two or more days.

Ice Storm Experiences

On a series of questions using 6-point Likert-type scales, participants reported on their experiences. Table 1 shows the mean scores of participants with and without disabilities. Because of the small size of participants with disabilities (n=10), it was not appropriate to carry out t-tests to compare their scores with those of the 93 nondisabled participants. We provide means in Table 1 only to show the direction of the results.

Insert Table 1 here

On the question dealing with how many good/positive experiences participants had, the results for those with disabilities showed a mean score of 3.5, on a scale where 1 equals very few and 6 equals very many. Similarly, the mean was 3.6 for the item that dealt with bad/negative experiences, indicating that, on average, participants with disabilities had scores in the middle of the scale for both positive and negative experiences. It is noteworthy that the scores of the 93 nondisabled participants were 3.9 and 3.2, respectively, suggesting that participants with disabilities had relatively fewer positive and more negative experiences than their nondisabled counterparts. Nevertheless, it should be noted that these differences are minimal, and that individuals with and without disabilities had, overall, similar experiences.

The mean score of participants with disabilities on the item dealing with how they were affected by the ice storm and its aftermath overall was 3.8, where 1 equals very negatively and 6 equals very positively, indicating that participants felt that, overall, they were affected slightly positively. The mean for the 93 nondisabled participants was 4.41, suggesting that participants without disabilities felt that their overall experience was slightly better than those of participants with disabilities.

We also asked participants, "Compared to most others, how do you feel you coped *psychologically* during the ice storm period?" and, "Compared to most others, how do you feel you coped *physically* during the ice storm period?" The response scale ranged from 1 equals much better to 6 equals much worse. The mean score of participants for psychological coping was 2.3. It was 2.8 for physical coping, suggesting that participants felt they coped slightly better than average. The corresponding scores of the 93 nondisabled participants were 2.5 on both scales, suggesting that participants with disabilities felt they coped psychologically somewhat better and physically somewhat worse than their nondisabled counterparts.

It can be seen in Table 1 that the mean score of participants with disabilities on the item that asked about anxiety experienced during the ice storm period compared to other times was

3.6, indicating that there was no change in participants' anxiety level during the ice storm. The same was true of nondisabled participants, whose mean score was 3.7. The mean score of participants with disabilities on the item that asked about how depressed they were was 3.8, again indicating that there was no difference in their depression level during the ice storm and at other times. The mean score of nondisabled participants was 3.7. Thus, there is virtually no difference among participants with and without disabilities or between anxiety and depression levels before and during the ice storm.

Table 1 also shows that participants with disabilities had a mean score of 3.2 on the item which inquired about how well they slept during the ice storm period. This indicates that their sleep was slightly worse than usual. In contrast, the sleep of participants with no disabilities, with a mean score of 3.9, was slightly better than usual.

Participants were asked, "Where did you spend your time during the daytime during the ice storm period?" and told to check all options that applied. Results indicate that approximately half of both groups of participants stayed home, went to work, and visited friends or relatives at some time during the ice storm period. A substantially larger proportion of participants with (60%) than without disabilities (27%) looked after others in their home and went to a shopping mall (40% vs. 12%, respectively). None of the participants went to a public shelter.

Seventy percent of those with and 82% of those without disabilities reported having lost power for at least two days (i.e., enough time for one's home to cool down significantly and for items in the refrigerator to spoil). Responses of participants with and without disabilities about how they coped with the lack of electricity indicate that approximately 2/3 of participants in both groups used candles and/or an oil lamp for light. Large numbers in both groups (approximately 40%) used candles as well as a fireplace for heat. Approximately 1/3 of participants in each group had to heat water for washing and/or washed in cold water. About 10% of each group used a wood stove and/or a generator to heat and cooked on a fondue burner. Nondisabled participants also reported that they cooked on a wood fire and/or an outdoor barbecue.

Seventy percent of participants with and 58% of participants without disabilities stated that they had a shortage of, and had difficulty obtaining, some essential supplies. Results indicate that the largest numbers of individuals in both groups experienced a shortage of batteries. Shortages also occurred for both groups in wood, water, and food. Substantial numbers in one group or the other also had a shortage of candles, fondue burner fuel, and money. None of the participants experienced a shortage of medication.

One of the 10 participants with a disability responded to the question on sustained injuries and stated that he or she had "stiff muscles" and five experienced some form of property damage. Similarly, 10 of the 93 nondisabled participants (i.e., 11%) indicated an injury and 52 (i.e., 56%) noted some form of property damage.

