

## Review

# The pathways between natural disasters and violence against children: a systematic review

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### ABSTRACT

Natural disasters are increasingly affecting a larger segment of the world's population. These highly disruptive events have the potential to produce negative changes in social dynamics and the environment which increase violence against children. We do not currently have a comprehensive understanding of how natural disasters lead to violence against children despite the growing threat to human populations and the importance of violence as a public health issue. The mapping of pathways to violence is critical in designing targeted and evidence-based prevention services for children. We systematically reviewed peer-reviewed articles and grey literature to document the pathways between natural disasters and violence against children and to suggest how this information could be used in the design of future programming. We searched 15 bibliographic databases and six grey literature repositories from the earliest date of publication to May 16, 2018. In addition, we solicited grey literature from humanitarian agencies globally that implement child-focused programming after natural disasters. Peer-reviewed articles and grey literature that presented original quantitative or qualitative evidence on how natural disasters led to violence against children were included. The authors synthesized the evidence narratively and used thematic analysis with a constant comparative method to articulate pathways to violence.

**Keywords:** Natural Disasters; Disaster Preparedness; Disaster Management; Post-Disaster Therapy; Child Security; Disaster Prevention; Civic Education.

## 1. Introduction

Natural disasters are increasingly affecting a larger segment of the world's population due to climate change and patterns of human settlement<sup>[1]</sup>. In 2017, the Centre for Research on the

Epidemiology of Disasters (CRED) estimated that natural disasters affected 96 million people, and the United Nations Children's Fund (UNICEF) estimated that natural disasters and other forms of disasters affected approximately 350 million children<sup>[2-10]</sup>. Displacement can be considered an

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indication of extreme exposure to a disaster event. Between 2008 to 2016, an average of 25.3 million people were displaced by natural disasters each year, and although predictions vary, it is estimated that by 2050 extreme weather events will result in forced displacement of over 200 million people<sup>[11-15]</sup>. The International Displacement Monitoring Centre (IDMC) estimates that natural disasters caused 18.8 million new displacements in 2017, while armed conflict led to 11.8 million new displacements.

Children are considered a priority population in humanitarian response because of their vulnerability to experiencing violence after natural disasters. Natural disasters can disrupt services and societal structures, displace populations, and lead to an increased likelihood of trauma, all of which have been associated with violence in past studies. Children may be separated from caregivers or orphaned, leaving them with reduced protection from abuse. In other instances, children may face new vulnerabilities to violence within the home, as their caregivers cope with stressful changes in their environment and threats to their economic stability. Despite a growing number of children affected globally and the implications for public health and development, current understanding is limited as to the full scope of how the social and environmental changes produced by natural disasters may lead to violence against children.

Natural disasters occupy an equivalent status to armed conflict within humanitarian response frameworks and scholarship, and service providers currently implement child protection programming with similar structures, timing, and target populations under a theoretical assumption that natural disasters and armed conflict produce identical manifestations of violence against children<sup>[16-19]</sup>. Structural elements and the affected population's interpretation of the events may be distinct, however, and as a result, the pathways to violence against children may differ. One of the few studies that modeled family violence among

those affected by the Sri Lankan civil war and the 2004 Indian Ocean Tsunami together found that war exposure predicted violence against children ( $\beta = 0.34, p < 0.001$ ), while tsunami exposure acted in the reverse ( $\beta = -0.16, p < 0.01$ )<sup>[20]</sup>. During conflict, the presence of armed actors poses a direct risk for violence which often does not exist in the same manner during natural disasters. Communities and individuals, furthermore, can prepare for certain types of natural disasters, such as typhoons or flooding, that reoccur annually. Indigenous coping mechanisms for managing food supplies and providing social support may reduce the negative impact on human populations. While armed conflict may erode a sense of trust in one's community and society, a growing body of psychological and sociological research suggests that natural disasters can improve functioning within families and lead to greater sense of community cohesion and altruism. Spatial temporal analysis in Chile, for instance, found that social cohesion on the community level increased after large-scale earthquakes and faded overtime as conditions normalized<sup>[21-33]</sup>. The differential meanings that affected populations ascribe to natural disasters and armed conflicts seem to influence reactions. As a 2014 psychological study on risk judgement illustrates, when people perceive the cause of something as "natural", they are less likely to judge it as severely as a disaster caused by man. In other words, people respond more negatively to armed conflict than natural disasters, because they perceive natural disasters as outside of human control. This trend is further corroborated in a large-scale review which found that survivors of armed conflict and terrorism had worse mental health outcomes than survivors of natural disasters in samples from 29 countries over two decades. Negative perception and accompanying poor mental health responses may relate to an increased risk of violence against children, as indicated in past studies. Greater scholarship on natural disasters and violence against children is needed to begin to decipher potential differences and build child

protective services that are specific to natural disasters.

