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# Priorities, concerns and unmet needs among Haitians in Boston after the 2010 earthquake

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### What is known about this topic

- In January 2010, an earthquake in Haiti took a massive toll on human lives and devastated much of the infrastructure for health and social services.
- The number of Haitians immigrating to the U.S. since that time has increased dramatically.
- Haitians who directly experienced the earthquake continue to experience physical and psychological trauma.
- Little is known about the effects of the earthquake on members of the U.S. Haitian diaspora who indirectly experienced the earthquake.

### What this paper adds

- This paper explores the impact of the 2010 earthquake in Haiti on the physical and mental health of Haitians living in the U.S. 1 year after the earthquake.
- Study findings revealed significant psychological, emotional, financial, and physical effects, with needs for assistance finding employment, navigating the immigration system, and balancing the health and financial needs of families in the U.S. and in Haiti.
- Participant-generated strategies for improving access to and quality of public health and social services are described.

## Abstract

In January 2010, a massive earthquake struck Haiti. The devastation not only affected those living in Haiti at the time but also those Haitians living in the United States (U.S.). Few studies have assessed the degree of impact of the earthquake in U.S. Haitian communities. The purpose of this study was to elicit information about health priorities, concerns and resources needed to improve the delivery of health and social care for Haitians in Boston, MA. We conducted six focus groups among 78 individuals in the spring of 2011. Participants were recruited through community organisations, including churches, Haitian social service centres, restaurants and by word of mouth. Analysis of qualitative data revealed an enormous psychological, emotional, financial and physical toll experienced by Boston-area Haitians following the earthquake. Participants described increased distress, depressive episodes, headaches and financial hardship. They also noted insufficient resources to meet the increased needs of those living in the U.S., and those who had immigrated after the earthquake. Most participants cited an increased need for mental health services, as well as assistance with finding employment, navigating the immigration system, and balancing the health and financial needs of families in the U.S. and in Haiti. Despite this, many reported that the tragedy created a sense of unity and solidarity within the Haitian community. These findings corroborate the need for culturally and linguistically appropriate mental health services, as well as for employment, immigration and healthcare navigation services. Participants suggested that interventions be offered through Haitian radio and television stations, as well as group events held in churches. Further research should assess the need for and barriers to utilisation of mental health services among the Haitian community. A multi-faceted approach that includes a variety of outreach strategies implemented through multiple channels may offer a means of improving awareness of and access to health and social services.

**Keywords:** cancer screening, community assessments, earthquake, Haitian, health behaviour, beliefs, attitudes, immigrant health

## Introduction

. . .I will never forget 12 January and I don't think any Haitian will ever forget what happened that day. . .

On 12 January 2010, Haiti experienced the most powerful earthquake to hit the Caribbean region in nearly two centuries (Than 2010). The massive 7.0 magnitude quake struck just outside the nation's capital, Port-au-Prince. Approximately 1.5 million people were left homeless and more than a quarter of a million Haitians lost their lives (DesRoches *et al.* 2011, Pierre-Louis 2011). The world watched in angst for weeks as bodies were retrieved from the rubble. Among those who watched helplessly from afar were the estimated 870,000 members of the Haitian diaspora living in the U.S., including 70,000–80,000 in Massachusetts (U.S. Census Bureau 2009–2011).

The Haitian diaspora is often described as transnational, given that they maintain strong ties with their home country as they negotiate and settle post-migration. For example, Haitians in the U.S. – home to the largest segment of the Haitian diaspora – have strong economic, socio-political and familial ties and investments in both the U.S. and Haiti. Transnational ties may serve as a protective factor for Haitians as they can facilitate information and resource sharing, and result in the formation of voluntary organisations, which serve to maintain cultural identity, meet spiritual or religious needs and retain political involvement (Charles 1992). However, during times of crisis in native countries, transnational populations experience the trauma of the event and the stress of not being able to respond directly (Martinez *et al.* 2013).

To date, the literature related to natural disaster and health has largely focused on those in country at the time of the disaster. However, themes emerging from our qualitative research with members of the U.S. Haitian diaspora indicate that the economic and psychological toll of the 2010 earthquake in Haiti was far-reaching. This purpose of this study is to provide information regarding health priorities, concerns and resources needed to improve the delivery of health and social services for Haitians in Boston, MA following the earthquake.