Examination of the open-ended question on best moments during the ice storm revealed two types of responses. Some participants with disabilities were delighted when the ice storm was finally over and mentioned that the moment their power was restored was the best moment. Others, who made the best of the experience, expressed that "being safe and comfortable," "keeping the house habitable," "keeping pipes from freezing," "being with friends and family," and "not having school" were their best moments.

With regard to their worst moments, several participants made reference to not being able to meet their basic needs. For example, "not being able to find wood," "not having food," "not being able to sleep or take a shower," were common responses. Others referred to the danger of injury or damage to their property, such as the "potential for falling when outside," "flooded

basement,” and “leaking roof.”

Good Things and Bad Things Checklists

Examination of participants’ responses showed that the most frequently identified items were the same for both Checklists (see Tables 2 and 3). For example, "not having a hot shower or bath" was a popular negative item while, "having a hot shower or bath" was a popular positive item. Although participants with and without disabilities identified some of the same items, the ranking of the items was slightly different for the two groups. Participants in general were more likely to check off an item that was phrased in the positive (e.g., “reading or hearing of people helping others”) than the corresponding item phrased in the negative (e.g., “hearing or reading about people dying”).

Insert Tables 2 and 3 here

Results in Tables 2 and 3 show that participants with and without disabilities indicated identical 7 worst experiences on the 35 item Checklist (i.e., top 20%). In alphabetical order these are: feeling worried or anxious about the situation, finding the situation going on for too long, hearing or reading about people dying, not having a hot shower or bath, not knowing whether the electrical power would go out, reading or hearing about people taking advantage of the situation, and seeing the state of the streets and trees. There was somewhat greater variability between groups on the “Good Things Checklist,” although here, too, most (4/7) of the top ranked items were common to both groups. In alphabetical order these are: appreciating things we usually take for granted, finding a warm place, having a hot shower or bath, and spending time with family members.

Discussion

As suggested by the Social Model of Disability, persons with disabilities are accustomed to living in disabling environments under non-crisis conditions. We hypothesized that the additional disabling circumstances created by an unexpected crisis would create greater social barriers for persons with disabilities.

For the purposes of the present study, we operationally defined “disabling situation” as having been without power in the home for more than two days. A lack of electricity for two or more days typically meant that people were deprived of basic needs such as food and warmth because appliances, such as refrigerators, freezers, and heaters had not have been functioning for an extended period. Although such adverse circumstances affect everyone, for some persons with disabilities, a lack of electricity as a result of the ice storm could have been responsible for the inability to recharge motorised wheelchair batteries or, in some cases, to operate respirators.

In our samples, approximately 90% of individuals lost power at some time during the ice storm period. Approximately 75% of both samples were without power in their homes for more than two days. According to the definition of objective impact given by Gignac, et al. (2003), as they were affected by external environmental barriers that had an effect on their outcomes, these participants can be classified as having experienced “high objective impact.”

It was interesting to find that our two samples experienced very similar problems and

outcomes during the ice storm period. For example, approximately half of both groups of participants stayed home, went to work, and visited friends or relatives at some time during the ice storm period. Approximately 75% of participants in both groups remained at home in spite of lengthy periods without electricity and none went to a public shelter.

To cope with the lack of electricity, almost two-thirds of participants in both groups used candles and/or an oil lamp light. Candles and a fireplace were frequently mentioned as means of providing heat. Less common options for providing heat mentioned by approximately 10% of each group include using a wood stove and a generator. Many individuals reported that they had to heat water for washing and that they washed in cold water. Some participants cooked on a fondue burner.

About two-thirds of participants in both groups had a shortage and experienced difficulty obtaining some essential supplies. The worst shortage was in the case of batteries. Shortages also occurred in wood, potable water, candles, fondue burner fuel, and money. None of the participants experienced a shortage of medication.

The two groups of participants were in good agreement about the most important good and bad experiences during the ice storm period. Negatives include: feeling worried or anxious about the situation, finding the situation going on for too long, hearing or reading about people dying, not having a hot shower or bath, not knowing whether the electrical power would go out, reading or hearing about people taking advantage of the situation, and seeing the state of the streets and trees. Positives were: appreciating things we usually take for granted, finding a warm place, having a hot shower or bath, and spending time with family members.

Perhaps the most important aspect of the findings relates to understanding what happens to people during a sustained power outage in the winter and appreciating the types of resources needed to cope. For example, most people stayed home in very cold dwellings instead of staying with others or going to a public shelter. In doing so they experienced a variety of shortages, most notably in batteries and wood for heating and fondue burner fuel for cooking. Water and insufficient food also posed problems. Although many people experienced some type of property damage, the worst thing for most were the intangibles, such as hearing negative news and uncertainty about the duration of the emergency situation. Positive experiences largely consisted of the absence of negatives with one notable exception: people reported that the crisis allowed them to spend more time with family and friends.

