

Katrina-Related Health Concerns of Latino Survivors and Evacuees

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Abstract: This article examines health concerns identified by Latinos who resided in the path of Hurricane Katrina in New Orleans and Mississippi. Data were collected for this qualitative descriptive study through individual, open-ended interviews with 93 Latino survivors and evacuees in Louisiana, Mississippi, and Georgia. Findings describe health concerns and experiences, including hunger, environmental health risks, sleep disturbances, and access to health care for acute and chronic conditions. Health and illness factored into personal and family decisions on whether or not to stay, evacuate, or return home following the storm. Problems accessing health care were compounded for the undocumented and uninsured. The findings have implications for further disaster research and may inform emergency preparedness policy development and the planning and implementation of disaster-related health care services for Latinos and other minority and underserved groups.

Key words: Latino health, health care access, disaster preparedness, uninsured.

The experiences of hundreds of thousands of Latino residents of the Gulf Coast during and after Hurricane Katrina are among the stories untold in both the mainstream media and the professional literature. Compared with members of other racial/ethnic groups, very little systematic information has emerged regarding how Latino residents fared during and after the storm or about the disaster's effects on their physical and emotional well being. Like other residents of the region, Latinos found themselves uprooted, homeless, jobless, and without resources as a result of the hurricane and ensuing flooding. At the time of the initial disaster, however, Latinos' stories rarely appeared in the national media. In the weeks after the storm, the few reports that surfaced suggested language and cultural barriers prevented many Latinos from evacuating, that rescuers were ignoring Latinos and African Americans while helping White people, and that Latinos were largely absent from shelters and other relief sites.^{1,2,3,4,5,6} In the ensuing year, although researchers have focused on the social, environmental, and political implications of Katrina, the disaster's impact on the Latino population has largely been ignored.

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In this paper we present an analysis of the health-related concerns identified by Latinos living in the path of Hurricane Katrina. Research that includes the voices of those marginalized by language, culture, immigration status, and other axes of inequality is needed in order to further develop knowledge and theoretical frameworks about the health implications of disasters. An examination of the health and health care experiences of Latino survivors and evacuees of the Katrina disaster also can contribute to public health policy development and the provision of disaster-related health care among minority and underserved populations.

Background and Context

The pre-Katrina Latino population in the Gulf Coast region. Latin American consulates estimated that 300,000 Latinos in the Gulf Coast region were affected by Hurricane Katrina.⁷ The distribution of the Latino population in the region varied by country of origin. Central Americans predominated in the New Orleans area and Mexicans constituted the majority in communities along the Mississippi coast. Migrants from Honduras accounted for a large portion of the Central Americans in New Orleans, largely due to connections between New Orleans-based Standard Fruit Company and Honduran banana producers.⁸ New Orleans was also a prime destination of thousands of Nicaraguans and Salvadorians who immigrated following Hurricane Mitch in 1998. The Honduran population in New Orleans grew from 6.7% of Louisiana's foreign-born population in 1980 to 9.7% in 2000.⁸ By August of 2005, an estimated 150,000 Hondurans lived in New Orleans, constituting the largest Honduran population in the country.⁸ Mexicans constituted 10% and Puerto Ricans 5% of the city's Latino population.⁹

Language and information barriers. Language barriers and lack of access to storm information and personal safety advisories were among the many challenges Latinos experienced as Katrina approached. According to 2005 data from the U.S. Census Bureau,¹⁰ nearly a third of Spanish-speaking residents of New Orleans spoke English "less than very well." Language barriers contributed to delays in learning about the storm's path, difficulties in interpreting the potential severity of the storm, and lack of access to and comprehension of local officials' plans and warnings. Provision of weather information in languages other than English depends upon both the availability of ethnic media outlets and the willingness and ability of local forecasting services to work with these outlets to keep them up to date.¹¹ In Louisiana and Mississippi, no television channels provided local weather information in Spanish; in New Orleans, one Spanish-language radio station offered local weather updates, but none did so in Mississippi.¹¹

Immigration status as a barrier to assistance. Immigration status posed another major challenge for many Latinos in Katrina's path. Undocumented immigrants do not qualify for most types of federal assistance in times of emergency. According to the Federal Emergency Management Agency (FEMA), undocumented immigrants could receive temporary assistance but not financial or housing aid. The practical implication was that undocumented immigrants could stay in shelters, but data collected from them would not be considered confidential.^{11,12} Contrary to precedents (e.g., Hurricane Andrew and the terrorist attacks of September 11, 2001), the federal government

decided not to waive federal guidelines regarding immigration status, which kept many undocumented Latinos from seeking and gaining assistance, and meant that some who did paid a price. After the hurricane, officials in the Department of Homeland Security urged (in both English and Spanish) anyone needing assistance to seek it from all agencies, but undocumented immigrant evacuees who sought shelter in Texas were told to appear for deportation hearings.^{12,13} Even undocumented immigrants who applied for aid for their documented children risked deportation.¹⁴ In some areas of Mississippi, Latinos who sought shelter in Red Cross facilities also had difficulty getting help after the storm, when some were evicted and threatened with deportation by law enforcement personnel. In several documented cases, Latinos with legal residency status were told by law enforcement officials to leave Red Cross shelters or face deportation.^{13,15} Not surprisingly, many documented and undocumented Latinos steered clear of shelters and governmental aid centers.¹¹ The fact that a recently published study of the health needs of evacuees in shelters in Houston (N=680) included no mention of Latinos¹⁶ no doubt reflects this phenomenon, but also is indicative of the invisibility of Latino experiences in both the mainstream media and the professional literature.

Methods

This was a qualitative descriptive study¹⁷ aimed at exploring the experiences of Latino survivors and evacuees of Hurricane Katrina. In the weeks immediately following Katrina's landfall, we formed an interdisciplinary, bilingual, multi-state research team to explore the initial experiences of Latino survivors and evacuees of the storm. The research was approved by university Institutional Review Boards and by local community groups who collaborated in the recruitment process.