## Methods

We employed qualitative research methods, specifically focus groups, in the current study. We elected to utilise focus groups for data collection, as this method provides a mechanism for 'giving voice' to participants' experiences, enables individuals to reflect on their own experiences and perspectives in relation to others', and provides rich contextualised data that can inform the development of interventions (Morgan 1996, Ulin *et al.* 2004).

Focus group questions were developed based on input from our study's Community Advisory Board, our prior research (Allen *et al.* 2013) as well as other existing literature (Adonis-Rizzo & Jett 2007, Meade *et al.* 2009, Kobetz *et al.* 2010). The Community Advisory Board was comprised of key leaders in Boston's Haitian community, including religious leaders, health and social service providers, as well as advocacy organisations. The Community Advisory Board participated in the development of data collection instruments and recruitment protocols. In addition, they participated in the analysis and interpretation of focus group findings.

Focus group questions addressed priority health and social concerns among the Haitian community in Boston; changes in priorities since the earthquake; perceptions about sources of and access to health and social services; as well as recommended strategies, channels and sources of information delivery among the Haitian community (see Table 1).

We first recruited a variety of community organisations, including churches, community and social service agencies, and ethnic restaurants. This process included meetings with organisational decision-makers to describe the study and our objectives. Once 'organisational consent' was granted, we identified site 'liaisons', individuals that worked with study staff to publicise the opportunity to participate in focus group discussions. Promotional materials, including posters, fliers and brochures, were distributed at participating sites. Individuals eligible to participate in focus groups included men and women living in the U.S. who self-reported as Haitian, spoke English or Haitian Creole, were aged 18 or older and were capable of providing informed consent.

Individuals who chose to participate in focus groups provided their contact information to the liaison who then provided this information to study staff. Study staff made telephone calls to potential participants to assess study eligibility and to provide logistical details about the time and location of the focus groups. Individuals who verbally consented to participate by telephone and subsequently arrived at the time of the focus group were given informed consent information in writing (fourth-grade reading level) prior to initiation of the discussion groups. Verbal consent was again obtained at the time of the focus group, after the moderator reviewed study objectives, procedures and topics to be addressed in focus group discussions.

Focus group interviews were conducted between February and March 2011 in various locations across

 

**Table 1** Focus group domains and sample questions

| Domain | Sample questions |
|---|---|
| Priority health or social concerns | • What are the most important issues affecting Haitians in the Boston community at this time?<br>• Which of these issues is of greatest importance to you and to your community? |
| Changes since the earthquake | • How has the 2010 earthquake in Haiti affected the health of the Haitian community in the Boston area?<br>• How have community priorities in the Boston area changed since the earthquake? |
| Perceptions about sources of and access to health and social services | • Where are Haitians in this community most likely to go when they need health or medical information? How about when they are sick?<br>• Where are Haitians most likely to go if they need assistance with food, housing and employment?<br>• What barriers do Haitians face when seeking health and social services? |
| Suggested strategies to increase awareness about health and social services | • What kinds of health services are needed in the community?<br>• Do you think health education programmes are needed in the community? If so, what kind?<br>• What strategies would be effective to deliver health information to the Haitian community?<br>• How would you prefer to get information about health issues? |
| Suggested sources of health information who are trusted, credible in the community | • How do Haitians in this community typically obtain health information? (Probe: healthcare providers, family/friends/co-workers, the Internet, etc.)<br>• Who do members of the Haitian community turn to when they need information about health?<br>• What people or sources are the most trusted and credible? |
| Suggested locations for health education programmes | • What would be a good place to provide health education programmes for Haitians in the community? |

Boston, MA. Trained Haitian Creole-speaking moderators conducted each focus group, using a standardised interview protocol. Focus group moderators were trained by a Qualitative Research Specialist, using standardised training curricula that we have developed for numerous studies. Native and first-generation Haitian Creole speakers were recruited to moderate the focus groups and underwent the training. The initial training was 4 hours and included topics such as principles of research ethics (e.g. voluntary participation, confidentiality), the purpose and goals of focus groups, protocols for obtaining informed consent, tips and strategies for facilitating group discussions (e.g. building rapport, asking clarifying questions), handling difficult situations and sensitive topics, recording focus groups (e.g. roles and responsibilities of note takers) and guidelines for effective note-taking. In addition, the training emphasised strategies for engaging participants, asking non-leading, open-ended questions and probes, and time management. A second 4-hour training was held where experienced moderators modelled group facilitation and trainees conducted 'mock' focus groups. All moderators participated initially as focus group note-takers prior to taking a lead role in moderation.