Study 2

The second study investigated the experiences of female members of a non-profit advocacy organization for women with disabilities. During and after the ice storm, members of the board of directors of “Action des Femmes Handicapées de Montréal”⁵ (AFHM) made efforts to be in touch with each other as well as with most of the membership.

Method

Participants

Fifteen female members of the group “Action des Femmes Handicapées de Montréal” (AFHM) were interviewed by one of the authors, 6 of them in-depth. The women were between the ages of 20 and 55.

Materials

The initial interviews consisted of informal conversations with the participants to verify how they had been coping during the ice storm. After the ice storm, more structured follow-up interviews took place, consisting of the following questions: Where did you stay? What do you remember most about this experience in relation to your disability? What obstacles did you encounter?

Procedure

On Saturday, January 10, 1998 the monthly meeting which had been planned for the organization was cancelled as a consequence of the ice storm. A few days before the planned meeting, one of the authors attempted to contact the 15 participants by telephone. Nine of the women could not be reached due to ice storm-related problems with telephone lines and power failures or because the women were not staying at home. The other six women were reached at their homes. One week after the ice storm, the participants were contacted a second time and the more structured interviews took place.

Results

The information gathered via the two interviews revealed how the ice storm affected the daily activities of the women. Three reported staying with friends during the ice storm while three others reported staying in shelters set up by the city.

One woman with a visual impairment recounted her living situation during the storm. After having lost power, she spent one night in her apartment. The following day she got in touch with a community organization, the "Regroupement des Aveugles et Amblyopes du Montréal Métropolitain (RAAMM),"⁶ which helped her move into a nearby shelter. The shelter was a large gymnasium. As she was not familiar with this location, she chose not to walk around by herself, thereby limiting her autonomy. She also described the lack of privacy she encountered, specifically in the bathing area where many women shared a tiny shower and hot water was limited. "People were nice, but I felt ill at ease," she said. She spent only three days at the shelter before asking her brother to pick her up.

A second woman, who had fibromyalgia and arthritis, also stayed in a shelter. She found the large gymnasium difficult to move around in and noticed that she was often last in line when provisions such as cots and food were being distributed. She spent four days at the shelter. On the fifth day she went home to see if power had been restored and decided to stay in her apartment. For two days and nights she experienced frequent and unpredictable power outages. Electricity was fully restored on the third day. Of her experience at the shelter she said, "Because people could not see my disability, they assumed I was OK. So, no one offered to help. I paid the consequences of this later as the pain was so bad for weeks after the storm." The chairperson of the group did not lose power at her home. She, therefore, played host to several friends as well as her daughter. She reported that, for her, it seemed like, "a big party for three days." Another participant, who was diabetic, did not view the experience as favourably. As she put it, "The worst part, for me, was having to get used to eating cold, uncooked food for days because I used the available power to do other things. I wonder how our great-grandparents lived."

Another woman, who used a cane to walk, reported having fallen when she tried to get to a shelter on her second day without power. Consequently, she decided to go back home and tough it out under a pile of blankets. On the fourth day she was assisted in getting to a shelter, but stayed only two nights before the power was restored. Another woman, who had polio, had spent four days alone at home, in bed and without electricity before being taken to a rehabilitation center. Members of AFHM discovered that she had died a few days later at the rehabilitation centre. The remaining nine women either stayed home, where they endured frequent power outages, or stayed with family members.

Discussion

The experiences of the AFHM group help to illustrate two points. First, women with disabilities, who were offered help, accepted it for the most part, even though the services they received were not always adequate to meet their needs. Second, as others have noted, being aware of the location of persons with disabilities is central to emergency preparedness programs (Office des Personnes Handicapées du Québec, 1998a; Takahashi, et al., 1997).

The Social Model of Disability makes reference to the lack of access for persons with disabilities to everyday tools that allow nondisabled persons to move around in the environment and perform social activities (Oliver, 1993). This lack of access creates *disabling conditions* for persons with impairments. The data presented in Study 2 illustrate, that disabling conditions can also take the form of assistance that is put into place in times of unexpected crisis (e.g., lack of access to shelters, lack of knowledge about invisible disabilities, etc.). Such disabling conditions are due to lack of preparedness and lack of attention paid to the needs and concerns of individuals with disabilities. As seen in Studies 1 and 2, the presence of an impairment did not produce differential results in the way ice storm victims experienced this crisis. Rather, it was the environmental obstacles within the resources provided that created different, but not necessarily greater, disabling conditions than the women in Study 2 would have experienced in their everyday environments.