Data collection. Data for the analysis presented in this paper were collected between October 2005 and March 2006 through face-to-face interviews with 93 Latino survivors and evacuees. To capture a wide range of survivor and evacuee experiences, we conducted interviews in Atlanta (October 2005), New Orleans (November 2005 through March 2006), and Biloxi and Gulfport, Mississippi (March 2006). Throughout this period we also monitored the media for reports on Latinos affected by Katrina.

The primary recruitment strategy for obtaining this convenience sample was snowball referral. In Atlanta, we contacted a Latino community-based organization that granted permission for us to request interviews with Katrina evacuees coming to the agency's relief site to pick up donated food or clothing. In Louisiana and Mississippi we used a combination of personal and community contacts and posted Spanish-language fliers in apartment complexes, *tiendas*, laundromats, restaurants, and work places in areas where Latinos were known to live, work, or congregate. We also asked participants to refer us to others who might be interested in sharing their experiences.

We trained a team of bilingual interviewers who conducted individual, audiotaped interviews in Spanish. Interviewers obtained oral informed consent from each potential participant prior to collecting demographic information and proceeding with the qualitative data collection. The semi-structured interview guide developed specifically for this study consisted of a series of open-ended questions designed to elicit descriptions of the respondents' Katrina-related experiences (e.g., how they learned of the storm

and made the decision to stay or leave; what kind of assistance they received from, or gave to, others; their major concerns and stressors; and their plans for the future). Participants received a \$40 gift card at the conclusion of the interview.

Data analysis. Professionals whose native language is Spanish transcribed the audio-taped interviews. Prior to proceeding with the data analysis, members of the research team compared the transcriptions with the audiotapes to ensure their fidelity and corrected discrepancies or errors. The authors are bilingual researchers and conducted the qualitative analysis using the original Spanish-language transcriptions.

For analysis, we employed a variety of descriptive qualitative and narrative techniques.^{17,18,19} Initial phases involved line-by-line, open coding of individual transcripts, followed by more focused coding. For this particular analysis, we identified relevant health-related issues, themes, and salient storylines. We used constant comparative techniques to explore specific themes within and across interviews and to identify negative cases.

To illustrate our findings, we present examples of supporting data in two forms: short quotations and more fully developed stories told in the course of the interviews. We personally translated these data directly from the original transcripts in Spanish into English. Two native Spanish-speaking research assistants checked our translations. To improve readability, we utilized elements of structure (e.g., order of presentation, punctuation) and eliminated the repetition that occurs naturally as part of oral speech. Translated quotations are represented in italic font. Words inserted to provide clarification are enclosed in square brackets and omitted material is noted by three spaced ellipsis points. We removed names to protect confidentiality, but did maintain geographical locations for reference and context.

Sample characteristics. Among those interviewed ($n=93$), the vast majority (78%) was of Central American origin, primarily from Honduras and Guatemala. Others were either of Mexican origin (11%) or from South America or the Caribbean (11%). The sample was predominantly female (61%). Length of time living in the U.S. ranged from less than a year to 65 years, with a median of 13 years. The mean years of formal education was 9.92 ($SD=3.99$). Self-reported English skills ranged from none to poor (35%), medium (24%), and good-to-excellent (41%). Among males, the predominant areas of employment at the time of the storm were service sector (e.g., restaurants, hotels, and casinos), construction, and manufacturing. The most common occupation among employed women was housekeeping and hotel cleaning.

Results

Health-related concerns. Our findings illustrate the personal, familial, and environmental health and health care access concerns of Latinos directly affected by Hurricane Katrina. Decisions to stay in the path of the storm, evacuate, or return often hinged on personal or family health concerns. Respondents attributed a variety of health problems to the disaster itself or the relocation process. These ranged from physical symptoms (e.g., hunger, headaches, nausea, chest pain, shortness of breath, earaches) and exacerbation of chronic diseases (e.g., hypertension, diabetes, asthma) to sleep disturbances, fear, anxiety, depression, and chronic sadness. Access to health care was

a key concern, frequently compounded by being uninsured, language barriers, and undocumented immigration status. Environmental health risks included contaminated water, infectious diseases, and unsanitary, overcrowded living conditions. In the face of extreme adversity, there were examples of selfless heroism in which individuals and families risked their own safety to provide assistance to others in greater need. As Latinos described their Katrina experiences, from unanticipated danger to "total loss," they often expressed their gratitude and thankfulness for being alive and for the assistance they had received.

Unanticipated danger and lack of preparation. Findings from this extensive set of interviews suggest that many Latinos living in the areas affected by Katrina did not anticipate the potential strength of the storm and were not prepared for its impact. This common stance of not having anticipated the storm's destructive capabilities framed the experiences of both survivors and evacuees. Barriers to emergency preparedness and to understanding the impending danger included economic constraints, lack of transportation, language, and culture. Additionally, many Latino interviewees acknowledged they simply had not taken warnings seriously, did not anticipate the storm's strength, or believed "nothing was going to happen."

Although many residents from Nicaragua, Honduras, and Puerto Rico had prior experiences with hurricanes and other natural and man-made disasters, some of the newer immigrants from Mexico had little or no prior experience with hurricanes. More long-term residents of New Orleans had experienced numerous hurricane warnings over time, but most of these storms had changed course and missed the city. Based on previous experiences, some naively assumed they had nothing to worry about:

I suffered through Hurricane Fifi in Honduras. This was some 32 or 33 years ago. There I lost everything. All my things went flying out of the house, because the little house I lived in was very low. I lived through that very traumatic experience. But here I didn't imagine that it would be like this. Or perhaps I had forgotten the experience that I had lived through so many years ago. But like I said, we thought this [storm] was something that would blow over quickly, that it wouldn't be so strong. (Honduran woman, age 70, 20 years in U.S.)