Focus groups were segmented by gender to enhance comfort and provide a space for participants to discuss potential gender-sensitive topics. The moderator's gender was matched to that of the participants in the group (Krueger 2009). All groups were conducted in Haitian Creole and discussions generally lasted 1–2 hours. The interviews were audio recorded, professionally transcribed and translated from Creole to English. Prior to analysis, transcripts were reviewed for linguistic accuracy and cultural relevance by native Haitian study staff.

Due to the sensitive nature of some topics (e.g. immigration status), we collected only limited demographic information from participants through a brief screening survey administered by study staff. Gift cards to local grocery stores ($50) were provided to participants. The Institutional Review Board at the Harvard School of Public Health approved all study procedures.

### Analysis

Focus group transcripts were analysed using the constant comparative method (Strauss & Corbin 1998). Using this method, the research team (including moderators) reviewed transcripts to identify major themes. During group meetings, which included a Qualitative Research Specialist (master's level qualitative researcher with >10 years of experience), we discussed interpretations and developed an initial coding scheme based on consensus regarding dominant themes. Codes were refined and new themes identified through

 

an iterative process. Final themes were determined using a consensus approach; whenever divergent interpretations occurred, original transcripts were reviewed and discussed until consensus was reached. (Strauss & Corbin 1998). With the coding scheme finalised, line-by-line coding was conducted by our Qualitative Research Specialist using NVivo software (Strauss & Corbin 1998). Final themes and supporting quotes were reviewed by our Community Advisory Board for additional feedback on the cultural interpretation and implications of the findings.

## Findings

### Participant characteristics

Six focus groups were conducted with a total of $N = 78$ individuals; 29.5% ($n = 23/78$) were male and 70.5% ($n = 55/78$) were female. Participants ranged in age from 40 to 71 years (mean for women = 52; men = 58). All participants who provided information regarding place of birth reported that they had been born in Haiti. All participants were living in the U.S. at the time of the earthquake. About half (46%) reported having less than a high school education, being married (60%) and most (75%) reported having some type (public/private) of health insurance (75%). Almost two-thirds (62%) reported household incomes (per annum) of less than $10,000 (see Table 2 for additional details).

We present central themes organised in the order in which they were discussed. While we do not quantify the responses provided – as this may provide skewed data (i.e. one individual may raise the same theme multiple times) – we do indicate the prevalence with which a theme occurred in qualitative terms (e.g. 'a majority' or 'a few') (see Table 3 for sample quotes).

**Table 2** Characteristics of focus group participants ($N = 78$)

| | *n* | % |
|---|---|---|
| Gender | | |
| Male | 23 | 29 |
| Female | 55 | 71 |
| Mean age* | 53.9 | |
| Educational attainment† | | |
| Less than high school | 31 | 46 |
| Some high school | 12 | 18 |
| High school graduate | 9 | 14 |
| Some college or more | 15 | 22 |
| Health insurance‡ | | |
| None | 17 | 25 |
| Any | 52 | 75 |
| Birthplace§ | | |
| Haiti | 77 | 100 |
| Employment¶ | | |
| Full- or part-time | 41 | 77 |
| Unemployed/retired | 12 | 23 |
| Household income per annum¶ | | |
| Less than $10,000 | 33 | 62 |
| $10,000–$29,999 | 15 | 28 |
| $30,000–$49,000 | 4 | 8 |
| $50,000 or more | 1 | 2 |
| Marital status | | |
| Married | 47 | 60 |

*Average age of those reported. Three participants did not report age.
†Eleven people did not report educational attainment level.
‡Nine people did not report whether they had health insurance.
§One person did not report place of birth.
¶Twenty-five people did not report employment status or income.

