

Article

Understanding and Addressing Vulnerability Following the 2010 Haiti Earthquake: Applying a Feminist Lens to Examine Perspectives of Haitian and Expatriate Health Care Providers and Decision-Makers

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Abstract

Vulnerability is a central concept in humanitarian aid. Discussions of vulnerability in disaster response literature and guidelines for humanitarian aid range from considerations of a universal human vulnerability, to more nuanced examinations of how particular characteristics render individuals more or less at risk. Despite its frequent use, there is a lack of clarity about how vulnerability is conceptualized and how it informs operational priorities in humanitarian assistance. Guided by interpretive description methodology, we draw on the feminist taxonomy of vulnerability presented by Mackenzie, Rogers and Dodds (2014) to examine perspectives of 24 expatriate and Haitian decision-makers and health professionals interviewed between May 2012 and March 2013. The analysis explores concepts of vulnerability and equity in relation to the humanitarian response following the 2010 earthquake in Haiti. Participants' conceptualizations of vulnerability included consideration for inherent

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vulnerabilities related to individual characteristics (e.g. being a woman or disabled) and situational vulnerabilities related to particular circumstances such as having less access to health care resources or basic necessities. Participants recognized that vulnerabilities could be exacerbated by socio-political structures but felt ill-equipped to address these. The use of the taxonomy and a set of questions inspired by Hurst's (2008) approach to identifying and reducing vulnerability can guide the analysis of varied sources of vulnerability and open discussions about how and by whom vulnerabilities should be addressed in humanitarian responses. More research is required to inform how humanitarian responders could balance addressing acute vulnerability with consideration of systemic and pre-existing circumstances that underlie much of the vulnerability experienced following an acute disaster.

Keywords: equity; feminist; Haiti; humanitarian; vulnerability

Introduction

Vulnerability and equity are central concepts in the field of humanitarian aid. Though frequently referenced by humanitarian organizations and practitioners, what counts as vulnerability or equity is not always clear. The World Bank proposes that to have equity, 'individuals should have equal opportunities to pursue a life of their choosing and be spared from extreme deprivation in outcomes' (World Bank 2006: 2). Relatedly, health is increasingly recognized as a human right (Office of the United Nations High Commissioner for Human Rights (OHCHR) and WHO 2008) and commentators, including Sir Michael Marmot, have argued that 'the reduction of health inequities, between and within countries, is an ethical imperative' (Marmot et al. 2008). Health is central to many discussions of vulnerability in the disaster response literature and in guidelines for humanitarian aid, whereby definitions of vulnerability are varied and range from descriptions of a universal human vulnerability to illness, injury or death, to examinations of particular characteristics or circumstances that render individuals at more or less risk of harm (Fassin 2009; Turner 2006; United Nations Development Programme (UNDP) 2014b).

Despite being key concepts in humanitarian aid, there is limited empirical evidence to clarify how vulnerability and equity are conceptualized in international humanitarian responses to crises, and to understand how they influence who receives assistance, and which vulnerabilities present a duty to respond. Haiti's citizens have often been described as experiencing high levels of vulnerability (UNDP 2014a). This vulnerability spans multiple domains, including socio-political, economic and environmental, and was highlighted and intensified as a result of the 2010 earthquake. In this research we examine how the concepts of vulnerability and equity were understood and addressed by Haitian and expatriate responders and policymakers during the humanitarian response to the disaster. The concepts proved to be heavily interrelated in the data; however, participants focused much more heavily on vulnerability, using this concept to also discuss equity. In light of this focus, we drew on a feminist taxonomy of vulnerability proposed by Mackenzie, Rogers and Dodds (2014) to frame our analysis. This article begins with a discussion of conceptualizations of vulnerability in the literature, which is then followed by a description of the theory and taxonomy of vulnerability proposed by Mackenzie et al. (2014). We then outline our research methods and present our results. Finally, inspired by Hurst's (2008) four-step approach to vulnerability, we propose five questions that, in conjunction with the taxonomy developed

by Mackenzie and her colleagues (Rogers, Mackenzie and Dodds 2012; Mackenzie et al. 2014), can provide a structure for assessing the complex nature of vulnerability, and inform how its various sources can be addressed following disasters.

Background information

Vulnerability

Conceptualizations of ‘vulnerability’ vary between academic disciplines and fields of practice. At its root, vulnerability is broadly understood as a state of being susceptible to harm and lacking capabilities to protect oneself from potential risks (Adger 2006; Hurst 2008; Mackenzie et al. 2014; Peroni and Timmer 2012; Wisner et al. 2004). A prominent conceptualization of vulnerability that spans many fields is an inherent vulnerability of humanity from two aspects (Fassin 2009; Fineman 2008; Kottow 2003; Mackenzie et al. 2014; Neal 2012). First, human bodies require specific conditions for survival and are prone to illness or injury should these not be maintained. Second, humans are social and interdependent beings; we are vulnerable to each other in all types of relationships. Human beings thus share a corporeal and psychosocial vulnerability.

Vulnerability has been defined more narrowly across different disciplines. In health care and health research, vulnerable individuals have traditionally been considered to be those unable to provide (informed) consent, those lacking the ability to protect their own interests, or those who cannot access medical care (Council for International Organizations of Medical Sciences 2002). More recent work in this field conceptualizes vulnerable individuals as those at risk of having their interests ‘unjustly considered’ and who should therefore receive special protection (Martin et al. 2014: 59). Conceptions of vulnerability in the environmental field place greater focus on the capability of adapting to changing environments (Adger 2006). Financial vulnerability is the relative lack of financial resources to meet one’s needs, such as maintaining housing or purchasing food (Anderloni et al. 2012).