Latinos with limited-English-proficiency noted difficulties in understanding warnings and instructions in English. Immigrants accustomed to the metric system had difficulty interpreting weather reports that referred to the storm's strength and direction expressed as *miles per hour*. Participants identified family, friends, and coworkers as the primary sources of information about the impending hurricane. Other information sources included Latino radio stations and English language media. Monolingual Spanish speakers tended to get information from English language media second-hand, through bilingual friends or family members:

[I found out about Katrina] through my friend, who knows how to speak [English], and we always had the television on. So we were aware that the hurricane was coming. But supposedly, we thought that it wasn't going to be very strong, very severe. Because before, when Ivan came, Ivan came and went . . . [After the storm] when my friend called 911, they asked us why we didn't leave . . . she told them we didn't

have a car. The truth of the matter was that we didn't believe it was going to be so terrible. (Honduran man, age 28, 6 years in U.S.)

In hindsight, even those who had engaged in some type of hurricane preparations were surprised by the destructive impact of the storm. Yet the words of one relatively recent immigrant also suggested a relationship between low expectations and class/societal position:

In reality, I had no expectations. I didn't expect anything, because we Latinos are always left in last place. We only thought that we would lose things, our work, our whole lives. (Guatemalan man, age 28, 3 years in U.S.)

Hunger: an immediate health concern. Hunger was the most common immediate physical and emotional health concern. Even those who had stocked up on food and water often found themselves hungry when their food supplies were damaged or lost in the flood. In the case of one family, prior experience with spoiled food as result of electrical outages resulted in inadequate preparation and subsequent hunger:

We didn't have anything. There was nothing. There wasn't any food at all. We hadn't even bought [extra] food, because I figured that if the electricity went out we would lose all the food we had. And if we had to leave, we would lose the food we left. So we hadn't even bought any food. We went hungry for a week, until some people from Dallas showed up and gave us food. That was the first food we had. (Nicaraguan man, age 46, 19 years in U.S.)

Those who evacuated also suffered from lack of food and water, often as a result of leaving hastily, being unprepared, or getting waylaid or stranded en route from the storm area. An extended Nicaraguan family (grandparents, daughter, son-in-law, and grandchildren) left New Orleans headed for Alabama, where another daughter resided. They started out in two cars but had to abandon one because of gasoline shortages. The grandmother was no stranger to adversity, having survived earthquakes and war in Nicaragua, but she became desperate as food ran out and her grandchild got hungrier:

By the second day we didn't have any food. We only had some bread and water. My granddaughter is three years old. She said, "I want chocolate milk." I just cried—because where were we going to get chocolate milk? We kept driving until we got to a little town in Mississippi. We stopped and didn't see anything except what looked like an abandoned gas station. Then I saw someone going into a storage shed at the gas station. So I went running over and went in. The woman said to me in English, "I didn't come here to sell anything. I just came to check on my business." So I told her, in English, "I'm sorry. I have children. I need food and drink. I have the money. I pay for something." I picked up two sacks of ice, some chocolate milk, doughnuts; whatever I found that was edible. I paid. I said, "Charge me whatever because we have two children." The nice lady said, "Okay." After that I felt better because I had food with me for my grandchildren. (Nicaraguan woman, age 68, 23 years in U.S.)

Getting by without food or water was physically and emotionally challenging for all concerned. For parents, even more challenging were feelings of impotence and the emotional pain of not being able to provide for children's needs. Hunger was also difficult and potentially more serious for pregnant women:

Just knowing that you have lost everything and that you have to start all over again, and you don't have a job . . . it's really difficult on my health. Being hungry and pregnant was horrible. In the beginning, I was dying of hunger. What are we going to eat? There was a whole bunch of people in that house and you couldn't eat. When you're pregnant, it's not enough to eat three times a day. You need to eat up to six times. When I went to the pre-natal visit [after the storm], I was anemic. They told me, "You're not eating well." So I'm telling you the truth, I'm eating, but I'm not eating nutritious food, just whatever food there is to eat. (Honduran woman, age 35, 9 years in U.S.)

In the face of extreme adversity, resourcefulness and ingenuity served to stave off hunger. A man and his neighbors stranded in New Orleans for nearly a week told this story of collective survival strategies:

The day after the storm things were calmer, but the water was rising; the water had almost covered the cars . . . and we were waiting there [for help]. There was no electricity, nothing. So we started looking for pieces of wood so we could build a fire [to cook], because there were children who needed to eat. So we had to find a way to feed everyone that was there. So we built a fire. There wasn't anything to eat so we fried fish that we caught. It was fortunate that we had some lemons, the girls got busy washing [the fish] with the lemons and the little fresh water that we had. We were dying of hunger, because we were there for more than a week. The helicopters just passed over us and shone their lights on us, but most of them flew in the direction of New Orleans, where most of the people were. One day we didn't eat anything, because there wasn't very much and there were children. We older folks didn't eat. We had to give the food to the children, because they needed it more. We could hold out a little longer. (Honduran man, age 28, 6 years in U.S.)

An interesting negative case, in which a Latino family stranded in New Orleans did not suffer from hunger, also demonstrated their resourcefulness. This story contained an interesting touch of cultural commentary on dietary assimilation:

Sincerely, I'll tell you that during and after the hurricane I ate better [than before]. Because there are times when I've been working and running around and only ate at Burger King, McDonald's, Popeye's. During the hurricane we were cooking much better and were not hungry. At least we had food . . . my grandmother always has a stock of canned food in her closet and my aunt also, so that helped a lot. (Honduran man, age 40, 25 years in U.S.)

Risking personal health and safety in the process of providing mutual assistance. All participants, survivors and evacuees alike, had experienced some degree of personal risk and loss. In the face of extraordinary danger, some individuals further risked their

own health and safety in order to help others. In relating her experience of surviving the hurricane, a 30-year-old Puerto Rican woman noted her concerns about the disruption of health care services, which put her family's health in jeopardy:

This is the first time I've experienced a hurricane of this category. I lived in Puerto Rico in 1989 when Hurricane Hugo came, but I was young, I was only 15 or 18 years old, and I didn't know as much. Now I'm married, I am a mother; I have children who depend on me, so this one has affected me much more. My husband is diabetic and my son has chronic asthma. We didn't have the therapy machine for the child if he would get asthma. The closest hospital was closed. The only hospital that was open in the whole disaster area was Jefferson.

