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Psychological Perspectives on 'Acute on Chronic' Trauma in Children: Implications of the 2010 Earthquake in Haiti

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The 2010 earthquakes in Haiti initiated crises for one of the world's poorest nations. This transpired amidst pervasive, pre-disaster hardships, with the resulting situation described as 'acute on chronic' trauma exposure. The current paper provides a description of a dynamic model focused on three factors of consideration for similar crises: cultural context, unfolding traumatic events and developmental processes. Knowledge from developmental psychology can inform humanitarian aid efforts to effectively address the unique needs of children. Recommendations are offered for research, clinical work and policy related to the mental health needs of children where 'acute on chronic' conditions exist. © 2013 The Author(s). Children & Society © 2013 National Children's Bureau and Blackwell Publishing Limited.

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Introduction

In 2010, a devastating earthquake struck Haiti's capital city, prompting an exploration of how mental health could be effectively addressed in Haitian children impacted by the disaster. Haitian youth currently stand at the intersection of dynamic pressures, each representing a distinct field of study. Understanding these pressures requires interdisciplinary scholarship, including an understanding of the impact of the earthquake on Haiti's fragile infrastructure and the role of children in Haiti.

Haiti's long-standing status as the poorest country in the Western hemisphere has implications for children's mental health after the tragedy. Rather than an isolated incident, the earthquake was a disaster with unfolding implications for an already vulnerable nation (RI, 2010; UNOCHA, 2011). Following the earthquake, the medical metaphor, 'acute on chronic' was employed by Partners in Health to describe the situation in Haiti (HRS, 2011). This conceptualisation also may be applicable to the mental health experiences of many Haitian children. Nevertheless, a perspective based primarily on deficiencies is inadequate, given Haitians' rich cultural traditions and inspirational history. In addition to being inaccurate, 'deficit only' paradigms have historically guided problematic political and aid interventions (IASC, 2007). The great needs facing Haitians call for sustained responses from people across multiple sectors. These responses require carefully researched consideration and implementation to avoid repetition of historical failures, some of which are still occurring. For example,

headlines following the earthquake indicate militarisation of aid and aid intervention that has undermined local economies and benefitted foreign-owned private contractors (James, 2010; Nikhil, 2010; Oxfam, 2005).

We reviewed the understudied topic of 'acute on chronic' situations, specifically in relation to children's mental health. We provide a brief overview of the problems facing Haiti, followed by a framework for understanding the resulting impact on the mental health of children from a dynamic systems and developmental psychology perspective. We also describe a few ways in which this framework could be applied to enhance effective responses post-earthquake.

Extreme poverty compounded by natural disaster

On 12 January 2010, a 7.0 magnitude earthquake struck west of Port-au-Prince, Haiti. An estimated 230 000 lives were lost in the immediate aftermath. The earthquake affected 3 million people and displaced approximately 1.5 million people (RI, 2011; UNOCHA, 2011). Exacerbating this were aftershocks over the course of 12 days, leaving earthquake survivors unable to seek shelter, aid others or search for lost loved ones without further harm. An estimated 300 000 people were injured, many of whom lost limbs. Children who sustained injuries resulting in permanent disability face a lack of health care and a society not well equipped for accessibility or for supporting individuals with disabilities (WHO, 2010).

Tremendous damage and loss occurred at every level of society (UNOCHA, 2011). The impairment of key infrastructure (e.g. utilities, health care) led to the government's incapacity to respond efficiently (RI, 2010). Ninety per cent of schools and homes in Port-au-Prince were destroyed, and millions of Haitians were displaced to temporary camps after the loss of their homes. Camps are not suited to provide long-term shelter, and yet, for many, they have become permanent shelters. Access to food, water and sanitation facilities remains inadequate (MSF, 2011); privacy and security, particularly for women and girls, are insufficient (AI, 2010). In the year following the earthquake, poor security in the camps led to high rates of sexual assault (CRIN, 2011; HRW, 2010). Cholera outbreaks continue to occur throughout Haiti (NPR, 2011), and the hurricane season extended the sense of disaster for thousands. By July 2011, 634 000 still remained in camps, and forced evictions were occurring while a comprehensive resettlement plan was not yet established (CCR, 2011; UNICEF, 2011).

While events following this earthquake were disastrous, Haitians are no strangers to hardship. Long-standing instability existed across multiple domains, contributing to the impact of the earthquake. For instance, 55 per cent of Haitians lived in households below the extreme poverty line of $1 per person per day in 2001. As recently as 2009, 45 per cent of the population lacked access to safe water and 83 per cent of Haiti's total population did not have access to sufficient sanitation. Almost half the population (47%) lacked access to basic health care, and 40 per cent of households experienced food insecurity prior to the earthquake (WHO, 2010).