### Impact of the earthquake on physical, emotional, financial and community well-being

All of the focus group participants were in the U.S. at the time of the earthquake and had watched the devastation unfold from Boston. One man shared that, despite the horror of it, he could not turn off his radio:

> It was the worst period in my life. I turned on the radio and heard the news. I was literally sick for 3 months, and crying constantly. I couldn't sleep. I was watching TV all the time. I never turned off my radio. It was very traumatic.

All participants agreed that their physical and mental health was immediately adversely affected. One woman stated:

> While Haitians in Haiti were living it, Haitians in Boston were living it as well. As the people living in Haiti were victims, so were the people in Boston.

The vast majority of participants reported having close social and family ties in Haiti; most reported having lost family members and/or friends. For others, the earthquake resulted in the destruction of homes, loss of possessions of sentimental and monetary value as well as displacement of family members:

> I was affected because Canape Vert [a town in Port-au Prince] was worst off. Many of my friends and neighbours died, several of them are still under the rubbles. My neighbourhood was destroyed. All the houses collapsed, including mine. My wife was lucky that she survived.

In each of the groups, feelings of powerlessness and helplessness were expressed:

> It was the worst period of my life … I had no money to send to my wife and my children, I was without a job and could barely pay my rent … everybody was doing their

 

**Table 3** Content areas and quotations

| Content area | Sample quotations |
|---|---|
| Impact of the earthquake | I think the way the earthquake affects people's health in the diaspora, psychologically it was terrible for everybody, even for those in the U.S. that were watching the disaster on TV. (Male) |
| Lingering physical and psychological sequelae | My four children were out on the street. I lost my house, I lost all my belongings … At that time, I was very sick. [Even now], I can find myself standing or being in an elevator and I am dizzy. I feel like I am falling. I am not well at all. (Female) |
| | I have a brother who has a headache and he still suffers from that at times; as for me, from time to time my blood pressure and my blood sugar levels go up just from the thinking about it. (Female) |
| Financial impact | My wife's sister's house where we usually stay when we go to Port-Au-Prince was destroyed with everything in it. That affected my wife a lot. I am now supporting her family financially as well as people in my own family; I have so many financial problems now. (Male) |
| Community resources | There is no Haitian organisation; the new comers have no place to ask for help. You live in a new place and you don't know where to go for help. (Female) |
| Religious coping | Around that time I was pregnant with a big belly about to give birth … when I found out my sister had died and lost her house … all I could do was cry … I spent the entire night on the floor crying and praying.… My blood pressure kept rising … I was not feeling well at all. This very well could have crippled me, but God did not allow it. (Female) |
| Concerns and priorities | |
| Housing | I cannot talk for everybody else, but I am not aware of any resources that are available … when it comes to housing, you don't have anywhere to turn to, you are on your own, especially in our community. (Female) |
| Unemployment | There are people that have papers, but they cannot find jobs. People need help finding jobs. (Male) |
| Education | We need more work because our spending has increased. We have to financially support our family here as well as those in Haiti. (Male) |
| | We need education and English classes. Many Haitians cannot read or write English. That's a big issue in our community. (Female) |
| Barriers to healthcare | |
| Language | If you cannot speak [English], you hide yourself. When someone speaks to you, you will not understand … you either ignore the person or you are ashamed because you cannot respond to the question. (Female) |
| Insurance and costs concerns | In the Haitian community, people sometimes refuse to go the hospital because of the cost or lack of health insurance, therefore they don't feel the urgency to go the hospital even though they are sick; most of the time when they finally go it is too late. (Male) |
| Documentation status | There are people who are afraid to go to the doctor because they are illegal, they are sick and while their disease is worsening, they rather stay home because they don't want to deal with immigration. (Female) |
| Diverging patterns of healthcare | Based on our culture, we don't really believe in western medicine … the old people don't really go to doctors. (Male) |
| | Haitians prefer to take home remedies; the only time that they go to doctors is if they are so sick that they can't go to work. (Male) |
| Strategies for health promotion | |
| Radio and media outlets | We need mass campaigns to mobilise people, for example, people used to have lots of myths about HIV/AIDS, but they did a big campaign against it and educated people; you see now people are comfortable talking about it. (Male) |