It has been widely proposed that vulnerability or disadvantage in one aspect is associated with, or exacerbated by, vulnerability in another. Powers and Faden assert that ‘disadvantages associated with inequalities in the social basis of well-being ... often travel in tandem, and they can mutually reinforce and perpetuate one another’ (2006: 8). Thus, while these varied conceptions emphasize diverse forms of vulnerability, vulnerabilities may be ‘cascading and interactive’ (ibid: 69); vulnerability in one realm can engender vulnerability in another (Fineman 2008).

Conceptions of vulnerability in the fields of disaster studies and public health bring together the above-mentioned considerations and expand on them to emphasize vulnerability not only as an individual attribute, but especially as a quality shaped by social and political aspects of the context (Rodriguez et al. 2006; Wisner et al. 2004). As Wisner et al. state:

There are social factors involved that cause people’s vulnerability and can be traced back sometimes to quite ‘remote’ root and general causes. This vulnerability is generated by social, economic and political processes that influence how hazards affect people in varying ways and with differing intensities. (2004: 7)

How disasters affect individuals and communities is highly influenced by social and political structures in the context. Wisner and colleagues (2004) suggest that this differentiation was first documented in the 1976 Guatemala earthquake, which was dubbed a ‘class-quake’ by the media. In that case, individuals of lower socio-economic status lived on less

stable ground on the outskirts of town. When the earthquake hit, their homes were more severely damaged than those in more affluent areas. Individuals of lower socio-economic status have similarly been affected more severely by disasters than wealthier citizens in other developing countries (El-Masri and Tipple 2002; Fassin 2009). In addition to living in less secure housing, individuals who have fewer resources have more difficulty recuperating their losses and may be at risk of experiencing greater vulnerability if they cannot afford transportation to flee the disaster area or cannot pay for shelter or adequate accommodation (Fassin 2009). For these and other reasons, individuals living in the same geographic area that is hit by a disaster are unequally vulnerable to its impacts (El-Masri and Tipple 2002; Fassin 2009).

Feminist model and taxonomy of vulnerability

While feminism was traditionally focused on the oppression of women, there are now multiple feminist and feminine viewpoints (Tong 1993) and these perspectives have expanded to include examinations of marginalization more broadly. Critical feminist perspectives are concerned with the intersection of social and political structures, beliefs, practices and norms (Sherwin 1998), and vulnerability to social and political factors in particular environments. In this regard, a feminist perspective can lead to a more comprehensive understanding of basic rights for all human beings. Recently, Mackenzie, Rogers and Dodds (2014; Rogers et al. 2012) have presented a theoretical framework from a feminist perspective to describe and classify different aspects of vulnerability. This taxonomy identifies three distinct sources and two distinct states of vulnerability.

The three sources presented by Mackenzie and colleagues are *inherent*, *situational* and *pathogenic* vulnerabilities (2014). *Inherent* vulnerability is related to ‘sources of vulnerability that are inherent to the human condition and that arise from our corporeality, our neediness, our dependence on others, and our affective and social natures’ (Rogers et al. 2012: 24). *Situational* vulnerability arises in a context and is ‘caused or exacerbated by the personal, social, political, economic or environmental situations of a person or social group’ (ibid.). In contrast, *pathogenic* vulnerability is a state of being at risk of having situational or inherent vulnerabilities increased or created as a result of ongoing relationships or socio-political situations that have negative or harmful effects (ibid: 25). In this respect, the concept of *pathogenic* vulnerability can assist in highlighting structural injustice and human rights violations. The two states of vulnerability are *dispositional* and *occurrent*. Individuals have a *dispositional* vulnerability if they have attributes that render them at risk of sustaining a particular harm, while they experience *occurrent* vulnerabilities in circumstances in which they are acutely at risk of sustaining harm (Mackenzie et al. 2014; Rogers et al. 2012).

Following the feminist perspective taken by Mackenzie, Rogers and Dodds, the concept of vulnerability helps to better understand fundamental needs for all of humanity. In this regard, in the context of humanitarian crises, it is possible to affirm that forms of pathogenic vulnerability that may be exacerbated by a crisis may signal the infringement of fundamental human rights. Relatedly, Mackenzie, Rogers and Dodds from the field of feminist bioethics, and other authors in disaster studies, make the important point that discussions of vulnerability cannot be limited to a focus on individual vulnerabilities such as personal susceptibility to harm, but must also include consideration for the development of capacities and resilience against future harms as well as for the protection of human rights on a

broader scale; doing so can include developing individual capabilities but may also require addressing social and political structures that set up or reinforce conditions of vulnerability (Mackenzie et al. 2014; Wisner et al. 2004). The impetus to address *inherent* and *situational* vulnerabilities shapes acute disaster responses and can guide a focus on rectifying individual vulnerabilities; however, there must also be consideration of if and how *pathogenic* vulnerabilities—those that set up or exacerbate inherent or situational vulnerabilities—can be addressed. The complexity of vulnerability and questions of a duty to address vulnerability are at the root of many challenges for disaster relief organizations as different conceptualizations of vulnerability conflict and compete with each other, making it difficult to know what action should be prioritized and what response is equitable.

Context and purpose of the research

Haiti has long been considered to have high levels of poverty and vulnerability (Inter-Agency Standing Committee (IASC) 2010; UNDP 2014a). Its citizens have low income and the country produces a low Gross Domestic Product relative to other countries (World Bank 2015). Haiti's precarious status has been shaped by decades of domestic political instability, civil conflict, governmental domination and corruption, in addition to foreign economic and political control, subjugation and exploitation as well as intermittent occupation by other countries (Dubois 2012; Pinto 2010). All of these combined influences have left Haiti with tenuous social infrastructure.