The 'acute on chronic' phenomenon seen in Haiti and other global contexts requires re-evaluation of the assumptions on which many psychological models are founded. Specifically, given that a 'return to normal' is considered a critical step in trauma recovery, the absence of a safe norm to return to represents an understudied challenge for mental health advocates (Brymer and others, 2006). A review of international research by Patel and Kleinman (2003)

suggests that the relationship between mental illness and chronic stressors such as poverty may actually be cyclical and dynamic, each compounding the effects of the other. To address this issue, Partners in Health provides a model of an organisation delivering physical health care through a system that provides care for individuals while also building long-lasting community-based healthcare infrastructures (Mukherjee and Eustache, 2007). This work has also extended into the domains of mental health care and psychosocial education delivery and research (Fawzi and others, 2012; Raviola and others, 2012). However, questions have emerged specifically regarding children and their psychological needs in these trauma-induced circumstances, which have only recently been identified.

For example, new models for intervention seek to address specific needs of developing children in the context of chaotic environments. The SAFE model of Betancourt and others (2010) provides a framework for addressing children's developmental needs and emphasises attending to: (S)safety/protection, (A)access to health care, and basic physiological needs; (F) family and connection to others; and (E)education, livelihoods and hope for the future. Similarly, the Protective Environment Framework is a model aimed at enhancing protective domains during crisis. These protective domains include government commitment and capacity; legislation and enforcement; open discussion; children's life skills, knowledge and participation; capacity of families and communities; culture and customs; essential services; and monitoring, reporting and oversight (Boothby and Ager, 2010).

Complex interactions affecting children

'Acute on chronic' circumstances have unique impacts on children's mental health (IASC, 2007). Historically, physical needs were commonly identified as most pressing. While providing food, water, security and shelter positively impacts mental health and children, *explicit* consideration of mental health and children's needs have been identified as critical at this initial level of aid as well (Betancourt and others, 2010; Felitti and Anda, 2009; UNICEF, 2010). Models, such as the SAFE model (Betancourt and others, 2010) and The Protective Framework (Landgren, 2005), provide support for management of the complex needs of children in the context of challenging life circumstances; psychological research on child development and other factors influencing child outcomes can bolster these approaches.

Based on principles from psychology, three factors emerge for further consideration: (i) the unique cultural context; (ii) the impact of traumatic, stressful events on children; and (iii) unfolding developmental processes. While additional processes shape the lives of children (e.g. political and economic factors; Boothby and Ager, 2010), the factors presented in this paper impact the psychological state of children in immediate ways.

Furthermore, these are features of experience that are dynamic. Culture changes as customs and belief systems evolve. Child development is inherently transitional, and trauma experiences also act dynamically, reshaping a sense of 'normal' experience (Beauchaine and Hinshaw, 2008; Mash and Barkley, 2003). The transactions between variables become complex and fluid, shaping one another in an interrelated, multi-directional process. The *dynamic* nature of these interactions suggests that because the factors of trauma, childhood and culture are changing over time, the transactions between factors change over time as well (Granic and Hollenstein, 2006; Lewis and Granic, 2000; Sameroff, 2009). This interaction between variables results in a dynamic process that can differ greatly across children. Given the

possibilities that exist in the overlap of these factors, predicting an isolated or consistent outcome based solely on one or two factors becomes futile.

The relationship between trauma, culture and development serve to illustrate this dynamic framework. Research suggests that experiences of trauma or stress impact developmental processes. Similarly, a child's stage of development, or the normative transitions expected for his/her age, informs his/her experience of and response to trauma (Beauchaine and Hinshaw, 2008). As Sameroff (2009) asserts, 'When researchers analyze developmental transitions, they generally make a distinction between normative ones, for example, milestones, and non-normative ones, for example, accidents, societal changes, and historical events' (p. 17). Cultural norms may dictate individuals' and communities' interpretation and response to traumatic events, and culture shapes what expectations are placed on individuals of varying developmental stages. Traumatic events can become the foundation of new cultural phenomena, and children may create new traditions, language and meaning during their culture's evolution (Kira, 2010). Therefore, cultural context, trauma reactions and developmental stages are intricately bound, and their separation, while conceptually convenient, is less realistic. To adapt and attune appropriate responses to this complex reality, a first step involves examination of each of these dynamic factors.

Cultural context

Culture is pervasive, defines societal roles and provides context for values and identity. Kleinman (2004) offers a relevant definition of culture:

> Culture is not a thing; it is a process by which ordinary activities acquire emotional and moral meaning for participants. Cultural processes include the embodiment of meaning in habitus and physiological reactions, the understanding of what is at stake in particular situations, the development of intercultivation of collective and individual identity. (p. 952)

Culture is central to our perspectives on mental well-being, and we cannot assume that Western conceptualisations of health or illness apply to Haitians. Thus, understanding how trauma exposure affects individuals across cultures is critical. Additionally, cultures generate different resilience or vulnerability factors, leading to culturally specific post-trauma outcomes that cannot be foreseen from perspectives outside the culture (Betancourt and others, 2010). Identifying the functional nature of events and behaviours that represent resilience/vulnerability requires research led by locals acting as agents of their own well-being (Poupart and others, 2009; Serafica and Vargas, 2006).