**Table 3** (continued)

| Content area | Sample quotations |
|---|---|
| Church-based programmes | If you want to reach Haitians, you must go into churches; there you will find more people and it is easy to reach out to them. (Female) |
| Interpersonal approaches | We would like to find a person, not a book or brochure, but someone who is willing to talk to us, someone who has the knowledge and who speaks clearly for us to understand. (Female) |
| | I would like a health professional to provide us with health information or someone who is qualified, someone that you can trust. (Male) |
| Comprehensive programmes | We need education on many things, not just one thing: cancer, diabetes, blood pressure and stress; stress gives all kind of illnesses. (Female) |
| Group education | But, what they could also do is send a person every Sunday to give a talk to a group of us at church. We could talk about a different topic each week, about diabetes, cancer, aids, cholesterol. (Female) |
| | All the organisations must team up … Haitians really like workshops. If organisations can team up to create a project to educate the community and provide workshops about health issues such as cancer, we would all be much healthier. (Female) |

best to send money to Haiti, but I could not. I could not sleep … I was tired and anxious. My biggest problem was I could not go there to help. I was crying all the time and felt hopeless.

The use of proverbs and metaphors to demonstrate a deep sense of grief was common throughout participants' narratives. For example, one woman stated, 'I have pain that has never left me … it is like a tormenting animal digging in and scraping away…'. In addition, there was unanimous sense of anguish from knowing that many of '[their] people' were dead and that 'the land [they] once knew had been destroyed'.

In addition to the psychological impact of the earthquake, many believed that the earthquake had a direct effect on their physical health. Across all of the groups, participants shared personal stories of themselves or people they knew that became acutely ill because of the earthquake. Illnesses disclosed included strokes, heart attacks and exacerbations of hypertension or diabetes. One woman shared: 'I suffered a heart attack after learning that two of my good friends both died'. A man added: 'My brother's house collapsed on him and his family. He lost one of his sons. His other son lost a leg … This is probably why I had a stroke'.

In the weeks and months following the event, many participants described difficulty focusing on their work and an inability to sleep, attributing these problems to intrusive thoughts about the earthquake (e.g. grotesque scenes, flashbacks). Outward expressions of distress (e.g. crying, rocking) were frequently exhibited in the focus groups – particularly among female participants. Both male and female participants described vague, but chronic, health issues, including headaches.

When asked about mental health services (e.g. counselling), participants cited community organisations by name, which were providing health and social services to Haitians in Boston, even before the earthquake. However, most were unsure if these organisations were offering free or low-cost counselling services that they could access following the earthquake. While participants described an increased need for mental health services, when asked about the use of these services, none of the participants reported having sought counselling. Indeed, many shared opinions that mental health issues are associated with a strong negative stigma; few thought that Haitians would have actually accessed these services, even if they were aware of their availability.

When asked about coping mechanisms used to deal with the stress of the event and its aftermath, the majority described turning to family, religious leaders (e.g. pastors) and to God for emotional and spiritual support. Many found prayer helpful in reducing stress and anxiety, coping with their pain, and ameliorating a sense of hopelessness. Some participants talked about their need to express gratitude for their lives, by helping or praying for others. None of the participants communicated using negative coping behaviours (e.g. alcohol consumption, drugs).

Several participants described feeling fortunate to be able to help others by sending money or taking in

 

dislocated family members. However, monetary concerns for family members left behind in Haiti, and those who were relocated, was a continual cause of worry and stress for many. In three of the focus groups, participants talked at length about an increased sense of burden and financial distress because they now needed to support family members in Haiti, as well as in the U.S. One participant stated: 'I have a sister that died during the earthquake. She left her children, so now I am the one who is responsible for them. Financially, my problems have increased'.

Despite negative impacts of the earthquake, participants also articulated an increased sense of unity and solidarity among Haitians. One participant described, 'Haitians are more concerned about each other now', and another added, 'We are looking to make connections with each other and stick together'.

### Concerns and priorities after the earthquake

Participants frequently mentioned unemployment and education as the most important community issues following the earthquake. With the influx of new immigrants, many felt that existing resources (e.g. English-language learning services, job training, community outreach) were inadequate to meet the need. In addition, many thought that employment initiatives for Haitians were ineffective. Housing issues were next in line, with recently arrived participants affirming a lack of guidance about finding affordable low-income housing.