Increasing our understanding of the pathways between natural disasters and violence against children is essential in designing effective violence prevention programs. Service providers have a mandate to provide evidence-based services to prevent any unforeseen harm to children. Identifying the junctures at which one can intervene and the mechanisms by which violence occurs facilitates better tailoring of protection programming. A robust evidence base from stable settings provides helpful insight on factors that can lead to violence against children; however, pathways to violence after natural disasters are less well understood. Elsewhere, we conducted a meta-analysis which showed that there is inconclusive evidence of a direct association between natural disasters and violence against children, but noted that more nuanced research was needed to disentangle pathways to violence. This paper provides a systematic review of peer-reviewed and grey literature to deepen the understanding of the pathways between natural disasters and violence against children and to suggest how this information can be used in the design of future programming.

## **2. Methods**

We operationalized the definition of children as people under 18 years of age and physical, emotional, and sexual violence by applying definitions utilized in UNICEF's *Hidden in Plain Sight* report (refer to Table 1). Violence prevention falls within the field of child protection, which additionally includes broader issues of neglect and exploitation. These aspects of child protection were not included in this review. Natural disasters were defined as environmental hazards without a direct human cause, as per the conventions of disaster response. We recognize, however, that natural disasters may be spurred by human activities or have distal roots in man-made alterations of the physical environment. We included both slow and sudden-onset natural disasters in this

review.

In Ethiopia, the most serious floods reoccurred in May 1968, August 1994 and May 2005, causing significant damage estimated to be US\$93 512m, and affecting the lives of about 3.5 million people (OFDA/CRED Centre for Research on the Epidemiology of Disasters Emergency Events Database 2002). From 2004 to 2006, flooding afflicted several areas of eastern and southern Ethiopia, Somalia and Kenya, killing and displacing hundreds of people. The Shabelle and Juba rivers in the region have flooded their banks, affecting towns and villages in an area stretching across hundreds of kilometres during floods. Floods in the Horn of Africa normally follow the June–September rainy season in most years. According to one United Nations (UN) report, the 2006 floods, which followed droughts in 2005, affected 1.8 million people and were the worst in the region in the last 50 years (ICSU 2007). Disasters have affected the lives of people on the African continent, including damage to schooling infrastructure, meaning that some children's education gets delayed while the schools are being fixed and this takes up expense from the country's economy.

We searched 15 bibliographic databases and six grey literature repositories from the earliest date of publication to May 16, 2018 (refer to Additional file 1). All searches were restricted to the English language and included all geographic regions. The search strategy applied terms related to three thematic areas: children, natural disasters, and violence (refer to Additional file 2). The search terms were adapted from vocabulary used in previous systematic reviews of children and physical, emotional, and sexual violence and from the national disaster classification categories listed in the Emergency Events Database. Grey literature in the humanitarian field tends to take the form of reports based upon rapid needs assessments, regular monitoring of programmatic activities, and evaluations of gaps in service provision. We included any reports, assessments, or evaluations uploaded to the grey literature repositories in initial searches. We solicited additional grey literature from 12 experts within agencies that lead the

global child protection response in humanitarian contexts. Focal points whose area of work includes child protection from UNICEF, United Nations High Commissioner for Refugees (UNHCR), International Organization for Migration (IOM), United Nations Population Fund (UNFPA), and International Federation of Red Cross and Red Crescent Societies (IFRC) were contacted. UNICEF focal points, in turn, solicited recommendations for literature from all Child Protection Coordinators and Information Management Officers (IMOs) worldwide. The Child Protection Area of Responsibility (CPAoR)—the global coordination body for child protection in humanitarian contexts led by UNICEF—and IFRC provided supplemental grey literature materials which were not uploaded onto online repositories.

We used the Critical Appraisal Skills Programme’s Qualitative Research Checklist and the National Institute of Health Quality Assessment Tools for Cohort and Cross-sectional and Case-Control Study Designs as means of critical comparison (refer to Additional file 3). In the case of mixed-methods studies, we evaluated the qualitative and quantitative components separately. We positively scored the appropriateness of the article or report’s methodology if it matched at least one of its outlined aims and objectives. The final question in the Critical Appraisal checklist is a subjective determination of value. We rated value based on the article or report’s provision of nuanced information and practical recommendations for stakeholders. The research team used these tools in comparing quality, rather than in inclusion and exclusion decisions, which is in-line with the Cochrane Handbook’s guidance for systematic reviews.