Consider the role of Haitian children in their family units. It is a cultural norm for extended family members to reside together, and research suggests that social support can positively mediate the effects of trauma (Jackson and Warren, 2000). However, as family size increases, other important resources generally become scarce. By the age of eight years, most children in Haiti are working to contribute to their family through tasks such as caring for siblings or assisting with household chores (Schwartz, 2011). Research suggests mastery experiences promote recovery from trauma, and the role of Haitian children as contributors to their family early in their development may promote resilience following adversity. Alternatively, children with more responsibility may experience a heightened sense of guilt for losses incurred by a traumatic event (Kletter and others, 2009), thus implicating this responsibility as a potential risk factor. Outside interventionists and researchers lack the cultural under-

standing to clarify the nature of these relationships, creating the potential for minimising resilience factors or promoting risk factors, which gives rise to the need for culturally driven research methods.

A thorough understanding of the consequences of trauma and the unfolding developmental processes of childhood as experienced in a particular culture remains paramount to the provision of informed aid that avoids undermining survival strategies and phenomena that constitute 'protective factors'. For example, understanding the nature of 'historical trauma', as defined by Brave Heart (2003) as the 'cumulative emotional and psychological wounding, over the lifespan and across generations, emanating from massive group trauma experiences' (p. 7) has been useful in informing community-based research in Native American communities (Goodkind and others, 2012). Paul Farmer's work provides important insights into understanding the historical challenges faced by Haitians (e.g. Farmer, 1994). One's identification with historical trauma may have an impact on her/his resilience processes or vulnerability to other experiences. Thus, a culturally embedded understanding of survivors is essential for understanding the implications of traumatic events and psychological sequelae.

Trauma

Trauma is widely understood as highly disrupting experiences that threaten the well-being of those involved. Research examining the impact of traumatic events on survivors has identified predictors of long-term adjustment patterns that can be organised into pre-trauma, peri-trauma and post-trauma factors. These temporal stages indicate critical periods during which psychological risk or resilience factors interact to shape lasting impact (Masten, 2001).

Pre-trauma factors include individual and environmental resources and characteristics existing prior to a traumatic event. Examples include a history of trauma exposure, ongoing life stressors, coping skills, family environment and genetic influences, and they interact with each other in dynamic ways (Schiraldi, 2000). For example, age and developmental level interact with parental coping to predict a child's level of risk, particularly for younger children who rely more heavily on parental coping strategies.

Peri-trauma factors refer to the nature of the actual traumatic event. Examples of peri-trauma factors include proximity of survivors to an event, how the event affects important areas of a survivor's life, and/or the unpredictable, sudden or ongoing nature of the event (Durand and Barlow, 2006; Pynoos and others, 1987; Schiraldi, 2000). Identified trauma responses of freeze, flight, fight or 'tend and befriend' all offer various opportunities and dilemmas for survivors.

Post-trauma factors include physical, emotional or social supports after the event and treatment for ongoing trauma reactions (Briere, 2004; Kessler, 2000). Children's well-being is especially embedded in the relationship with caregivers, and numerous Haitian children lost caregivers and loved ones in the earthquake (Betancourt and others, 2010). Furthermore, many were injured or incurred permanent disabilities, and countless others were left homeless, without schools or social systems in place to promote safety and well-being. These protracted losses are examples of post-trauma factors that redefine the impact of the trauma experience. Identifying and attending to post-trauma factors that promote better outcomes

can dynamically change the function of trauma for individual children. Post-traumatic growth research suggests that trauma exposure in certain people, particularly when buffered by social support, can actually promote resilience and protective factors that later serve the individual (Pat-Horenczyk and Brom, 2007).

Developmental processes

Development is a continual process involving genetic, environmental and physiological components (Miller, 2011). When triaging psychological needs post-disaster, developmental considerations may include variables such as family context, cognitive functioning or social –emotional skills (Schoenwald and Hoagwood, 2001). Developmental vulnerabilities of children indicate unique mental health needs (for a review of child-specific differences from a developmental perspective, see Mash and Barkley, 2003). Physical size, separation from caretakers and dependence on over-stressed adults represent vulnerabilities faced by children. Additionally, children may make attributional errors due to lack of understanding of the world and others (Mash and Barkley, 2003); they may lack perspective-taking skills required for accurate interpretation of adult behaviour (Perner and Lang, 1999). Even brain functioning can be altered when trauma occurs during sensitive stages of development (Beauchaine and Hinshaw, 2008; Nutt, 2000), and experiences of trauma or stress can impact or delay developmental processes.

Children's symptom expression also varies widely based on developmental factors. As higher order cognitive processing emerges, a child's conceptualisation of the traumatic event may change and, along with it, the expression of symptoms. Furthermore, symptoms can be age-dependent. For example, very young children may develop fears that appear unrelated to the traumatic event (e.g. fear of the dark or of fire) and may experience intense separation anxiety (Perrin and others, 2000); adolescents may demonstrate more difficulty with behaviour problems, school performance or substance abuse. Children may also regress after exposure to trauma and begin to have difficulties with enuresis and encopresis (NCTSN, 2011). Table 1 shows age-related differences in post-traumatic stress symptoms following trauma exposure (www.nctsn.org). Similar difficulties may be seen in Haitian children, although this has not yet been demonstrated empirically.