As reported by Enarson (2002) and Castaneda (2005), disaster preparedness is designed for the general population, without taking into account subgroups with specific needs, for example groups who are typically associated with high poverty rates, such as the elderly, persons with disabilities, members of visible minorities, the homeless, and single mothers. These people experience disabling conditions in one form or another even under non-crisis circumstances. Thus, if the tools put into place to help in times of crisis are not designed with their specific needs in mind, the end result is greater disabling conditions for members of these groups relative to the rest of the population.

General Discussion

Our original expectation was that the additional disabling circumstances created by an unexpected crisis would create greater social barriers for persons with disabilities. In fact, our results suggest that participants in Study 1, who remained in their regular environments, faced a different set of social barriers in comparison with participants in Study 2, who left their homes to seek out shelter and assistance. Participants with and without disabilities in Study 1 were equally likely to report experiencing new barriers created by the ice storm, such as not being able to

cook, not being able to go out to work, and having property damage. Participants in Study 2 experienced different barriers as a result of being in a different environment.

Several differences between the methodologies and participant characteristics in Studies 1 and 2 may have led to the dissimilarities between the findings of the two studies. In Study 1, participants were recruited from a primarily English-speaking Montreal community and did not know each other. These respondents completed a questionnaire. In contrast, the participants in Study 2 were mostly French-speaking members of an advocacy group, which met regularly. These respondents were interviewed by one of the authors, who herself was a member of the group at the time of the interviews. As women with disabilities who were part of an organized advocacy group, these individuals were likely well informed with respect to self-help and well practiced at identifying problems and finding solutions. As well, as group members, these women had formed an alliance which may have enhanced their ability to help themselves (Carpinello, Knight, & Jatulis, 1992). These qualities may have made the women in Study 2 more likely to seek out assistance and to cope with the obstacles they encountered in unfamiliar surroundings.

The gender of the respondents in the two studies may have also contributed to the differences in results. In Study 1, participants were divided almost equally between the two genders, while Study 2 participants were only women. According to the Pan-American Health Organization (2006), there are some gender based differences in response to natural disasters:

“Women are most effective at mobilizing the community to respond to disasters. They form groups and networks of social actors who work to meet the most pressing needs of the community. This kind of community organizing has proven essential in disaster preparedness and mitigation” (p. 1).

As Enarson (2002) explains, “Gender inequalities embodied in everyday life put girls and women at special risk” (p. 2). She further describes that relevant differences and inequalities among women and men throughout the disaster process are increasingly being documented:

“But living life as a woman also empowers women at critical junctures, from risk assessment and hazard mitigation to emergency preparedness, disaster response, and post-disaster reconstruction. Accounts were shared of women’s efforts to reduce social vulnerabilities and identify and mitigate environmental hazards in the communities they know best. Again and again, we learned that women build communities, promote safety, and reweave the fabric of everyday life after disasters” (p. 3).

The findings of our two studies are consistent with the literature in terms of disaster preparedness. In particular, it is necessary for the locations of persons with disabilities to be known so that assistance may be provided. Furthermore, persons with disabilities must be equipped with self-assistance skills to survive in times of crisis. The dearth of literature concerning persons with disabilities in times of disaster reflects the fact that those who have disabilities have been integrated in the general community only relatively recently (Longmore & Umansky, 2001). Therefore, it is not surprising that sophisticated and regularly updated crisis intervention plans are not readily available for them.

Participants with disabilities in our investigation implied that they had to care for themselves much of the time during the ice storm. When disaster strikes, neither individuals with

nor without disabilities can be guaranteed that assistance will be readily available. Thus, manuals that detail how persons with disabilities and their caregivers can prepare themselves for disasters are crucial. *Disaster Preparedness for People with Disability*, by the American Red Cross Disaster Services (n.d.), contains a personal assessment sheet which can be used to identify what individuals with disabilities can do in the event of disaster and what kinds of help they may need. In addition, safe and speedy rescues can be facilitated if emergency response teams have access to resources which help to ensure safe outcomes for persons with disabilities.

One limitation of the studies presented here is the small number of individuals with disabilities in our samples. This restricts the generalizability of our findings. Nevertheless, the small number of participants with disabilities in Study 1 reflects the incidence of impairment in the population studied. Also, these individuals were sampled in the same way and from the same population as the nondisabled participants. This resulted in a sample of participants with disabilities which was very similar to the nondisabled sample on a number of demographic parameters. Yet, their small number made inferential statistical tests inappropriate, leaving us with descriptive findings only. Also, the initial interviews of Study 2 emerged as a result of the ice storm and were not pre-planned. Although efforts were made in designing the post-storm interviews to compensate for this, the amount of information yielded by these interviews was limited in type and quantity.