Despite these immediate health care concerns, the family stayed through the storm to assist others in more dire need. They put themselves in immediate danger and took even greater personal health risks to assist the frail, elderly residents of the nursing home where her husband worked as a janitor:

At my husband's work, there were only two housekeepers, the manager, and three nurses. My husband felt pity for them. He did not want to leave them alone. They were all women, but he was the only male housekeeper. So he said, "Let's stay here. At least I can offer my help in case we need to move the elderly from one room to another." So we stayed to help people. My brother also stayed with us. While my brother was taking care of my children, I helped [move] the elderly into the hall, because there was no electricity. They were 80, 90 years old. They were really in need.

Such acts of mutual assistance and selfless heroism by Latinos rarely surfaced in the mainstream media. Another example of selfless heroism was the collective mobilization of a neighborhood rescue effort by a group of Latino men in New Orleans:

The day after [Katrina] another Nicaraguan man said to me, "There are almost 45 people that need to be evacuated in this block . . . pregnant women, old people, children." So the following morning, we decided to look for help. We left the building swimming . . . I swam past a man yelling from the top of a roof, but I don't understand anything anyone says in English, so I just kept swimming . . . We swam almost 12 blocks . . . [to] the Windsor Hotel, [where] there was a friend . . . that would let us stay there. We told her that there were almost 20 of us. She agreed, since the hotel manager knew that they would receive many victims. When we left the hotel, there weren't any boats, any policeman, or any soldiers—no mayor or governor directing the people . . . Earlier we had met the Fire Chief of New Orleans. When we informed him that we needed help [to evacuate the people from our block], he said, "There are 700,000 people that need to be evacuated in New Orleans. Go and try to help them." It was then that I realized that the trouble was too serious for those people to remain alone another day or even another hour [without help]. So, we found a wooden bed that was floating by Charity Avenue and we pulled it [back to the neighborhood]. We arrived where the people were waiting for us. Along the way we informed people we saw what was really happening. The only thing we could do was to go through the neighborhood in groups of three and search for children and elders in each building

so that they would not drown . . . There were 12 blocks where we could not touch the ground with our feet. There were 13 of us, all men. We found a 30-foot hose and tied together the wooden bed and some plywood. We pulled it and we started to carry four people [at a time]. We left them and returned to carry four more people and so on . . . Hours passed and more and more people arrived. By that time, they felt more courageous because there were many people that could not swim. Some teenagers drowned because they could not swim . . . During the whole rescue we tried to give people courage, we asked them not to be afraid, we said there were no snakes . . . I spent the whole week helping, helping people.

In telling the story, almost as an after-thought, the narrator noted that as he worked to save others, surrounded by death and horror, he actually did suffer a snakebite:

I got a snakebite in my leg. It was a thin serpent, brown colored. [When the serpent bit me] I felt dizzy but I drank alcohol so as not to suffer from poison problems. Alcohol helped me . . . I estimate that I saw some 400 dead bodies. There were 3 dead people over the Levee. To my horror, a big animal comes out and is devouring one of them. Bum! In 6, 7 minutes the bodies were gone. I will not go back there anymore, it was full of alligators! (Nicaraguan man, age 37, 5 years in U.S.)

Health and health care access concerns, and decisions to stay, leave, or return.

An individual or family's decision to evacuate or stay depended on a number of factors. These included availability and sources of information and advice, prior personal experiences, and the availability of transportation and economic resources. In some cases, a personal or family health concern (e.g., pregnancy, chronic illness, acute illness, access to health services) was the pivotal factor in deciding whether to stay, leave, or return. The following case illustrates how access to pregnancy care was the tipping point in a family's decision to leave New Orleans and not return:

[In previous storms] what we did before was to put tape on the windows . . . but this time I didn't do anything [to prepare]. Before I had never decided to leave when there were hurricane warnings; I wouldn't have left this time either . . . But when I saw the route and the form of the hurricane that was coming towards New Orleans, then I decided to move, most of all because of my wife who is seven months pregnant. Other times I stayed. On Saturday at noon I saw the trajectory of the storm that was coming [and I said], "Okay, we're going because this is a really strong one that's coming. We're not running the risk." I have some friends who are not very well informed, and I called them to tell them about the strength of the storm. They didn't believe it. They said, "We are going to stay here. Nothing is going to happen." So I told them, "Listen, this one is strong, this one is coming right here, we need to get out." They said, "No, you go with your wife and your [unborn] child, because we are going to stay." So I came alone, with my wife. We stayed here [in Atlanta] because my wife is pregnant and is getting prenatal care [here]. In New Orleans the hospitals aren't available, they aren't open, there aren't doctors, there aren't hospitals. So for the time being we are staying here so that she and the baby can get medical care. (Honduran man, age 42, 15 years in U.S.)

Illness and the lack of available health care forced some to evacuate. An example was the case of a single mother and her young child stranded in Mississippi at a friend's home for two weeks without potable water. Not surprisingly, the child eventually succumbed to severe diarrhea. While attempting to find medical assistance, a chance encounter with a volunteer of Mexican origin precipitated the trajectory that led to her evacuation to Atlanta:

My son got sick. That's why I left [Mississippi]. Otherwise I would have stayed. My son got really sick with diarrhea, really bad diarrhea. When my son got sick we went to the doctor, but there were no doctors. There were just assistants, who are not the same as doctors . . . All they did was give him something to lower his temperature. Usually when the baby has a temperature it's an infection . . . By chance, when I went [for medical care] I met a Mexican girl who helped me to take him to a hospital, because I needed help to take him to a hospital. She said she came to help people who were sick and so she could help me get out of there with him. [She told me] to go get everything and we would take the baby to the hospital. So I picked up the few things I had there and went with her. I happened to be very lucky in meeting up with that young Mexican woman. She was wonderful; she bought things for me and my son. It was just by chance, because if she hadn't been there, what would have happened to my sick child? (Argentinean woman, age 34, 4 years in U.S.)