On 12 January 2010, Haiti was hit by an earthquake measuring 7.0 on the Richter scale (United States Geological Service 2015). The years of political instability had left Haiti's physical infrastructure highly fragile and it was extensively damaged by the earthquake, which killed over 200,000 people, affected millions more, and caused over eight billion dollars in damage (EM-DAT 2016). Following the earthquake, local responders and organizations initiated relief efforts. The intensity of the damage and awareness of Haiti's underlying widespread poverty and weak infrastructure also sparked a massive international humanitarian response involving hundreds of non-governmental organizations (NGOs), governmental development agencies, and military groups, as well as thousands of volunteers (Pinto 2010).

This research is part of an overarching project conducted by a team of researchers at McGill University and the University of Montreal in Canada, in collaboration with health policy researchers in Haiti. The umbrella project explored perceptions of vulnerability and equity in relation to the 2010 Haiti earthquake response. In the original inductive coding of the data, the interrelationships between vulnerability and equity and the stronger focus on vulnerability came to light, thus prompting our deductive use of the feminist taxonomy of vulnerability presented by Mackenzie and her colleagues (Mackenzie et al. 2014; Rogers et al. 2012) to frame the later stages of our analysis. The purpose of the research presented in this article is to examine how concepts of vulnerability and equity were perceived by expatriate and Haitian responders involved in the response. We analyse these perceptions through the feminist taxonomy of vulnerability proposed by Mackenzie and her colleagues (Rogers et al. 2012; Mackenzie et al. 2014) with the goal of suggesting an approach to deepen understandings of vulnerability in humanitarian disaster responses.

Ethics approval for this research was obtained from the National Bioethics Committee of Haiti, and from Research Ethics Committees at McGill University and the University of Montreal.

Methodology

This article presents an analysis of data collected during a larger qualitative study using interpretive description methodology (Thorne 2008) to examine perspectives of Haitian and international responders and decision-makers following the 2010 Haiti earthquake. Interpretive description is guided by an interpretivist and naturalistic orientation to inquiry, and was originally designed for application in nursing sciences and other applied health disciplines to develop knowledge to inform practice. It guides an analysis of a phenomenon from the perspective of subjective experiences to illuminate ‘the characteristics, patterns and structure’ (Thorne et al. 2004: 6) of a phenomenon, all the while recognizing the ‘constructed and contextual nature of human experience’ (ibid: 3) This methodological approach facilitated an exploration of concepts of vulnerability and equity, and how these influenced disaster relief and reconstruction efforts, from the perspectives of Haitians and expatriates involved in the earthquake response.

Participants and data generation

Study participants were initially recruited via emails to NGOs and to individuals in the research team’s professional networks known to have been involved in the response. Further recruitment included snowball sampling based on recommendations from earlier participants, and recruitment through networking at l’Unité de Recherche et Action Médico Légale (URAMEL) in Port-au-Prince, Haiti. The final sample of 24 participants consisted of a diverse group including six Haitian government officials or decision-makers, five Haitian health professionals working with international or national NGOs, three Haitian health professionals not working with NGOs, and ten expatriate individuals who were health professionals or decision-makers with international NGOs involved in the earthquake response.

Participants were interviewed in person, by telephone or by Skype between May 2012 and March 2013. Semi-structured interviews were conducted in French or English (depending on participant preferences). The interview guide was based on a review of literature related to humanitarian disaster responses and was refined following a pilot interview with a potential participant. Examples of questions include: What was your role in the 2010 Haiti earthquake response? Please describe your experience of the earthquake response. What does vulnerability mean to you? What does equity mean to you? How were these evident or not in the response to the earthquake? The interviews ranged from 37 to 75 minutes and averaged 60 minutes in length. Interview transcripts were reviewed by members of the research team to increase accuracy.

Analysis

The analysis began with the writing of synopses summarizing and highlighting relevant ideas in each transcript. Three transcripts were then preliminarily coded inductively by one member of the research team, thus enabling the creation of an initial coding scheme. Following this, the coding scheme was collaboratively revised by the research team and remaining transcripts were coded (and the original three recoded) using NVivo software by one member of the research team.

Subsequent analysis applying the lens of the vulnerability framework presented by Mackenzie and her colleagues (Rogers et al. 2012; Mackenzie et al. 2014) was conducted collaboratively by four members of the research team with training in philosophy,

bioethics, physiotherapy, occupational therapy and international development. Aligning with interpretive descriptive analysis methods, repeated reading of the transcripts, writing interview synopses and analysis reports, and regular analysis meetings enabled the researchers to develop an in-depth understanding of the data and to 'identify patterns, [follow] intuitions and retrace a line of logical reasoning' and to synthesize meanings and theorize relationships in the data (Thorne et al. 2004: 14). Preliminary interpretations were tested and challenged in order to be reconceptualized coherently into the findings presented below.

In the presentation of the results, quotations taken from French interviews were translated into English.

Study strengths and limitations

The research is strengthened by the diversity of perspectives in the research team and the collaborative approach taken to the analysis. The study was limited, however, by the fact that a single interview was conducted with each participant. In cases where there were differing interpretations of participants' accounts amongst the research team, there was not an opportunity to clarify with participants. Additionally, the interviews were conducted between 32 and 38 months after the earthquake. This presented a strength as it enabled participants to give a more reflected account of their experiences related to the earthquake and ensuing relief and reconstruction efforts; however, the passage of time may also have resulted in participants forgetting particular details. A final limitation is that individuals who were recipients of humanitarian aid following the earthquake were not interviewed in this research.