### 3. Results

We identified a total of 1045 unique peer-reviewed articles and 5231 grey literature publications (refer to Fig. 1). Nine peer-reviewed articles and 17 grey literature publications matched the criteria for inclusion. Amongst the peer-reviewed articles, five of the nine studies utilized qualitative methods, three applied quantitative methods, and one study

used both qualitative and quantitative methods. All grey literature used qualitative methodologies.

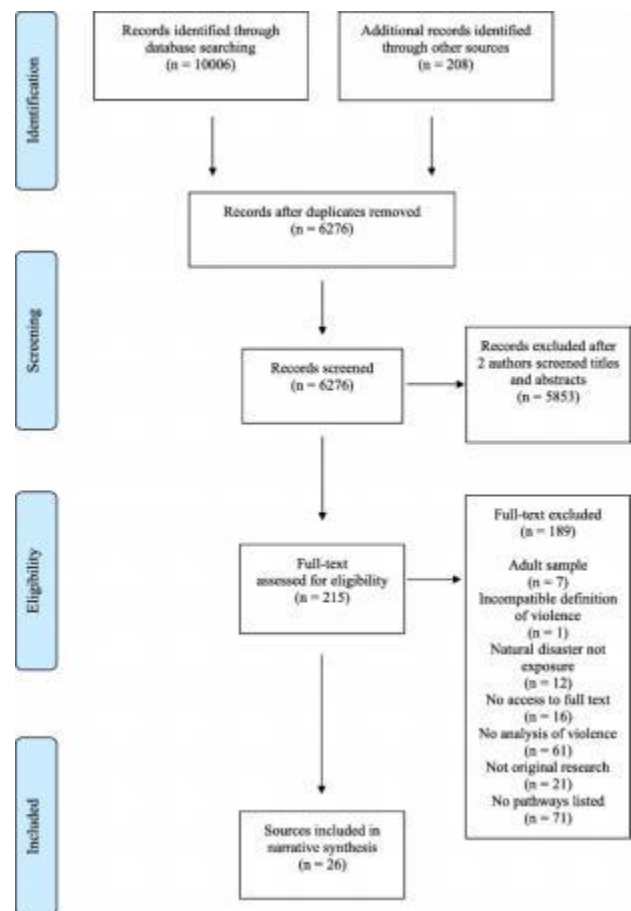


Figure 1: PRISMA flowchart of included sources

### 4. Discussion

We identified multiple pathways between natural disasters and violence against children. Each pathway presents a meaningful juncture to intervene in preventing violence. It is promising that many interventions already exist that can be implemented or adapted, and the expertise and operational structure do not need to be built anew; for example: SASA! for norms change, Parents Make the Difference for positive parenting, and Cure Violence for creating safe environments, to name a few. In addition, global guidance, as outlined in the Minimum Standards for Child Protection in Humanitarian Action (CPMS) and the World Health Organization’s (WHO) INSPIRE: Seven Strategies for Ending Violence against Children, provide standards that should be met in building key components of interventions. Service providers would benefit from linking programmatic

activities to pathway structures and ensuring robust coordination across agencies to address all possible paths to violence. As an example, cash transfers for families via male caregivers may alleviate economic stress but may also increase violence against children without changing gender norms that stigmatize men for not being able to provide for their families economically. Another concurrent pathway may lead to violence by way of negative coping with stress. Interventions to prevent violence against children in this instance would therefore need to be multi-pronged and change community norms, provide psychosocial support, and reduce problematic substance use to be effective. Alternative provision of cash transfers to female caregivers would still likely lead to violence against children without intervening on normative gender roles with their male partners and providing psychosocial support and parenting interventions for women. Overall, identification of the underlying pathways to violence against children aids in making decisions about programmatic structure more intentional and targeted.

Economic stress and negative coping with stress were identified as two important pathways to violence against children in this review. It is unclear if investment should be equal across all pathways, however, and further research should compare the relative importance of these pathways across natural disaster contexts. It is likely that many pathways are still unknown and should be identified to improve the effectiveness of programmatic design. Pathways to violence may likewise differ by violence type. The majority of studies captured information on sexual violence which is unexpected, given that physical and emotional violence against children are often more prominent measures in the field of child protection. Comprehensive mapping is needed to decipher how pathways may differ for each specific form of violence. Furthermore, this review indicated that pathways between natural disasters and violence against children are indirect. An analysis of the effect of natural disasters on violence, therefore, may mask the underlying relationship without taking mediating factors into account. Future evidence production would benefit from measuring co-occurring factors

and accounting for the timing of each element on the pathway between a natural disaster event and violence against children.