As they pondered whether or not to return home, the lack of available and accessible health care services in the New Orleans area was a factor some evacuees took seriously. Others were leery of returning to the devastated areas because of existing health problems. Such was the case of an unemployed, elderly diabetic woman who had evacuated to Atlanta with her daughter and grandson:

I won't go back there because I am a diabetic, so I say to myself, and my daughter told me, "You can't go back." My daughter went back, but she came back in really bad shape after seeing what things were like [in New Orleans]. So I believe I will stay here [in Georgia]. Look, I can't take much, if I walk a lot I get tired, my legs hurt and with the diabetes, I have to be very vigilant about my food. I have to eat every little while. I can't eat a lot at one time. And I need a lot of tranquility; because these things [health problems] make me sick, make me depressed, I can't get around. (Honduran woman, age 70, 20 years in U.S.)

Finding alternate sources of health care and obtaining health insurance were major concerns for both those who stayed and those who evacuated. Loss of their usual sources of health care, particularly for pre-existing chronic health conditions, was an immediate worry among those caught in Katrina's path. A Guatemalan woman afflicted with macular degeneration had survived the storm in New Orleans. However, she was worried about the personal implications of the closing of a health facility where the poor and underserved had received treatment:

I feel very depressed . . . Also, I used to go to Charity Hospital, about my eye, about the stroke I had [in my eye]. In January I'll have to find [another health care provider] because I need to have my eye checked. Even if I have to pay I'm going to find a

place . . . because I have a problem that my eye bleeds inside. (Guatemalan woman, age 54, 13 years in U.S.)

Being insured prior to the storm did not guarantee access to care. As exemplified by the concerns voiced by this father, loss of insurance was one of the negative health care implications of evacuating to another state:

One of the problems we had was health insurance. My health insurance doesn't cover me here in Georgia. In other words I have had to look for another way to get health insurance. I've been trying to get health insurance for my children through Medicaid, because financially now I cannot do what I used to do. So I'm trying to at least get medical insurance for them. That has been one of the biggest problems. (Colombian man, age 46, 22 years in U.S.)

Compounded risks of being undocumented and uninsured. For uninsured and/or undocumented Latinos there were additional social and economic costs of accessing health care. Another story told by the Nicaraguan man who participated in the spontaneous rescue efforts (described above) exemplified how being undocumented and uninsured compounded the physical and emotional harm he suffered. Having survived the New Orleans storm and heroically assisted others in the process, he temporarily evacuated to Texas for a few days before returning to New Orleans to look for work in post-Katrina reconstruction efforts. Although the opportunity for employment was welcome, the reconstruction work itself involved significant environmental health risks:

I started to work for the Jefferson Hospital, cleaning and dismantling everything. I stayed only four days because the company's working conditions were not appropriate. The hospital was very polluted and we did not have any kind of protection. Eight dollars an hour was not worth it. The second week I started working [with another company]. They told us that we would work with painting, sheetrock and demolitions. But that was not true . . . we had to demolish a ceiling that has a kind of tile that is picked up and put in. It is not sheetrock. As time goes by it gets really dirty and the insulation drops fibers that make you itch. They gave us a pair of plastic glasses but they were not adequate. So, I worked for two weeks dismantling five stories. By the third week I could not stand it anymore. My vision was injured. I lost 60% of the vision in one eye . . . I wanted to sue the company because I was sure that I was injured on the job. You know what? I blame the water, the food we ate the eight days we were in water. I blame the ceiling because there must have been rats and dust there, where everything gets in your body.

Uninsured and out of cash, he sought treatment for his vision loss at an emergency room. However, he was very dissatisfied with the providers' explanations and diagnoses and the cost and quality of the treatment he received:

The first time I went to the hospital they saw me and sent me a bill for \$500 . . . How is it possible that this doctor diagnosed me with conjunctivitis? This was not conjunctivitis. And they sent me a bill, just for having said it was conjunctivitis, without having given me any medicine. The point is that, after going to the hospital

and being charged \$500, a doctor diagnosed conjunctivitis. How is that possible? I have all my medical documents. After having this [eye] problem for two months, I haven't even been able to get an antibiotic for the infection that I have, because the cost is too high. Here I am with 3 bills for \$500 that they have sent me . . . I'm afraid to go back there because I have a bill for \$360 for some exams that they had me do. They didn't explain any of them. The same doctor who saw me, he said, "I can't prescribe anything for you because it's not clear [what the problem is] . . . A while later I went for an appointment with two other doctors, one a cornea specialist, and the other a more general physician. They told me it is an infection . . . I now have a total of \$1,600 in doctor's bills. That's without spending anything on prescriptions. I don't have insurance; because of my [undocumented] status, I don't have anything. (Nicaraguan man, age 37, 5 years in U.S.)

Language and cultural barriers between patient and provider certainly may have played a part in this man's interpretation of the care he received. It was not clear if this limited-English-proficient Latino had any language assistance (e.g., interpreter, bilingual provider) in his interactions with providers. It is possible the meaning he attached to the diagnosis of "conjunctivitis" was common eye irritation, which he interpreted as not reflective of the severity of his symptoms. But regardless of the health care providers' intentions, the unresolved health problem and mounting bills only left him feeling more vulnerable, marginalized, and dissatisfied with the health care he received.

Environmental health risks. Both survivors and evacuees experienced environmental health risks. *Plague* was a word some used in describing the conditions created by contaminated floodwaters, accumulating debris, and the lack of water, food, and electricity. Health hazards posed by mosquitoes and other insects and fears of contracting disease through contact with contaminated floodwaters were common concerns.

We couldn't get out of the apartment because of the floodwaters. And the water that came in was very contagious. It was black water. We couldn't walk through it because we could get an infection. They were fishing bodies out of the water. There were dogs that drowned. It was very contaminated. (Honduran man, age 28, 6 years in U.S.)