In terms of healthcare, participants universally acknowledged that not being fluent in English was the most common barrier to Haitians seeking healthcare. Some participants described 'shame' due to an inability to speak English. Several described frustration and disappointment learning English, with some declaring that embarrassment about speaking in English kept them from utilising healthcare. This barrier is best illustrated by one man's comment:

> This is our biggest problem when you are older and you cannot grasp the language. I have been going to school ever since I got off the plane. I enrolled in English classes, but I cannot say a word. I don't want doctors to laugh at me when I speak, so I don't go.

Lack of health insurance and cost concerns were often cited as major barriers to healthcare. One way that participants dealt with financial obstacles was by delaying treatment and doctor appointments. Several respondents mentioned the earthquake might have compounded financial problems with accessing healthcare, as many Haitians experience greater financial strain due to additional family obligations.

Lack of documentation and the potential for deportation were often cited as barriers to care among the broader Haitian community. Individuals in the focus groups reported a range of accurate and inaccurate beliefs about services for which undocumented individuals were eligible; some believed that persons without documents were forbidden by law to utilise healthcare. One male participant said, 'Many Haitians can't even get medical care because they have no papers. How are they supposed to get healthy?'

Participants spoke at length about Haitians' reliance on traditional healers, such as *dokte fey* (i.e. herbalists), and alternative treatments (e.g. teas, herbs). Some thought that reliance on this approach and faith deterred many Haitians from seeking conventional medical services. Along these lines, participants mentioned how patterns of help seeking among Haitians tend to be different from that of western populations. They described the 'traditional' Haitian using home remedies as a first course of treatment. Only those who are *very* ill or unable to work typically seek professional medical care, often in emergency rooms. Western medicine was depicted as a 'last resort', used only after *all* other options had been exhausted.

With regard to mental health services, participants expressed that culturally ingrained Haitian attitudes towards mental health could prevent people from seeking services, even after the earthquake. One participant asserted that western notions of mental health problems (e.g. depression) are often unacceptable to Haitians and *not valued* in the culture. Many described a strong negative stigma associated with mental health illnesses:

> Haitian people don't believe in mental health, they don't do therapy, they just feel they have to be strong and if they pray and have faith it will all go away … you'll tell someone you went to the doctor but you won't tell them you went to the counsellor … there is some shame there.

Others cited a shortage of Haitian mental healthcare professionals who could speak their language and understood their culture as a reason for not seeking care.

### Strategies for improving the health of Haitians in Boston

As part of the focus groups, participants were asked to provide suggestions for improving the health of the Haitian community in Boston. Sugges-

 

tions included help with getting jobs, immigration assistance and health education, in that order. Many shared the view that local media channels would be a very effective means for reaching Haitians. They were particularly optimistic about the use of Haitian-language radio stations for health promotion. Most agreed that radio stations were accessible and trusted sources of information for a range of topics, including health. While less frequently discussed, the use of television was also suggested as a way to convey health information. Several participants believed this would be a superior method to increase knowledge about health issues, as compared to more traditional didactic formats (e.g. brochures, books, etc.).

*Religion, spirituality and faith-based organisations*

Participants in all focus groups described the importance of religion, spirituality and churches in the Haitian community. Congruent with their religious practices, many believed that churches would be a good setting to deliver health education. Many concurred that churches are comfortable settings to participate in seminars and listen to speakers give talks about health, and may be effective for reaching older aged groups. For example, one participant said, 'You are speaking with a group of older people here ... we don't go to too many places, most Haitian people that I know, I know them from the church'. Churches were also described as usual sites for community programmes in Haiti, with one male participant saying, '[churches] always provide health information in Haiti'.

*Interpersonal approaches*

Several participants suggested that interpersonal approaches be used when delivering health education, such as one-to-one outreach or group discussions. The majority of participants believed that group education was generally *better* than individual approaches. They believed that interpersonal strategies would encourage active involvement and facilitate understanding, as it would allow them to ask questions and seek clarification of topics they did not understand. They emphasised that having educators who were credible, legitimate and serious (e.g. physicians, nurses or educators affiliated with a known healthcare organisation) was vital. They also stressed that if educational materials were provided in Haitian Creole, they should *have pictures* and be *easy to read.* Finally, language was a major theme in all the focus groups, stressing the need for educators who could speak Haitian Creole and not use medical jargon.