Children's symptom expression of trauma-related psychopathology often differs from that of adults in a number of key domains (e.g. symptom expression, interaction with developmental processes). People who have experienced trauma are faced with the task of allowing 'the traumatic experience to be accommodated and then assimilated into a restructured understanding of the world and the survivor's place in it' (Mash and Barkley, 2003, p. 347). However, for children exposed to chronic or multiple traumas, their worldview may be based on

Table 1: Post-traumatic stress and development

Preschool	Elementary	Middle/high school
Regression	Lowered academic functioning	Higher cognitive processes (e.g. guilt, shame)
Separation anxiety	Increased somatic complaints	Altered perceptions of self, others, world
Selective mutism	Inconsistent behaviour changes	Externalising behaviours
Oppositional behaviours	Irritability, sadness, frustration	Suicidal/homicidal ideation
Act out trauma in play	May talk about trauma	Changes in academic performance

Taken from National Child Traumatic Stress Network (http://www.nctsn.org).

a foundation shaped by trauma where more 'normative' experiences are then accommodated and assimilated into the trauma-informed framework. Non-threatening stressors could be misinterpreted and previous helping resources (such as peers or caring adults) may be underutilised (Cook and others, 2003; NCTSN, 2011). Furthermore, chronic, severe affect dysregulation is also frequently seen in children exposed to long-term or multiple traumas (van der Kolk, 2005).

Understanding the impact of chronic trauma is pertinent to Haitian children. Children exposed to complex trauma appear to have unique adverse responses compared with those seen in people exposed to a single traumatic event (Cook and others, 2003; Faust and Katchen, 2004; van der Kolk, 2005). One explanation for these complex presentations in children exposed to ongoing trauma is the enduring impact these experiences can have on outcomes such as language, cognition and interpersonal skills (van der Kolk, 2005). If these domains of functioning are impaired by early experiences of trauma, it is likely that these impairments will interact with other developmental processes.

Recommendations for an approach to 'acute on chronic' trauma

Great complexity arises when considering the domains of culture, trauma and development through a dynamic systems framework. Yet, attending to the interactions between culture, the roles of children, and the meaning and nature of specific events when considering how to intervene is critical. Given the Western contexts within which most research on trauma and development has been conducted, it is clear that the field must redefine its typical range of research to contribute to the mental health of children worldwide to promote social justice and scientific accuracy. Additionally, developing community-based delivery systems and modalities that reach more individuals, such as psychosocial support groups and psychoeducation, is critical to meet existing mental health needs. General recommendations and future research directions we believe to be most germane to and adaptable for the post-disaster context in Haiti follow.

Acknowledgement of cultural context

Community-based participatory research (CBPR) provides a model for research and intervention development that is culturally respectful and aims at creating social validity; the goal is development of interventions that fit and work well within the community and context (Francisco and Butterfoss, 2007). CBPR is an embedded research model that accommodates the complexity of culture. It remedies the limitations of studying populations from an outsider's perspective by including active community participation through every step of the research process (e.g. problem identification, intervention development, dissemination, etc.; Isreal, 2000; Wallerstein and Duran, 2003). The basic tenets of CBPR involve cultivating and nurturing relationships with local cultural leaders and stakeholders (Isreal, 2000). Furthermore, in a CBPR approach, particularly in contexts with a history of negative researcher–community relationships, local partners equally or solely 'own' the data that are collected (Burhansstipanov and others, 2005). Intervention development is often the goal of a CBPR approach; however, community collaboration in the research process is the primary impetus for development of the model. Given the aforementioned history of misinformed and sometimes problematic intervention by outsiders following the earthquake in Haiti, one could understand feelings of concern or resentment related to outside influences on research in Haiti. This further supports the need for participatory research and engagement of Haitian stakeholders in

the research process at all stages to prevent any possible abuses or failure to meet community needs. For example, Fawzi and others (2012) provide an example of consideration of cultural and community issues prior to providing psychosocial support to HIV-affected individuals in Haiti, an approach that probably bolstered their intervention's strong success.

Although CBPR is a time- and funding-intensive process, it is imperative to establishing sustainable mental health supports for children in Haitian communities. Recently, with recognition for benefits of this type of research, major U.S. funding bodies have begun developing mechanisms of support that allow for a wider array of research models (NIH, 2012; NIMH, 2012). However, further research and funding are needed to make systematic and structural changes to support responsiveness to disaster events.