Stranded survivors devised numerous strategies to protect themselves from exposure to health risks. Such strategies were not always successful or sanctioned, as in the case one group that "built bonfires to keep the mosquitoes away but at night the police and the firemen would come and put out the bonfires." Some survivors lived for weeks in unsanitary conditions before they received any type of assistance:

We went for days without being able to take a bath. There were huge blue flies . . . I'm telling you, they were huge. There was a swimming pool and we went to take a bath there, trying to clean ourselves up a little. But lots of people were using the pool to bathe, so it got dirty. It was at the point of there being an epidemic. We were there for 15 days without water, without anything. Finally they started bringing us some things, like sacks of ice. The Red Cross sent in a medical crew who vaccinated us one night. They came at 4 o'clock in the morning. (Nicaraguan man, age 46, 19 years in U.S.)

A casino employee in Mississippi initially evacuated with a group of Latino co-workers to Florida. When they returned two days later, she found conditions much worse than she had anticipated:

[When we returned after the storm] my friend said she would drive me [to my house] to get the food. Knowing that something was coming, I had bought more than \$150 worth of food and water. But it was a waste of money because the water and mud ruined everything. The water had covered my apartment. I never expected that. My home was unrecognizable. The mud was up to here and the ceiling had fallen down on all the furniture. I couldn't salvage anything, I only took a photograph and left. I [went back and] stayed with my friend. We didn't have anything but a little bit of water. I stayed there for two weeks. I think my friend is still there, unless someone has gone to get her out . . . It is very difficult without electricity, without water, without anything, in that heat, my God. (Argentinean woman, age 34, 4 years in U.S.)

Another evacuee returned to New Orleans to check on her family, home, and belongings. She described the physical and emotional trauma of witnessing the tremendous environmental damage from Katrina:

My house was full of mold and there were lots of flies and mosquitoes, lots of them. I came back all bitten up. Luckily the Red Cross had given me a shot, so I was supposedly a little protected. But I'll tell you that even if you think you are prepared for what you are going to see, you're not. The last day, when I was leaving, I just broke down crying. I just gave in. It was so very sad. (Honduran woman, age 50, 25 years in U.S.)

Latino evacuees often ended up in homes of other Latinos. Many were taken in by their own family or friends; others found themselves in the homes of strangers. Both survivors and evacuees reported having to endure crowded living conditions. Evacuees interviewed in Atlanta described the despair of living with 14–15 people in two-bedroom apartments, alluding to the potential social and emotional health risks from overcrowding.

Emotional stressors. Respondents identified various physical health conditions they associated directly or indirectly to the disaster. Yet the vast majority of storm-related stressors were emotional. The extreme environmental conditions themselves also created emotional stress:

It was difficult to sleep at night. I couldn't get to sleep, there were so many mosquitoes; the door was open and we couldn't sleep. There was no water, you couldn't take a bath, no air conditioning—the things you take for granted. I became desperate. It was truly terrible, especially for the children. (Honduran woman, age 40, 25 years in U.S.)

Others who stayed through the storm reported reliving the trauma from the terrifying noise of the devastating hurricane winds. Uncertainty and fear for the safety of family members was another significant source of stress:

My greatest worry was [that my son was dead]. I thought I would go crazy . . . I prayed the rosary, asking God that my son would not be taken away by the wind, because it was terrible. But thank God [my son] managed to get out on Thursday. But we didn't have any word from him. Neither did my family in New Jersey have any news about us, because the cell phones didn't work. (Nicaraguan woman, age 68, 23 years in U.S.)

Crowded conditions and family stressors also increased levels of irritability:

Everything bothers me, everything is irritation. The kids scream and I can't stand it. I don't want any noise, and don't want anything. If I could, I'd go away . . . I'd disappear, I would just disappear. (Colombian woman, age 44, 25 years in U.S.)

In some instances, previously strained family relations were made worse by the stressful conditions resulting from relocation:

My wife is very nervous . . . she gets upset about this problem, she is always thinking about it, and is always in a really bad mood and is not feeling well. She always causes lots of family problems. It's a pity, morally, these family problems. I wish I could have more tranquility. (Colombian man, age 71, 42 years in U.S.)

Whereas some Latino survivors and evacuees found themselves dealing with the stress of too many people living in small, cramped quarters, social isolation was a significant emotional stressor for others:

It was like a desert here [in New Orleans]. (Honduran woman, age 56, 22 years in U.S.)

When we arrived here [in Atlanta] we felt like when you arrive at a lake and don't know anyone and you feel alone, abandoned, that you have lost everything. When the storm passed and we arrived here we felt like we were going to have to start all over without anything. Psychologically, we felt really down but at the same time we felt good because we saved our lives. (Honduran man, age 42, 15 years in U.S.)

The unfamiliarity of a new environment was another source of stress among those who evacuated:

Worst of all is the stress. I'm not familiar with the city [Atlanta]. I'm confined in the apartment. We try to get out a little, but stay close by so we don't get lost. One day we went past an exit and we got lost and we didn't know where we were. It's been pretty hard. This is a big city, much larger than New Orleans. (Colombian woman, age 44, 25 years in U.S.)

Sleep disturbances. Difficulty sleeping was one of the most common complaints. Reliving the traumatic experience of the hurricane and its aftermath resulted in sleep disturbances in adults and children:

It's hard to sleep. Especially my little girl, when she goes outside and she sees those trees moving, she says, "Mommy, Katrina, Katrina," because they were awake when the hurricane came, they saw how everything moved [in the wind]. The place where we were holing up the roof was blown away. The children also waded through the water, because we had to get out of where we were. They saw everything; they even saw two dead people. (Puerto Rican woman, age 30)

Underlying sleep disturbances were physical, emotional, financial, and social stresses related to the trauma of recent events and to uncertainty about the future:

I wake up in the night and can't get back to sleep because I think and think about what is going to happen to us. It's pretty hard. It's almost impossible to sleep . . . We don't have a real place to live yet. Doctors say that if you have lots of stress, lots of problems, tensions, that affects your ability to reconcile your sleep . . . That's what happened in my case. I had to think a lot about how to establish myself here [Atlanta] . . . This has been hard and I couldn't get to sleep thinking about it all. (Guatemalan man, age 33, 5 years in U.S.)