## Discussion

The earthquake that affected Haiti in 2010 had traumatic effects on both Haitians living in Haiti as well those living in the U.S. (Farmer *et al.* 2011). Even 1 year following the event, participants' narratives suggested high levels of trauma, as well as a wide range of psychological, emotional and physical health symptomatology. Participants across groups described increased distress, depressive episodes, headaches and financial strain. They also noted insufficient resources in the community to meet the increased needs of those living in the U.S., and those who had immigrated after the earthquake. Chronic anxiety about relatives and family still living in Haiti was universally endorsed. These findings are consistent with prior research in this area. For example, Haitian-Americans living in Miami experienced a broad spectrum of indirect exposures to the 2010 earthquake in Haiti, and one study showed that these exposures were strongly associated with psychological distress, trauma-related mental health consequences and diminished health status (Shultz *et al.* 2012a).

Participants in our study also communicated a strong reliance on social and familial networks, spiritual and religious practices (e.g. going to church, praying), and existing community resources to cope with distress and recover from this experience. Few participants reported engaging in negative coping behaviours. They expressed a sense of pride in the strength and resilience of Haitians. Nonetheless, our data suggest the need for increased culturally competent mental health providers, a finding consistent with other studies among Haitians in the U.S. (Shultz *et al.* 2011, 2012a,b, Kobetz *et al.* 2012).

The shortage of Creole and French-speaking mental health professionals (Stuart *et al.* 1996, Jackson *et al.* 2007), as well as the increased competing demands (e.g. financial, care-giving) post-earthquake may have diminished participants' motivation to seek mental healthcare. Haitian cultural beliefs about mental health (Desrosiers & St Fleurose 2002), stigma associated with mental health problems (Brown *et al.* 1999) and social norms regarding emotion disclosure (particularly among men) likely also play a role (Martinez *et al.* 2013). Indeed, few participants reported seeking health or social services, despite the high prevalence of reported symptomatology. This finding is consistent with a recent study among 506 Haitians in Little Haiti, Miami, that found that only 2.0% of participants stated they spoke with a counsellor, therapist or doctor about their feelings and concerns post-earthquake (Kobetz *et al.* 2012).

 

Given structural, cultural and financial obstacles to mental healthcare, addressing psychological and emotional sequelae of the earthquake will likely require culturally based approaches that take into account traditional beliefs and attitudes and integrate *proactive* outreach for affected families who directly and indirectly experienced the earthquake. This includes recognition of the transnational nature of Haitians living in the U.S., who maintain strong ties with family and friends in Haiti. The harmful effects of exposure to natural disasters are well known (Noji 1996, Lindell & Prater 2003), and increasing evidence suggests that the psychological footprints from disaster are often great and far-reaching. To mitigate the health effects of the earthquake and ensure the long-term well-being of Haitians in Boston, innovative community interventions (e.g. integrating pastoral counselling in community mental health, church-based social support and mental health programmes) and additional resources for Haitian-serving health and social service organisations, including cross-cultural training for health professionals and integrated programmes that address a range of physical and psychosocial needs, are needed. By building upon the existing strengths of the Haitian community, including an increased sense of solidarity, strong spiritual beliefs and family ties, existing infrastructure could be bolstered to improve the delivery of mental healthcare.

Despite the financial and employment challenges presented by the arrival of Haitian immigrants following the earthquake, many participants reported that this tragedy created a sense of unity within the Haitian community. Many noted that Haitians were not only sending money to their own families but also offering help to those they did not know. Many also reported that Haitians in Boston were also more welcoming and willing to help one another, for example, by providing housing, food, clothing or assistance with navigating the U.S. immigration system. Still, it is clear that there remains a strong demand for assistance with employment, immigration, housing and English-language learning.