Trauma: two targets for consideration

According to the developmental psychopathology perspective (for application of this perspective to childhood disorders, see Mash and Barkley, 2003), psychological approaches to intervention and prevention generally seek to (i) reduce psychological risk and (ii) enhance resilience/protective factors. Most international disaster aid focuses on immediate demands of risk reduction: providing food and shelter and relocating children to safer places or attending to special vulnerable populations (Boothby and Ager, 2010). This serves to reduce future physical risks, such as abuse or failure to meet basic needs for some. However, this work is often done without considering the impact on resilience factors, such as one's ability to recover from trauma independent of intervention. For example, food donated to Haiti post-earthquake may have met a measured need in the short-term, but it also undermined the local economy by bringing in foreign-grown food rather than using resources to bolster local Haitian farmers (Bell and Field, 2010). Similarly, overlooking information about trauma reactions, psychological risk and resilience factors during aid efforts may undermine survivors' existing capacity to meet essential needs (Masten, 2001). To fully meet basic physiological needs, interventions must address the significant impact of psychological responses to trauma in the lives of children and incorporate consideration of both risk and resilience factors before implementing impactful actions.

Reduction in psychological risk

Cultural- and developmental-specific risks are important to identify in dynamic approaches to reduction in risk for further stress. For example, among many Caribbean families, multigenerational living arrangements are the norm, and children are accustomed to being cared for by numerous people. In fact, 'child shifting' or informal adoptions may be arranged so as to ensure better prospects for the child's future (Roopnarine and others, 2005); this practice may be one that fosters resilience in Haitian children following disasters such as the earthquake. As Roopnarine and others (2005) point out, societies such as this, which emphasise interdependence, often condone practices such as co-sleeping, informal feeding routines and permeable family boundaries. Child-rearing practices such as these may be seen as variations from those advocated by Western psychologists and paediatricians, but they may provide a foundation for the protection of children following the inevitable disruptions brought on by the earthquake in Haiti. Children and caretakers of children develop survival strategies that only they could imagine, given the embedded nature of their challenges (Betancourt and others, 2010). Developing awareness of these positive survival strategies would be a prerequisite for supporting risk reduction and could be a key objective of CBPR research.

Identifying unique risks associated with age- and culture-specific trauma reactions is primary; responses tailored to risk reduction can then follow. Determination of the level of impairment associated with the traumatic event also is central to assess the appropriateness of a particular intervention for children. For example, some children display hypervigilance after trauma exposure, which may influence responses to cues long after the threat is over; impaired concentration and difficulties with peers may then develop as risk factors. Early interventions that teach self-regulatory skills may relieve the stress response related to the common symptom of re-experiencing trauma (Mash and Barkley, 2006). In contrast, for some children, a slightly elevated level of hypervigilance may not be impairing and might actually promote safety in uncertain environments. In summary, considering risk factors across domains leads to tailored responses, thus accounting for the dynamic nature of trauma reactions in children.

Enhancement of resilience and protective factors

In addition to risk factors are resilience factors, which can be directly targeted for enhancement. Psychologists are uniquely positioned to assist in assessing and fostering community-specific plans for increasing resilience. Specifically, psychologists may aid in identifying and advocating for social systems that foster healthy development, including the development of infrastructure to this end. In addition, psychologists could help identify and advocate for effective cultural and faith-oriented practices and organisations. Research in innovative treatment approaches for non-Westernised youth, such as those based on oral traditions involving historical narratives, may provide a source of healing for survivors as well as a model of resilience for communities (e.g. Lustig and others, 2004; Neuner and others, 2008).

Furthermore, prioritising support for caretakers of Haitian youth is a critical component of any intervention. Effective management of caretakers' needs can promote healthy attachments and development, which are key elements of resilience. Notably, research in the area of 'post-trauma growth' has found that youth who have a present and positive social support system, and are provided opportunities for self-expression, imagination and play, are more likely to develop appropriate emotion regulation skills, feelings of self-efficacy and compassion (Tedeschi and Calhoun, 2004). Therefore, traditional aid efforts must identify and enhance existing resilience factors while avoiding undermining these through strategies intended to reduce risk.

Developmental processes and interdisciplinary dialogue

Developmental psychology has provided models of normative processes and immediate and long-term needs, which evolve as children develop, as well as assessment and diagnosis tools useful for designing interventions for children of different ages. Cross-disciplinary efforts are needed to uncover the interaction between developmental processes and the changing environment. Many tools, such as CBPR, provide insight into these dynamic processes and assist in the advancement of developmentally appropriate interventions. With the emergence of new statistical modelling techniques (Kline, 1998; Little, 1997), longitudinal, developmental processes can be identified while also considering cross-cultural differences. The interaction of pre-, peri-, and post-trauma factors and cultural variables of relevance can be assessed jointly in one analysis. Researchers and interventionists are called on to engage the standard of the tools available when tackling complications, such as 'acute on chronic' trauma exposure, related to child development.