Respondents also attributed a variety of symptoms indicative of mental health problems (e.g., chronic sadness, anxiety, depression, chest pains) to their Katrina experiences. Being undocumented also contributed to fear and anxiety levels among Latinos:

We didn't feel like going [to get assistance] because we are undocumented. We were afraid that they would arrest us or something . . . They only took us to the Red Cross . . . they gave us a little food and clothing. Being undocumented, you are always fearful of going [to seek help] because you know how much it costs to come here and the money you pay [to get here] . . . it always makes you afraid. (Guatemalan woman, age 22, 7 months in U.S.)

Evacuees and survivors alike were dealing with multiple losses—home and possessions, employment and livelihood, security, social networks. Feelings of insecurity and uncertainty about the future were compounded by these significant losses:

Most of the apartments [where my husband and I worked] were destroyed. All the neighbors are gone . . . even those who stayed, they can't get in [the apartments]. It makes me sad and depressed, seeing my job gone. That's been the main thing. At my age I think it will be difficult to get work, it's not like a younger person who can apply for jobs anywhere . . . I had to go to the doctor because I'm so depressed and anxious about the uncertain future. It's uncertain whether or not the [landlord] is going to fix up the apartments or not, I don't know where we are going to go. We are waiting on God's willingness and other people also that they may show us kindness. (Nicaraguan woman, age 68, 23 years in U.S.)

At the time these interviews were conducted, very few respondents had sought or actually received any formal mental health services. There was little indication as to whether or not they would seek such services, if available. However, there was evidence that participants recognized the impact that compromised mental health status has on one's ability to function in society:

We want to reconstruct our lives but we don't have any financial assistance. We need so much. And besides that, psychologically we have been injured. That is a basic issue, if a person isn't well in his head, he can't work very well. (Honduran man, age 42, 15 years in U.S.)

Personal strategies to ameliorate stress included prayer and working constructively on family and interpersonal relations:

I pray a lot and I have a lot of patience in order to know, understand [others], because we are all going through the same problem. (Nicaraguan woman, age 68, 23 years in U.S.)

Unfortunately, some coping strategies involved further health risks:

I never smoked in my whole life. But ever since the hurricane until now I've been smoking a pack of cigarettes [a day]. In my 46 years I had never before smoked. It's because of the stress, because it seems that smoking calms me down, something like that. But I'm trying to forget it and I'm trying to quit. (Nicaraguan man, age 46, 19 years in U.S.)

Resilience expressed through simple thankfulness. Given the nature of disruption and loss these Latinos had recently experienced, their expressions of gratitude were particularly noteworthy. Health and access to resources were among the blessings these survivors recognized.

What I'm going through is normal, after something of this nature. I believe that other people are having more serious difficulties. We are fine. Other than the stress, in other ways, we have good health, thank God. (Honduran woman, age 50, 25 years in U.S.)

Success in obtaining public assistance and access to health care was a major reason for feeling grateful. Not having to worry about access to health care provided this evacuee with a sense of tranquility and security in the midst of ongoing loss and uncertainty:

As I say, although it has been very hard for me, I am also thankful to be here [Atlanta] because the baby, and the medical care I need was my primary worry. But I went to Grady Hospital—it is a public hospital—and they immediately changed my Medicaid, immediately they gave me [access to] the WIC Program. Immediately, the very same day I went. Sincerely, I have had more medical attention here than [I had] in Louisiana, so I am truly very thankful and that has given me a little more tranquility. (Honduran woman, age 35, 9 years in U.S.)

A self-employed Latino business owner who had lived in New Orleans for 22 years reported how he lost his home to the storm and his business to looters. Despite these overwhelming losses, he felt fortunate to have evacuated successfully and was thankful for the assistance of the Latino Community in Atlanta:

Well, it has been very difficult. I thank God because here [Atlanta] we received help. The Latino assistance here has been really strong and helped us out a lot. I am truly happy to have my children in a school, a good Catholic school, and to have received so much care from the community. I would say that it has been a very difficult situation for us, but thank God, I believe that we are in better shape than many. For example, the people who didn't get out in time when the hurricane came, the people who had to be saved after the flood, and who perhaps did not have a place to sleep, or who went hungry for two or three days. That said, for us it was difficult, it was frustrating, it was tedious to have to drive so far, and worrying about the children. But overall, I believe that there are others who had it much worse than we did. (Colombian man, age 46, 22 years in U.S.)

Some, like this elderly hotel worker who had hoped to be able to retire, struggled with feelings of resignation of how this unexpected disaster had disrupted his hopes and dreams. Similar to others in the midst of significant disappointment and loss, he expressed his thankfulness for being alive:

One just has to ask the Lord for resignation . . . because one feels a little cheated . . . In reality, you should not become so attached to the material. But after everything I have suffered through in order to get [what I had] and to lose it all, it certainly is unpleasant. I'm not at all happy about it, as they say. My plans for the future have been affected. I was thinking about retiring, having my own home. I'm 71 years old. So I should be resting and living in the hands of the Lord. What I need to tell you, that I forgot to say, is that we give thanks to the Lord that we are alive. (Columbian man, age 71, 42 years in U.S.)

These attitudes of thankfulness may reflect the strength of these Latino's faith and/or indicate their emotional resiliency. There were many examples of resiliency in the face of ongoing adversity, such as one Guatemalan family living in New Orleans three months after the storm. The couple had lost their employment and belongings and was living in an apartment without electricity, thankful to have a place to stay rent-free:

My daughter is here [in the U.S.] with us now, but she can't stay here [in this apartment] because she has children. She can't stay here because we don't have electricity, we only have water. This isn't the apartment we used to live in. It's one that the landlord has let us stay in. Some people say, "Get out of here. They [the owners] are responsible. The City doesn't allow you to stay here because there is no electricity." But we have much to be thankful for because he [the landlord] has let us stay here even though there isn't any electricity. But we do have a roof over our head and we can stay here for now. I thank God and the landlord, and also the man who works here. He has helped us out a lot so that we can stay here even though there isn't any electricity. Because you can't find a place to rent anywhere. So this is a very desperate situation. But what can we do? Everything is so expensive, so we are just taking advantage of this opportunity for a place to stay. (Guatemalan woman, age 48, 5 years in U.S.)