Language barriers in particular pose tremendous challenges for many Haitians. The literacy rate of adults over the age of 15 in Haiti is 52.9%; so, in addition to not speaking English, many immigrants cannot read Haitian Creole, which for a long time was only a spoken language (Lefebvre 2006). Language barriers make it difficult for immigrants to find employment, access healthcare services and interact with the non-Haitian population. In this study, even those who had taken English classes lacked confidence in their abilities. Few organisations have translators who speak Creole and fewer resources for health information (e.g. websites, educational materials). It is important that health and social service organisations find ways to communicate with Haitian communities who do not speak or understand English. There are several different methods of providing interpretation, including hiring staff interpreters and contracting qualified interpreters (Flores 2005). However, new models for the provision of medical interpretation have emerged in recent years as creative solutions for places where hiring or contracting interpreters is impractical or infeasible, including using bilingual providers/staff, creating interpreter pools and over-the-phone interpretation services (Youdelman *et al.* 2002).

Participants in this study described several channels and strategies that they believed would be effective in reaching Haitians in Boston. Specifically, they suggested use of local radio and media, church-based programmes, interpersonal approaches and group education. Radio broadcasts may be an effective means for reaching those who are unable or not inclined to attend community events. The number of AM/FM radio stations serving the Haitian community in Boston has grown; there are now more than 10 Haitian Creole-language stations devoted to issues of interest for Haitians (Youth Violence Systems Project, Conti 2011). A number of health partnerships with ethnic media have been successfully developed, highlighting the viability of such an approach (Davis *et al.* 1994, Castro *et al.* 1995, Lopez & Castro 2006, Lujan *et al.* 2007, Sauaia *et al.* 2007, Cohen *et al.* 2010, Jandorf *et al.* 2012). Expanding and capitalising on such existing infrastructures in the local Haitian community should be a priority for future efforts.

Church-based intervention strategies that utilise lay health workers and group education are also likely to be effective, but again there is a dearth of research utilising these strategies for health promotion in this population. These strategies have been effective for promoting health and behaviour change among African Americans (Campbell *et al.* 1999, 2000, 2004, 2007, Bowen *et al.* 2004, Resnicow *et al.* 2004, Allicock *et al.* 2010, 2012) and evidence suggests that they can be effective among Latinos (Castro *et al.* 1995, Gany *et al.* 2006, Lopez & Castro 2006, Lujan *et al.* 2007, Sauaia *et al.* 2007, Walsh *et al.* 2010, Jandorf *et al.* 2012, Allen *et al.* 2014, 2015a,b). Evidence regarding the general utility of church-based interventions, along with the findings from this study, suggests that this is a worthwhile avenue for additional study.

Several limitations of this study warrant mention. We recruited a convenience sample from a variety of community settings. The sampling approach and small sample size may limit the generalisability of our findings. However, the purpose of this study was not to

 

achieve a representative sample, but rather to identify a range of relevant issues and to obtain the depth and detail of understanding that qualitative research methods can support. The focus group findings may be subject to social desirability bias, or the tendency of respondents to answer questions in a manner that would be viewed favourably by others, given interviews were conducted in groups. Given the sensitive nature of some of the topics discussed in the focus groups (e.g. worry, anxiety, distress), social desirability bias may have resulted in underreporting of psychological symptomatology post-earthquake (e.g. depressive episodes). Moreover, our study assessed the impact of the earthquake 1 year after the disaster occurred. This cross-sectional snapshot may have limited our ability to capture the long-term physical and psychological health consequences of the earthquake.

Notwithstanding these limitations, our exploratory study can inform efforts to design culturally relevant health promotion interventions for this population. Public health programmes designed to address health and wellness among Haitians living in the U.S. are hindered by the paucity of information about health beliefs, priorities and practices among this population. Our study provides information on the health priorities and concerns of this community, as well as on community assets and resources that could be leveraged to improve the delivery of health and social services. Moreover, our study adds to the limited research on the psychological and mental health impact of the earthquake on the U.S. Haitian diaspora. Participant-generated strategies provide a starting point for practitioners who want to reach Haitians with timely mental, physical and behavioural health promotion. Given the wide-ranging needs and variety of intervention strategies participants recommended, multi-faceted programmes – particularly those that use a variety of strategies and communication channels – are likely a good approach to reach the broadest possible audience.

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## Conflicts of interest

The authors declare no conflicts of interests.

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