Reflections and recommendations

Appropriate responses to 'acute on chronic' mental health dilemmas are better supported by the assumption that trauma, culture and development factors are critical to attend to and function dynamically. CBPR provides one model for collaborating across cultures on interventions embedded in specific contexts, and other models exist that can accommodate the complexity of the situation in Haiti and respect the primacy of locals in the recovery process. Implementation of these frameworks would be aided by culturally guided understanding of trauma responses and developmental norms, thus revealing the most effective foundation for interventions to meet the needs of children. The ideas highlighted herein are examples of dynamic models within trauma and developmental research such as the pre-trauma, peri-trauma and post trauma-framework, the interactions of risk and protective factors, and the unique developmental stages in children and their subsequent idiosyncratic reactions to trauma.

In summary, attending to dynamic models of factors such as development, trauma and culture when addressing 'acute on chronic' situations in Haiti and in other global contexts involves challenging our Western psychological training, research and clinical institutions, and the development of new incentives to motivate these changes. To develop comprehensive responses to complex dilemmas, increased contributions by psychologists to global mental health issues are needed, emphasising cross-cultural research as a prominent strategy. Trained mental health providers, evidence-based interventions and accessible public psychoeducation are resources that remain lacking in high-risk 'acute on chronic' situations such as that in Haiti. Again, CBPR offers one possible framework for conducting sound research on developmental issues specific to children who have encountered traumatic experiences, while prioritising knowledge and leadership from community stakeholders. Given the chronic nature of trauma faced by many children following natural disasters, such research and collaboration are critical to the task of effectively addressing their ongoing mental health needs.

References

Amnesty International (AI). 2010. Haiti's emergency response must include protection from sexual violence. http://www.amnesty.org/en/news-and-updates/haitis-emergency-response-must-include-protection-sexual-violence-2010-03-25 [Accessed 18 October, 2012].

Beauchaine T, Hinshaw SP (eds.). 2008. *Child and Adolescent Psychopathology*. Wiley: New York.

Bell B, Field T. 2010. "Miami Rice": The business of disaster in Haiti. http://www.global-sisterhood-network.org/content/view/2526/59/ [Accessed 18 October, 2011].

Betancourt TS, Fawzib MKS, Bruderleinc C, Desmondd C, Kime JY. 2010. Children affected by HIV/AIDS: SAFE, a model for promoting their security, health, and development. *Psychology, Health & Medicine* **15**: 243–265.

Boothby N, Ager A. 2010. Promoting a protective environment for children affected by disaster and war. In *A Child's Right to a Healthy Environment*. Garbarino J, Sigman G (eds.). Springer: New York; 105–121.

Brave Heart MYH. 2003. The historical trauma response among natives and its relationship with substance abuse: a Lakota illustration. *Journal of Psychoactive Drugs* **35**: 7–13.

Briere J. 2004. *Psychological Assessment of Adult Posttraumatic States: Phenomenology, Diagnosis, and Measurement*. American Psychological Association: Washington, DC.

Brymer M, Layne C, Jacobs A, Pynoos R, Ruzek J, Steinberg A. 2006. *Psychological first aid field operations guide*. Los Angeles: National Child Traumatic Stress Network and National Center for PTSD.

Burhansstipanov L, Christopher S, Schumacher A. 2005. Lessons learned from community-based participatory research in Indian Country. *Cancer Control* **12**: 70–76.

Center for Constitutional Rights (CCR). 2011. Hundreds of displaced families face violence and threats of unlawful eviction in the Carrefour neighborhood of Port-au-Prince. http://ccrjustice.org/hundreds-of-displaced-families-face-violence-and-threats-of-unlawful-eviction-carrefour-neighborhood [Accessed 18 October, 2012].

Child Rights Information Network (CRIN). 2011. Sexual violence against women in Haiti. http://www.crin.org/resources/infodetail.asp?id=23777 [Accessed 18 October, 2012]

Cook A, Blaustein M, Spinazzola J, van der Kolk B. 2003. Complex trauma in children and adolescents (White paper from the National Child Traumatic Stress Network Complex Trauma Task Force). National Center for Child Traumatic Stress: Los Angeles.

Durand VM, Barlow DH. 2006. Anxiety disorders. In *Essentials of Abnormal Psychology*. Taflinger M (ed.). Thomas Wadsworth: Belmont, CA; 155–161.

Farmer P. 1994. *The Uses of Haiti*. Common Courage Press: Monroe, ME.

Faust J, Katchen LB. 2004. Treatment of children with complicated posttraumatic stress reactions. *Psychotherapy: Theory, Research, Practice, Training* **41**: 426–437.

Fawzi MS, Eustache E, Oswald C, Louis E, Surkan , PJ , Scanlan F, Hook , S , Mancuso A, Mukherjee I. 2012. Psychosocial support intervention for HIV-affected families in Haiti: implications for programs and policies for orphans and vulnerable children. *Social Science & Medicine* **74**: 1494–1503.

Felitti VJ, Anda RF. 2009. The relationship of adverse childhood experiences to adult medical disease, psychiatric disorders, and sexual behavior: implications for healthcare. In *The Hidden Epidemic: The Impact of Early Life Trauma on Health and Disease*. Lanius R, Vermetten E (eds.). Cambridge University Press. http://www.acestudy.org [Accessed 15 May 2012]

Francisco VT, Butterfoss FD. 2007. Social validation of goals, procedures, and effects in public health. *Health Promotion Practice* **8**: 128–133.