Results

The data presented varied descriptions and understandings of vulnerability. Participants described vulnerability as something that could be defined in more than one way depending on individual perspectives, and reported a range of sources of vulnerability including having inequitable access to services and resources, or less power in comparison to others. In light of the varied sources of vulnerability following the earthquake, there were questions for those involved in organizing and implementing the response about how vulnerability should be prioritized and who should be responsible for prioritization decisions. Addressing vulnerability was also related to how participants understood the concept of equity, whereby equitable actions were perceived to be those that sought to address the needs of those who were more vulnerable in order to 'level the playing field', as one expatriate participant described. Having said this, on the whole, participants had difficulty describing equity in the context of a disaster response and tended to do so by making reference to vulnerability. Results related to understandings of vulnerability will first be discussed using the categories of inherent and situational as well as pathogenic sources of vulnerability. Results related to addressing vulnerability in the response will then be presented under the headings of who determines vulnerability; linking equity and vulnerability; establishing priorities; and implementing priorities.

Understandings of vulnerability

Looking first at understandings of vulnerability, across the accounts, participants described vulnerability as something that was subjectively defined and not easily measured. One

expatriate participant described vulnerable individuals as ‘individuals who are at risk [of having] something bad happen. And we can collectively determine what we consider as bad.’ Other participants similarly discussed vulnerability as subjective and highlighted the influence of the lens through which it was viewed. For example, a second expatriate responder said:

You can define [vulnerability] depending on which area. If you’re a surgeon you can talk about vulnerability in terms of if your patient has other conditions that makes them more vulnerable to surgery or not. While on a more public health level, which is a higher level, we can talk about vulnerability in terms of whether the population has any—if they are not vaccinated for example, then they have an increased vulnerability for diseases, epidemic diseases for example, or if they don’t have access to safe water or clean water or shelter, they have a vulnerability.

Vulnerability was thus framed by particular perspectives, which emphasized different dimensions of need or capability, and led to variability amongst responders and organizations. In line with this idea, participants discussed different sources and varying degrees of vulnerability, and many stated that, depending on the viewpoint and criteria considered, everyone is vulnerable in one respect or another. In the following sections we use the terminology presented by Mackenzie and colleagues (2014) to guide our analysis of the sources of vulnerability discussed by participants.

Inherent and situational sources of vulnerability

Participants often referred to criteria that could render particular groups of individuals as generally more vulnerable. As one Haitian participant expressed, ‘there are global criteria’. An expatriate participant stated, ‘we know that people with disabilities are among the most vulnerable . . . along with children and the elderly’. Other criteria that suggested individuals were more vulnerable included individuals of lower socio-economic status, ill or uneducated persons, women or girls (particularly pregnant or single mothers), and people with AIDS. Such criteria could be inherent (being ill) or situational (experiencing lower socio-economic status). Many criteria identified by participants however were not clearly inherent or situational but rather resulted from the intersection of inherent characteristics with particular circumstances (a person with an amputation or impaired mobility living in an environment with inaccessible infrastructure).

The situational nature of some sources of vulnerability was highlighted by participants who expressed that one can be vulnerable in a particular context but not in another. As one Haitian participant said, ‘vulnerability for me is in relation to a specific situation’. Participants described situational vulnerabilities related to conditions frequently encountered in the wake of a catastrophe, or in situations of poverty—which is often exacerbated by a disaster. One Haitian participant gave the example of living in tents or temporary shelters; tents provide little to no privacy or physical protection from aggression and as such, increase the risk of rape and violence. Participants thus identified situational sources of vulnerability, but also recognized that these realities placed some individuals at greater risk than others.

The intersection of inherent and contextual sources of vulnerability is particularly highlighted in how participants talked about women as a vulnerable group. Many participants identified women as vulnerable; however, one participant stated that women should not be generalized as a vulnerable group: ‘Women are placed in conditions [emphasis on ‘conditions’] of vulnerability. We are not vulnerable.’ This Haitian participant implied an

awareness that women are often considered to be inherently more vulnerable (than men) but challenged this perception by making an explicit distinction between situations when women were at risk based on particular circumstances and risks directly linked to gender. Discerning between inherent and situational sources of vulnerability can be particularly difficult when circumstances that render individuals with particular inherent criteria vulnerable are ever-present in the context, making it more likely for situational vulnerabilities to be conflated with inherent ones.

Another example that reflects both the subjective nature of vulnerability and the intersection of inherent and situational sources of vulnerability is described by an expatriate participant discussing circumstances in a tent camp set up to temporarily house earthquake victims:

This one particular camp in Corail was in a flood zone, and there was a very high likelihood that the camp was going to be flooded. People with disabilities who aren't mobile are unable to get out and need assistance for evacuation. So we went in to try to help evacuate them the day before or hours before the hurricane was coming. And the other people in the camp came forward saying nobody is leaving this camp unless you evacuate all of us.

This example draws attention to an inherent human vulnerability to harm related to flooding. This participant, however, distinguished between different sources of vulnerability in this context where disabled individuals were considered to be inherently more vulnerable than able-bodied individuals who may have more capacity to evacuate the camp if needed. Based on these participant descriptions, depending on one's perspective and level of focus, vulnerability will be conceptualized differently.