“Disasters unfold in worlds shaped by culture and class, race and ethnicity, age, physical abilities and other power relations—including those based on gender” (Enarson, 2002, p. 2). Different individuals in different environments will not face the same barriers in times of crisis. Disaster preparedness must take into account not only the nature of the disaster but also both the characteristics of individuals as well as of their environments.

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Table 1

Comparison of Scores of Participants With and Without Disabilities

Question	Participant Group	N	Mean	Meaning of Scores
In general, how many <i>good/positive</i> experiences did you have during the ice storm period?	With a disability	10	3.5	1= very few, 6=very many
	No disability	92	3.9	
In general, how many <i>bad/negative</i> experiences did you have during the ice storm period?	With a disability	10	3.6	1= very few, 6=very many
	No disability	93	3.2	
Compared to most others, how do you feel you <i>coped psychologically</i> during the ice storm period?	With a disability	8	2.3	1= much better, 6=much worse
	No disability	93	2.5	
Compared to most others, how do you feel you <i>coped physically</i> during the ice storm period?	With a disability	10	2.8	1= much better, 6=much worse
	No disability	93	2.5	
<i>Overall</i> , how were you affected by the ice storm and its aftermath?	With a disability	10	3.8	1=very negatively, 6=very positively
	No disability	92	4.4	
Compared to how you usually feel, generally <i>how anxious</i> did you feel during the ice storm period?	With a disability	10	3.6	1= more anxious, 6=less anxious
	No disability	93	3.7	
Compared to how you usually feel. generally, <i>how depressed</i> did you feel during the ice storm period?	With a disability	10	3.8	1= more depressed, 6=less depressed
	No disability	93	3.7	
Compared to how you usually. sleep, generally, <i>how well did you sleep</i>	With a disability	10	3.2	1= much worse, 6=much better

during the ice storm period? No disability 93 3.9

Table 2

Highest Ranked Items from Good and Bad Things Checklists for Participants with Disabilities

Rank	Item	Number of Participants	Percent of Participants
Good Things			
1	Reading or hearing of people helping others	9	90%
2	Having a hot shower or bath	8	80%
3	Appreciating things we usually take for granted	8	80%
4	Hydro company doing all they could	8	80%
5	Finding a warm place	7	70%
6	Spending time with family members	6	60%
7	Having electric power	5	50%
Bad Things			
1	Feeling worried or anxious about the situation	7	70%
2	Reading or hearing about people taking advantage of the situation	6	60%
3	Seeing the state of the streets and trees	6	60%
4	Hearing or reading about people dying	6	60%
5	Not knowing whether the electrical power would go out	5	50%
6	Not having a hot shower or bath	5	50%
7	Finding the situation going on for too long	5	50%

Note. Responses provided by all 10 participants with disabilities.

Table 3

Highest Ranked Items from Good and Bad Things Checklists for Participants Without Disabilities

Rank	Item	Number of Participants	Percent of Participants
Good Things			
1	Having a hot shower or bath	72	77%

2	Having hot food	61	66%
3	Appreciating things we usually take for granted	67	72%
4	Spending time with family members	59	63%
5	Feeling of being able to cope	58	62%
6	Finding a warm place	58	62%
7	Seeing the ice on the trees as beautiful	56	60%

Bad Things

1	Reading or hearing about people taking advantage of the situation	68	73%
2	Seeing the state of the streets and trees	58	62%
3	Hearing or reading about people dying	53	57%
4	Not knowing whether the electrical power would go out	46	49%
5	Finding the situation going on for too long	46	49%
6	Not having a hot shower or bath	43	46%
7	Feeling worried or anxious about the situation	37	40%

Note. Responses provided by all 93 participants without disabilities.

Endnotes

¹ Offices des personnes Handicapées du Québec (Offices for persons with disabilities)

² Commission scientifique et technique (Scientific and Technical Commission - a parliamentary commission)

³ Commission sur la crise du verglas (Commission on the ice storm crisis - a parliamentary commission)

⁴ Centre local de services communautaire (Local Community and Social Services Centre)

⁵ Action des femmes handicapées de Montréal (a Montreal based disabled women's organization)

⁶ Regroupement des aveugles et amblyopes du Montréal métropolitain (an organisation of blind and partially sighted persons in Montreal)