Goodkind J, LaNoue M, Lee C, Freeland L, Freund R. 2012. Feasibility, acceptability, and initial findings from a community-based cultural mental health intervention for American Indian youth and their families. *Journal of Community Psychology* **40**: 381–405.

Granic I, Hollenstein T. 2006. A survey of dynamics systems methods for developmental psychopathology. In *Developmental Psychopathology, Vol. 3: Risk, Disorder, and Adaptation*, 2nd edn. Cicchetti D, Cohen DJ (eds.). Wiley: New York; 317–357.

Haiti Resilience System (HRS). 2011. Paul Farmer at Harvard: Quake opens road to transforming Haiti. http://www.haitiresiliencesystem.org/node/91 [Accessed 18 October, 2012].

Human Rights Watch (HRW). 2010. UN Security Council: Better shelter, security needed for Haiti victims. http://www.hrw.org/news/2010/02/19/un-security-council-better-shelter-security-needed-haiti-victims [Accessed 18 October, 2012].

Inter-Agency Standing Committee (IASC). 2007. *IASC Guidelines on Mental Health and Psychosocial Support in Emergency Settings*. IASC: Geneva.

Isreal BA. 2000. Community-based participatory research: principles, rationale and policy recommendations. O'Fallon LR, Tyson FL, & Dearry A. (eds.). *Successful Models of Community-Based Participatory Research*. National Institute of Environmental Health Sciences: Washington, DC; 16–22.

Jackson Y, Warren J. 2000. Appraisal, social support, and life events: predicting outcome behavior in school-age children. *Child Development* **71**: 1441–1457.

James E. 2010. *Democratic Insecurities: Violence, Trauma, and Intervention in Haiti*. University of California Press: Berkeley.

Kessler RC. 2000. Posttraumatic stress disorder: the burden to the individual and to society. *Journal of Clinical Psychiatry* **61**: 4–12.

Kira IA. 2010. Etiology and treatment of post-cumulative traumatic stress disorders in different cultures. *Traumatology* **16**: 128–141.

Kleinman A. 2004. Culture and depression. *New England Journal of Medicine* **351**: 951–953.

Kletter H, Weems CF, Carrion VG. 2009. Guilt and posttraumatic stress symptoms in child victims of interpersonal violence. *Clinical Child Psychology and Psychiatry* **14**: 71–84.

Kline RB. 1998. *Principles and Practice of Structural Equation Modeling*. Guilford Press: New York.

van der Kolk BA. 2005. Developmental trauma disorder: towards a rational diagnosis for children with complex trauma histories. *Psychiatric Annals* **35**: 401–408.