Pathogenic sources of vulnerability

More generally, individuals were considered vulnerable if they were at greater risk of being adversely affected by something from which they would be unable to protect themselves. One Haitian participant stated, 'being vulnerable means being at risk of being affected by something that would have no impact on someone else'. Haitian and expatriate respondents expressed that vulnerable individuals have lower feelings of empowerment, more limited access to the justice system and less control over their decisions. All of these features contribute to individuals having more difficulty protecting and providing for their own interests, thus increasing their vulnerability. These conceptions of vulnerability reflect how social and political structures can promote or exacerbate sources of inherent and situational vulnerability for particular individuals, conceptions that align with Mackenzie and colleagues' (2014) concept of pathogenic vulnerability.

Across the interviews, a complex and nuanced conceptualization of vulnerability can be deduced whereby vulnerability was portrayed as subjective, and sources of vulnerability could be inherent or situational. Pathogenic sources of vulnerability could also arise as a result of social and political aspects of the context. Participants were challenged to know what should be prioritized in the earthquake response in the face of varied sources of vulnerability, and linked addressing vulnerability to equity, which we will now explore.

Addressing vulnerability in the response

Vulnerability and equity were interrelated concepts in the data. Questions related to what vulnerabilities ought to be prioritized, what was considered equitable, and who should

make these determinations were reflected in challenges described by participants in the implementation of the response.

Who determines vulnerability

Both Haitian and expatriate participants reported concerns about the process of determining priorities in the overall response and within specific organizations. There was a general view that individuals on the ground and/or familiar with the context should be involved in determining how the response should proceed, and what needs or which groups should be prioritized; however, participants reported this was not the case. According to an expatriate participant, the priorities of her organization were determined by a 'group of people in suits' far removed from the situation. This participant further described that resource allocation in the response was based on 'categories created by the people that hold ... the powers or resources'. A Haitian participant similarly critiqued NGOs stating that many NGO decision-makers had not been in Haiti prior to the earthquake and therefore lacked knowledge of the underlying situation that was important for determining what priorities were justified in the response. This participant also expressed that the response ought to have been directed and coordinated by the Haitian government but, along with another Haitian participant, reported that the state did not step in to coordinate and regulate the response.

Haitian and expatriate participants expressed that those who set priorities were not those who lived with the consequences of these policies, leading to a situation in which intended aims did not meet actual needs on the ground. Participants felt that ideally what was to be considered equitable, and what vulnerabilities and actions would be prioritized, should be collectively determined.

Linking equity and vulnerability

Participants struggled to define equity and did so in terms of vulnerability. Interrelationships between these concepts are evident in one expatriate participant's comment that

People who are most vulnerable are the people that require the most advocacy in terms of equity because those are the people that actually often don't have equitable services in comparison to others in the community. So I think they [equity and vulnerability] are very linked and very intertwined, ... in terms of a disaster situation you need to be thinking all the time how do you promote health equity, in particular for those that are most vulnerable.

A Haitian participant furthermore said 'the fundamental question of vulnerability is effectively linked to a situation of inequity in the distribution of revenue'. Both expatriate and Haitian participants suggested that vulnerable individuals have less access to resources, and that this discrepancy was inequitable. Participants further indicated that efforts should be made to identify individuals who could not access services and to find ways to promote their access. Equitable action was therefore viewed as action to address or reduce vulnerability.

Targeting individuals perceived to be more vulnerable suggests that not all individuals require the same level or type of assistance. Indeed, several expatriate participants expressed that they did not feel that being equitable meant providing the same care to everyone. Rather, it was felt that equitable action included enabling individuals to access the care they needed in order to maintain a certain level of health. In the words of one

expatriate participant, to achieve equity was 'essentially having equality within a population to all of the basic rights and to privileges that everybody is entitled to, exposed to, or is allowed'. While meeting the needs of the most vulnerable was seen as highly important, some participants also cautioned against spending too much time or too many resources on one particular group, as targeting the needs of one group over another could be perceived as being inequitable from another perspective. Such considerations sparked questions about which vulnerabilities were more pressing, who defined categories of vulnerability, and whose needs ought to have been prioritized. We will now describe results related to the challenge of addressing multiple vulnerabilities.

Establishing priorities

In light of the high levels of need and the multiple sources of vulnerability, participants described how they and their fellow responders felt overwhelmed by the level of need and it was not always clear how to proceed. With insufficient human and equipment resources to address everyone's needs, one Haitian participant expressed 'we have to determine priorities'. In some cases responders attempted to prioritize individuals who had the most urgent needs, or who were considered to be the most vulnerable. Responders' actions, however, were also guided by their organizational mandates, which may have general or specific criteria. One expatriate participant described a more general mandate whereby her organization targeted the most vulnerable individuals: 'Our mission in such circumstances, in all circumstances, is to assist the most vulnerable.' Participants described that many responding organizations' mandates targeted particular groups or individuals such as disabled persons, individuals injured in the earthquake, or women and children. An organizational aim to target a particular group is expressed by another expatriate participant when she says that

Any person with a disability would be considered the people that we were targeting ... where disability could be something along the lines of where a person is in the age spectrum, if they are unable to advocate for themselves, so a lot of children, orphans, elderly people who are unable to access resources.

In this case, while the aim was to target disabled individuals, the criteria were broadly described and could thus include many target populations.