A common refrain heard over and over again across this set of interviews was "we lost everything." Yet respondents repeatedly expressed a thankfulness that transcended the trauma—gratitude for being alive, and for the kindness and assistance of family,

friends, and strangers. The findings illuminate the depth and breadth of the mostly silent suffering and informal solidarity experienced by Latinos, who were often at the margins of the broader, more public disaster. They suffered greatly, as did others, but they also demonstrated resilience and drew strength from their families, community, and faith.

Discussion

The experiences of individual Latinos who evacuated or survived Katrina do not necessarily depict those of the Latino population in general or other racial/ethnic groups. However, the findings of this qualitative descriptive research do provide important insight into health and health care experiences of those who live on the margin of the dominant society because of language, culture, and immigration status. Our discussion addresses implications for disaster research, policy development, and service provision.

Gender, age, culture, ethnicity, severity of exposure and loss, subsequent life transitions and stressors, and levels of social and emotional support are all factors that can affect health in times of disaster.²⁰ There is some support for the notion that Latinos are at higher risk than the general population for adverse health effects of disasters. Studies conducted after Hurricane Andrew²⁰ and the September 11, 2001 terrorist attacks²¹ reported higher levels of post-traumatic stress disorder among Hispanics. Our findings reflect the perceptions and experiences of Latino survivors and evacuees at the time of the interviews (i.e., one to seven months post-Katrina), and clearly indicate the prevalence of anxiety, depression, sleep disturbances, and somatization among this sample of Latinos. These findings are limited by the cross-sectional research design and the nature of the data (self-report among a convenience sample). Disaster researchers suggest the long-term effects of disasters may peak during the first year, and that recovery is a long-term process that needs to be monitored over time.^{20,22,23} To fully understand the mental and physical health implications of Katrina on Latinos, there is an urgent need for longitudinal studies that take into account levels of disaster exposure and measure changes in depression, anxiety, social and emotional support, and coping strategies over time.

Studies on the impact of disasters on social support networks have produced somewhat inconclusive and conflicting findings but there is research indicating that Latinos tend to seek and receive more assistance and support from informal than from formal sources.²⁵ In our analysis of health concerns, seeking and obtaining access to formal health care services was a salient theme. There was substantial evidence, however, that these Latinos relied primarily on informal social networks for information, assistance, and support prior, during, and after Katrina. In the course of dealing with the disaster, new informal networks formed, some of which were transitory. The examples of selfless assistance to others in need and the prevalence of expressions of thankfulness in the face of adversity must be noted. Further exploration of the impact of disasters on informal and formal networks and individual and collective assets is warranted. Building on existing research in the areas of help-seeking and social support,²⁶ an emerging area for disaster research is the exploration of possible associations between resiliency,

thankfulness, and actions of seeking, receiving, and giving assistance in the context of different cultures and communities over time.

Another significant finding was the extent to which respondents reported they were not prepared and/or did not anticipate the potential strength of the storm and the implications of staying put or evacuating. Lack of adequate preparation and provisions were a problem for those who stayed as well as for those who evacuated. The results of this study support reports from the lay press indicating that language, lack of information, lack of transportation, and poverty were significant barriers to evacuation among Latino residents. Our findings also highlight the role that health and health care access concerns played in deciding whether or not to stay or evacuate. A major challenge to local disaster preparedness and evacuation policies is to balance awareness of danger and the economic and social costs of preparedness to minority individuals, families, and communities, without running the risk of "crying wolf." Among Latinos, a lack of a preventive mentality and low expectations of formal assistance are formidable barriers to disaster preparedness.

In prior research with Puerto Rican disaster victims, Solomon and colleagues²⁴ hypothesized that victims with greater prior family responsibilities, specifically parents, would experience higher levels of emotional disability. They found single parents to be at particularly high risk for lack of emotional support in disaster situations. In our study, concern for the welfare of children was expressed by married and single parents and also by extended family and community members. An effective approach to reaching Latino communities with disaster preparedness interventions may be to capitalize on shared cultural valuing of children, family, and community rather than focusing on individual responsibility.

Practical, culturally appropriate information on feasible preparedness actions must be disseminated within minority communities. Public health preparedness plans and actions must take into consideration Latinos' perceived needs as well as their community resources, assets, and networks. The findings of this research point to resourcefulness and community solidarity among diverse Latino groups. It is necessary for local officials and health care providers to identify bilingual and bicultural liaisons who are able to reach and communicate with diverse Latino constituents and networks.

This research confirms common knowledge that disasters exacerbate existing restrictions and limitations to health care access among the poor and underserved. The fastest growing minority population,²⁷ Hispanics currently have the highest uninsured rates of any racial/ethnic group in the county.^{28,29} In the aftermath of Katrina, even previously insured Latinos confronted economic and bureaucratic barriers to health insurance. Our findings suggest the few evacuees who were able to obtain public insurance in another state depended primarily on personal resourcefulness and advocacy and the good will of local providers. Federal and state policies for programs such as Medicaid and WIC should have automatic provisions for inter-state evacuees to facilitate access to all levels of care. Local service providers need training and education in order to ensure policies are implemented in culturally sensitive and appropriate ways.

In normal times, there is a tendency among the uninsured to forego primary care, often resulting in inappropriate utilization of emergency services. There is an urgent need for broader coverage for primary services, accompanied by culturally appropriate

education of immigrants and limited-English-proficient Spanish speakers on how to access the U.S. health care system effectively and appropriately. Strengthening the knowledge and capacity of both users and the health care system is necessary for efficient, effective, and equitable service provision of health care during times of disaster.

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