Landgren K. 2005. The protective environment: development support for child protection. *Human Rights Quarterly* **27**: 214–248.
Lewis MD, Granic I (eds.). 2000. *Emotion, Development, and Self-Organization: Dynamic Systems Approaches to Emotional Development*. Cambridge University Press: New York.
Little TD. 1997. Mean and covariance structures (MACS) analyses of cross-cultural data: practical and theoretical issues. *Multivariate Behavioral Research* **32**: 53–76.
Lustig S, Weine S, Saxe G, Beardslee W. 2004. Testimonial psychotherapy for adolescent refugees: a case series. *Transcultural Psychiatry* **41**: 31–45.
Mash EJ, Barkley RA (eds.). 2003. *Child Psychopathology*, 2nd edn. Guilford Press: New York.
Mash EJ, Barkley RA (eds.). 2006. *Treatment of Childhood Disorders*, 3rd edn. Guilford Press: New York.
Masten AS. 2001. Ordinary magic: resilience processes in development. *American Psychologist* **56**: 227–228.
Medecins Sans Frintieres (MSF). 2011. Frontline: One year after the Haiti earthquake. http://www.msf.org/msf/articles/2011/02/frontline-one-year-after-the-haiti-earthquake.cfm [Accessed 18 October, 2012].
Miller PH. 2011. *Theories of Developmental Psychology*. Worth: New York.
Mukherjee JS, Eustache FRE. 2007. Community health workers as a cornerstone for integrating HIV and primary healthcare. *AIDS Care* **19**: 73–82.
National Child Traumatic Stress Network (NCTSN). 2011. www.nctsn.org [Accessed 15 July, 2011].
National Institutes of Health (NIH). 2012. Dissemination and Implementation Research in Health (R01). http://grants.nih.gov/grants/guide/pa-files/PAR-10-038.html [Accessed 5 June 2012].
National Institutes of Mental Health (NIMH). 2012. Dissemination and Implementation Research in Health (R01). http://grants.nih.gov/grants/guide/pa-files/PAR-10-040.html [Accessed 5 June 2012].
National Public Radio (NPR). 2011. As cholera surges in Haiti, aid withers away. http://www.npr.org/blogs/health/2011/07/15/138161193/as-cholera-surges-in-haiti-aid-withers-away [Accessed 18 October, 2012]
Nikhil A. 2010. Ghosts threaten to return to Haiti. In *Foreign Policy in Focus*. http://www.fpif.org/articles/ghosts_threaten_to_return_to_haiti [Accessed 18 October, 2012].
Nutt DJ. 2000. The psychobiology of posttraumatic stress disorder. *Journal of Clinical Psychiatry* **61**: 24–29.
Neuner F, Catani C, Ruf M, Schauer E, Schauer M, Elbert T. 2008. Narrative Exposure Therapy for the treatment of child and adolescent war victims: from neurobiology to field intervention. *Children and Child and Adolescent Psychiatric Clinics of North America* **17**: 641–664.
Oxfam. 2005. Kicking down the door: Oxfam briefing paper 72. http://www.fao.org/monitoringprogress/docs/WTO_2005.pdf [Accessed 18 October, 2012].
Patel V, Kleinman A. 2003. Poverty and common mental disorders in developing countries. *WHO Bulletin* **81**: 609–615.
Pat-Horenczyk R, Brom D. 2007. The multiple faces of post-traumatic growth. *Applied Psychology: An International Review* **56**: 379–385.
Perner J, Lang B. 1999. Development of theory of mind and executive control. *Trends in Cognitive Sciences* **3**: 337–344.
Perrin S, Smith P, Yule W. 2000. Practitioner review: the assessment of post-traumatic stress disorder in children and adolescents. *Journal of Child Psychology and Psychiatry* **413**: 277–289.
Poupart J, Baker L, Red Horse J. 2009. Research with American Indian communities: the value of authentic partnerships. *Children and Youth Services Review* **31**: 1180–1186.
Pynoos RS, Frederick C, Nader K, Arroyo W, Steinberg A, Eth S, Nunez F, Fairbanks L. 1987. Life threat and posttraumatic stress in school-age children. *Archives of General Psychiatry* **44**: 1057–1063.
Raviola G, Eustache E, Oswald C, Belkin GS. 2012. Mental health response in Haiti in the aftermath of the 2010 earthquake: a case study for building long-term solutions. *Harvard Review of Psychiatry* **20**: 68–77.
Refugees International (RI). 2010. Haiti: from the ground up. http://refugeesinternational.org/sites/default/files/030210_haiti_groundup.pdf [Accessed 18 October, 2012].

Refugees International (RI). 2011. Haiti. http://refugeesinternational.org/where-we-work/%252Fhaiti [Accessed 18 October, 2012].

Roopnarine JL, Bynoe P, Singh R, Simon R. 2005. Caribbean families in English-speaking countries. In *Families in Global Perspective*. Roopnarine JL, Gielen UP (eds.). Pearson: Boston, MA; 311–329.

Sameroff A. 2009. The transactional model. In *The Transactional Model of Development: How Children and Contexts Shape Each Other*. Sameroff A (ed.). American Psychological Association: Washington, DC; 3–21.

Schiraldi GR. 2000. *The Post-Traumatic Stress Disorder Sourcebook: A Guide to Healing, Recovery, and Growth*. Lowell House: Los Angeles, CA.

Schoenwald SK, Hoagwood K. 2001. Effectiveness and dissemination research: their mutual roles in improving mental health services for children and adolescents. *Emotional & Behavioral Disorders in Youth* **2**: 18–20.

Schwartz T. 2011. Haiti. http://www.everyculture.com/Ge-It/Haiti.html [Accessed 15 March 2010].

Serafica FC, Vargas LA. 2006. Cultural diversity in the development of child psychopathology. In *Developmental Psychopathology 1: Theory and Method*. Cicchetti D, Cohen DJ (eds.). Wiley: New York; 588–626.

Tedeschi RG, Calhoun LG. 2004. Target article: Posttraumatic growth: conceptual foundations and empirical evidence. *Psychological Inquiry* **15**: 1–18.

UNICEF. 2010. Convention on the rights of the child. http://www.unicef.org/crc/ [Accessed 18 October, 2012].

UNICEF. 2011. UNICEF Haiti monthly report: July - August 2011. http://www.unicefusa.org/work/emergencies/Haiti/UNICEF-Haiti-Monthly-Report-July-Aug2011_opt.pdf [Accessed 15 July, 2011].

UNOCHA. 2011. Haiti: one year later http://www.unocha.org/issues-in-depth/haiti-one-year-later [Accessed 18 October, 2012].

Wallerstein N, Duran B. 2003. The conceptual, historical and practical roots of community based participatory research and related participatory traditions. In *Community Based Participatory Research for Health*. Minkler M, Wallerstein N (eds.). Jossey Bass: San Francisco; 27–52.

World Health Organization (WHO). 2010. *Public Health Risk Assessment and Interventions. Earthquake: Haiti.* http://www.who.int/diseasecontrol_emergencies/publications/who_hse_gar_dce_2010_1/en/index.html [Accessed March 2010].

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