Implementing priorities

Participants reported challenges associated with targeting particular groups, and discussed the impact of a lack of adaptability in how these aims were carried out. Participants expressed three principal concerns. They identified a misalignment between many organizational priorities and the actual needs on the ground. They were also concerned about a lack of follow-through for care and services that were provided. Finally, they noted that all decisions to prioritize some individuals meant that others were classified as lower priority or even excluded altogether from receiving services. The following quotation by an expatriate participant reflects all three of these challenges, as well as the perspective that individuals far removed from the context determined priorities. He describes the provision of prostheses only for individuals who had sustained amputations but without adequate follow-up

care, and the exclusion of addressing the need for prostheses for individuals whose disabilities were not the result of a newly acquired amputation:

If we look at amputees again, I was quite confident that [the organization] and their financial backers would not be willing to redirect their resources to offer high quality spinal cord care, for example, because it was just too far from what they were willing to do. But I was hoping that they would offer, for example, orthotics, because they had the capacity, they had the equipment, they had the materials and the people who were able to do this. I was hoping that they would be willing to pay for things like ongoing rehabilitation care, which they were not. I was hoping that they would integrate the care of their beneficiaries with the social reality so that they could have an ongoing involvement in their beneficiary's abilities to use the leg in order to benefit sufficiently, in order to participate in society. And ... I found that to be a losing battle. So ... , on the entire scheme of integrating equity and vulnerability, I considered it to be a very narrow range because I thought those would be changes that I could influence and positive differences that I could make. And I found that I wasn't able to have a great impact on those relatively minor decisions.

This quotation exemplifies frustrations expressed by participants related to aims of meeting the needs of particular individuals (such as individuals having sustained an amputation), which excluded individuals who were arguably just as, if not more, vulnerable (such as individuals with spinal cord injuries); that this did not align with needs on the ground; and that responders felt helpless to address this misalignment. Individuals who were at times excluded from prioritization schemes included individuals having lower levels of socio-economic status but whose homes were not destroyed in the earthquake. Such individuals may experience greater disadvantage than earthquake victims but were not included in target groups for assistance. The exclusion of individuals who were also vulnerable but did not meet certain pre-selected criteria created ethical tensions for participants.

Participants also discussed factors that guided priority-setting that were unrelated to vulnerability or the promotion of equity, but that were 'hot issues' for donor funding. As is described by one expatriate participant, humanitarian agencies 'were also driven by funders and donors, and other factors that caused them to want to become interested in that situation'.

Several participants reported that individuals injured in the earthquake and who required an amputation were targeted because the provision of prosthetics was easy to capture for the media; what was not captured was the lack of follow-up services for these interventions (discussed below). Another example included providing abundant assistance to people with HIV, who were considered to be vulnerable due to their illness, but who, according to Haitian and expatriate participants, were targeted primarily because there was a lot of donor funding directed towards issues associated with HIV. Although these examples resemble a focus on vulnerability, participants felt that these priorities were not related to vulnerability, equity or actual needs in the context of Haiti following the earthquake, but rather were heavily influenced by 'hot issues' related to media and funding.

Finally, participants expressed frustration at a lack of follow-up services or broader changes to accommodate newly disabled individuals. One Haitian participant described examples where individuals having been treated for a cut did not have follow-up services to clean the wound for a month. As a result, infection progressed to the point of requiring an amputation, a situation that could have been avoided with proper follow-up care. Similarly, as described above, some organizations provided prostheses to individuals having sustained an amputation but did not provide ongoing rehabilitation care to ensure that

individuals were able to use their prostheses in the longer term. Yet a third example is described by three expatriate participants who described how they were advocating for rebuilding efforts to create more accessible housing to accommodate the needs of individuals having mobility impairments, but that such efforts amounted to little.

Varied conceptions of vulnerability, in conjunction with limited resources to address vulnerability and the inevitable difficulties related to prioritizing needs, contributed to the challenges that participants experienced and perceived in the humanitarian response to the earthquake.

Discussion and implications

Understandings of vulnerability

Participants in the study described being faced with individuals experiencing many sources and high levels of vulnerability. Echoing what is reflected in the literature (IASC 2008; Morawa 2003), participants at times associated vulnerability with particular criteria delineating groups of individuals in need of special protection, in particular in relation to access to health care and basic requirements such as clean water and shelter following the disaster. Access to such necessities has been deemed a basic human right by the World Health Organization (OHCHR and WHO 2008). Participants viewed as inequitable this lack of access to basic services necessary for maintaining health. Such views align with conceptions of health equity in literature from the fields of public health and public policy, which often also relate to the distribution of and access to goods and services linked to social determinants of health. Resources linked to social determinants of health can include not only those linked to meeting basic needs or the provision of health care, but also opportunities to participate in occupations for leisure, employment and income-generation, and to develop capabilities that contribute to health and well-being (Marmot et al. 2008; Sen 2002). In the health policy literature, health is considered one dimension of well-being, in which Powers and Faden (2006) also incorporate personal security, reasoning, attachment, respect and self-determination. In the field of humanitarian disaster response, the Operational Guidelines developed by the Inter-Agency Standing Committee (IASC 2008, 2011) promote not only the protection of physical safety and the provision of the basic necessities of life, but also the protection of economic, social and cultural needs as well as the provision of civil and political protection (IASC 2008, 2011). The implication for justice is that these elements are interrelated and that while individuals may experience differing levels of each, they all must be (enabled to be) fostered in order to achieve well-being (IASC 2008, 2011; Powers and Faden 2006; Clarinval and Hunt 2014). While participants reported being aware of interrelationships between the sources and levels of vulnerability they witnessed, and different dimensions of well-being, they felt unable to provide care that would address the different determinants of health. Barriers to more equitable care included limited resources, constraints imposed by organizational mandates, and geographical distance.

Resource allocation and boundaries of the response as key ethical issues

Challenges arose for participants when they faced widespread and elevated needs but were limited in their ability to address them. The need to allocate limited resources has been identified as a primary source of ethical challenge for humanitarian workers (Hunt et al. 2012; Schwartz et al. 2010) and humanitarian organizations (Hurst et al. 2009). Participants in the study discussed struggles in determining which needs or vulnerabilities

should be prioritized in what order, and which should not be addressed at all. Participants also expressed discomfort at organizational priorities that catered to ‘hot topics’ that would be well-represented by the media instead of to actual needs related to the situation. Similar issues were raised by Telford and Cosgrave (2007) who reported that aspects of the response to the 2004 Indian Ocean tsunami were driven by media interest rather than by assessment of needs as would be mandated by the operational guidelines of the IASC (2008, 2011). Questions were raised in the present study as well, as in the response to the 2004 tsunami (Telford and Cosgrave 2007), about the feasibility for organizations to address particular forms of vulnerability due to (reasonable) limitations in their area of specialization, mandate, or resources. Some organizations, for example, provided prosthetics and adaptive technologies for amputees; however, addressing the broader issue of inaccessible built and natural environments requires a much more expansive and longer-term approach that exceeds the scope of individual organizations.

Participants in this study were aware of how social, political and physical aspects of the context exacerbated, or even created, situations of vulnerability, but felt unable to address these. Several participants questioned the value of their actions in the earthquake response in the face of these larger problems. Questions in the data echoed challenges identified in the humanitarian disaster response literature regarding the determination of what actions are within the realm of the response at various stages, and what vulnerabilities it would be considered paternalistic to target and should be left up to the country to resolve on its own (Schwartz et al. 2010).

Applying a feminist taxonomy of vulnerability

The taxonomy developed by Mackenzie and colleagues (Rogers et al. 2012; Mackenzie et al. 2014) offers a useful lens to distinguish between the sources of vulnerability described by participants, and may help to provide insight into what types of vulnerabilities should and could be addressed, by whom and at what point in the response. As was discussed above, the taxonomy presented by these authors identifies three sources of vulnerability: *inherent*, *situational* and *pathogenic*; as well as two states: *dispositional* and *occurent*. Broadly, participants discussed that individuals were *inherently* vulnerable to harms in the face of the *situation* created by the earthquake or the consequent circumstances. *Pathogenic* vulnerabilities contributed to a less stable social and political infrastructure, thereby exacerbating and perpetuating *inherent* and *situational* vulnerabilities, and changing their state from *dispositional* (for example, all are inherently vulnerable to the elements) to *occurent* (whereby, without shelter after the earthquake, individuals are more vulnerable to the elements).

In Table 1 below, we categorize states and sources of vulnerabilities described by participants.

Using the taxonomy more explicitly in a particular example can help to parse the varied sources and states of vulnerabilities experienced by individuals affected by the earthquake. Let us look in more depth at the example of individuals who have sustained an amputation. Such individuals are *inherently* vulnerable to infection while their amputation is healing. While all humans are *dispositionally* vulnerable to complications related to infection (box 1 of Table 1), individuals with a recent amputation are *occurently* more vulnerable as they require adequate healing of the amputation and are at risk of complications related to the fit of the prosthesis over the longer term (box 2 of Table 1). While all individuals are

Table 1. Applying Mackenzie and colleagues’ (2014) taxonomy to vulnerabilities reported by Haitian and expatriate responders and decision-makers in the 2010 Haiti earthquake

↓ Sources \ States →	Dispositional	Occurrent
Inherent	1. By virtue of their human bodies, all individuals are inherently predisposed to experiencing harms related to illness and infection.	2. Individuals who experienced an amputation are more vulnerable to infection in light of the healing of their amputation, and are therefore occurrently vulnerable to infection.
Situational	3. Individuals living in a tent camp experience situational vulnerability to violence as they do not have the protection of a solid shelter.	4. Individuals who experienced an amputation and who live in an inaccessible area such as a tent camp also face situational vulnerabilities related to their reduced mobility that they may not face in accessible environments.
Pathogenic	5. Longstanding financial policies contributed to the development of a fragile physical infrastructure at risk of destruction in the face of a disaster, thereby exacerbating inherent and situational human vulnerabilities.	6. Longstanding social and political structures have resulted in, and continue to perpetuate, inaccessible environments that can exacerbate the inherent and situational vulnerabilities experienced by individuals with an amputation.

predisposed to having mobility issues in the situation of an inaccessible environment, individuals with an amputation also face an *occurrent situational* vulnerability when they are in contexts that are not fully accessible to enable their mobility such as a tent camp (box 4 of Table 1). The social and political structures that create or perpetuate inaccessible environments are an *occurrent pathogenic* source of vulnerability for these individuals as the lack of accessibility in the environment exacerbates the inherent and situational vulnerability they experience by living with an amputation in such contexts (box 6 of Table 1). Sources of vulnerability not particularly linked to having sustained an amputation are the *situational* risks of violence that individuals experience in a tent camp in light of not having the protection of solid shelter (box 3 of Table 1) and the *pathogenic* vulnerability created by the unstable infrastructure as a result of long-standing policies influencing the construction of the physical infrastructure (box 5 of Table 1).¹ Breaking down the various aspects of vulnerability can help to clarify the actions that can help to address different forms of vulnerability.

Relating this back to the earthquake response, the provision of prostheses or wheelchairs to individuals having experienced an amputation addressed solely the *inherent* vulnerability experienced as a result of the amputation, but did not address potential *occurrent* vulnerability related to infection without adequate follow-up for wound care and prosthetic fit. Several participants felt powerless to address the *situational* vulnerability presented by the inaccessible environment, and even less able to address *pathogenic* sources of vulnerability that contributed to the development of the inaccessible environment. Such an analysis

1 This is not to say that having an amputation necessarily results in occurrent vulnerability. These are merely examples for discussion.

can help to specify different sources of vulnerability and implications for how they can be addressed and by whom.

The application of the feminist taxonomy and a proposed five questions inspired by Hurst (2008)

The use of the taxonomy proposed by Mackenzie and colleagues (Rogers et al. 2012; Mackenzie et al. 2014) can help to elucidate sources and states of vulnerability. This can open a discussion of whether there is a responsibility to address various vulnerabilities, and if so, whose responsibility it might be. There is little guidance, however, in approaching the questions that the taxonomy suggests.

To find guidance in applying the knowledge gleaned through an analysis using the taxonomy, we turn to the work of Samia Hurst. Hurst (2008) suggests that there is a duty to provide special protection to vulnerable individuals. To this end, she has proposed a four-step approach to address vulnerability. Inspired by this work, we propose five questions, which correspond with the taxonomy and aim to support reflection about responsibility to respond to vulnerability:

1. Is there an identifiable vulnerability?
2. If so, are some individuals more likely to experience this vulnerability and/or to a greater degree? (Is it a dispositional or occurrent vulnerability?)
3. Is this vulnerability inherent, situational or pathogenic?
4. Who shares in the duty to minimize, avoid or eradicate this source of vulnerability?
5. What should the parties who share a duty to address the vulnerability do to minimize the vulnerability or compensate for it in ethically justifiable ways?

In Table 2 we apply this modified framework in conjunction with the taxonomy put forth by Mackenzie and her colleagues to the example described in the above quotation describing a camp set in a flood zone.

While this work is preliminary, we believe that drawing together the taxonomy put forth by Mackenzie et al. (2014) and the work of Hurst (2008) can help to identify and understand various sources and states of vulnerability. This approach has the potential to guide discussions among stakeholders—including disaster responders on the ground, managerial and administrative staff who determine the mandates of NGOs, as well as between policy-makers and implementers who are responsible for policy to address the needs of the population—to consider if these vulnerabilities should be addressed, and if so, how, and by whom.

Conclusion

This article contributes knowledge to the growing body of scholarship on vulnerability by providing empirical evidence to substantiate theoretical perspectives of vulnerability proposed in the literature. Participants in the study, in alignment with what is reported in the literature, identified varied sources of vulnerability, including personal or inherent vulnerabilities and situational vulnerabilities that arise in particular contexts. Participants also identified long-standing ongoing aspects of the context that could exacerbate, reinforce or promote particular sources of vulnerability. Given the complexity and variation in understandings and perspectives on vulnerability, it can be challenging to decipher which sources of vulnerability can and should be addressed and prioritized, and to whom should fall the responsibility to address them. By their very nature, situations of disaster

Table 2. Application to an example from the data of five questions inspired by Hurst's (2008) four-step approach to vulnerability and Mackenzie and colleagues' (2014) taxonomy of vulnerability

Step	Example
1. Is there an identifiable vulnerability?	There is an increased vulnerability to the elements given that tents are not substantial protection in the event of a flood.
2. Are some individuals more likely to experience this vulnerability and/or to a greater degree? (Is it a dispositional or occurrent vulnerability?)	Individuals with mobility impairments have an increased occurrent vulnerability as they may not be able to escape the flood as easily as able-bodied individuals.
3. Is this vulnerability inherent, situational or pathogenic?	This vulnerability is inherent and situational in the short term. If the situation persists for some individuals and not others in light of social and political structures in the context (for example individuals of lower socio-economic status remain in the tent camps longer than others despite rebuilding efforts), it can become pathogenic.
4. Who shares in the duty to minimize, avoid or eradicate this source of vulnerability?	Other individuals in the context including other residents of the camp and responders share in a duty to minimize or avoid the vulnerability. Policymakers responsible for developing infrastructure share in a duty to eradicate the vulnerability.
5. What should the parties who share a duty to address the vulnerability do to minimize the vulnerability or compensate for it in ethically justifiable ways?	Individuals in the immediate physical context should assist individuals who have difficulty escaping the flood to escape. Policymakers responsible for developing infrastructure should attempt to build infrastructure that will be accessible (physically and financially) and that will better protect residents against the elements.

and the ensuing humanitarian response present multiple sources of vulnerability that can threaten individuals' health and ability to access resources to promote their health or well-being. Given the increasing recognition of health as a human right (OHCHR and WHO 2008) and emphasis on reducing health inequities (Marmot et al. 2008), there is a broadly shared commitment amongst humanitarian aid organizations to address vulnerability. There is furthermore a growing recognition that doing so requires the development of capacities and resilience against further harms, which may require attention and change to social and political structures that may be contributing to vulnerability. In light of the number of sources and complexity of vulnerability in the wake of a humanitarian disaster, it is ethically challenging for humanitarian responders to know how to act to best meet the needs around them with the resources they have (Hunt et al. 2012; Hurst et al. 2009; Schwartz et al. 2010). We have proposed the use of the taxonomy presented by Mackenzie, Rogers and Dodds (2014) to categorize different types and sources of vulnerability. This analysis can help to identify and untangle the varied sources of vulnerability. We further propose that using a modified version of Hurst's (2008) approach to vulnerability can guide discussions about which sources of vulnerability ought to be

addressed and who is placed or has a duty to address these. While this retrospective analysis provides a valuable contribution to the literature and aims to inform decision-making practices in future humanitarian responses, situations of disaster are extremely specific as each context and disaster presents exceptional challenges related to the nature of the disaster and the unique constellation of social, physical and political aspects of the disaster context. Further research is required to examine how merging the work by Mackenzie, Rogers and Dodds (2014) and Hurst's (2008) approach could inform humanitarian action and responses on the ground.

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