Nuanced information on pathways is key in understanding how natural disasters lead to violence against children. The evidence base needs greater documentation of how violence differs across settings, by natural disasters type, and in instances where concurrent man-made disasters exist [35]. These differences likely have major implications for violence outcomes. Larger questions remain about whether armed conflict and natural disasters share all pathways to violence. This review did not identify radically different mechanisms. The single study from Sri Lanka that directly compared exposure types, however, found that natural disasters reduced levels of physical and emotional violence in households, whereas armed conflict increased these forms of violence [20]. Several grey literature sources in this review further highlighted that families and communities exhibited protective behaviors after natural disasters which respondents attributed to reductions in violence [61, 64, 66, 68]. Although tentative, the evidence suggests that violence against children may not always increase after natural disasters; that armed conflict and natural disasters may act differently to produce different violence patterns; and that certain positive coping behaviors may successfully moderate or prevent violence after natural disasters [50]. Greater research is needed, therefore, to identify why differences may exist and which factors support the development of protective behaviors. Moreover, given the overarching evidence in this review that multiple pathways to violence exist after a natural disaster event, a better understanding of attributes and behaviors that prevent violence is paramount. In particular, the current body of academic research could benefit from a more comprehensive approach in documenting which indigenous strategies have been successfully implemented after natural disasters. Academic research should capture information on individual strengths and protective behaviors, rather than solely factors that increase vulnerabilities to violence. Furthermore, pathways to violence may differ between developed

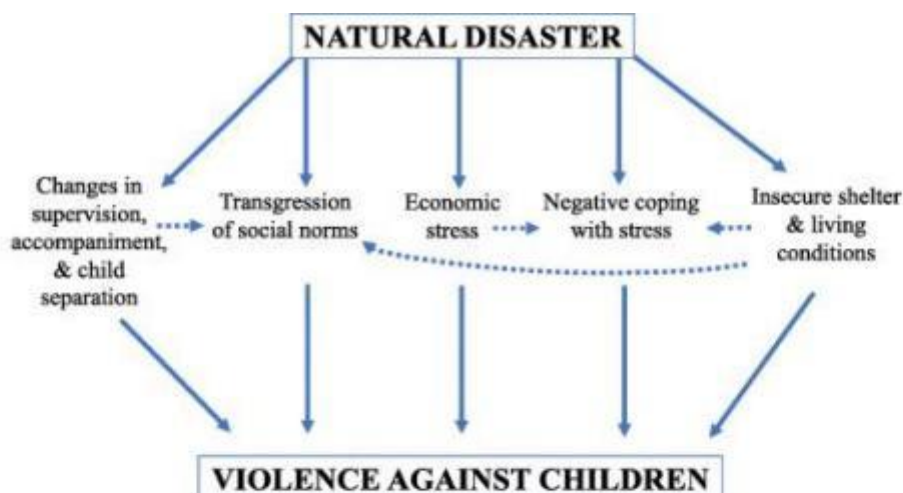
and developing countries. A 20-year study of mental health after natural disasters found that people in developing countries fared far worse than those in developed countries. The authors' suggested that individuals have negative mental health outcomes when they knew that they could not access social services. The implication is that individuals living in developing countries are potentially at greater risk of committing violence against children after natural disasters, given worse mental health indicators on the individual level, but also, are at higher risk because social safety nets and systems of protection are often not robust.

The impact of natural disasters is likely uneven across populations. Gender is an important axis of difference which was not thoroughly explored in the peer-reviewed articles and grey literature. Girls and boys experience sexual violence at different levels in stable settings, and this dynamic may be reflected in natural disasters. Past research has found that people with lower education and minority populations receive less social support in disaster recovery, which impacts the ability to cope with an overwhelming situation. Although not a direct measurement, a recent longitudinal study from the United States confirmed that particularly African Americans and Hispanics, individuals with lower levels of education, and those who did not own homes were less likely to recover economically from natural disasters, and in fact, natural disasters entrenched wealth inequalities further. Considering the clustering and intersectionality of poverty, limited educational opportunities, and race and ethnicity, it is probable that natural disasters compound already existent vulnerabilities in specific groups.

Our understanding of pathways between natural disasters and violence against children hinges upon the quality of humanitarian evidence gathering and reporting. Much of the information in this review, particularly within the qualitative studies and grey literature, did not present information in a standardized or comprehensive manner, which hinders cross comparison and meaningful interpretation. Greater documentation of methods is needed to enable the

reader to understand how the data was collected and assess the accuracy of the author's description of pathways. In both qualitative and quantitative studies, the study population should correspond with the research question. The literature base would benefit from interrogating which segment of the overall population of children is represented in each study and its appropriateness; how these choices lead to identification of different pathways to violence; and which biases exist in reporting information, given the positionality and identity of data collectors in relation to the affected population and the authors' approach in synthesizing information.

Despite the limitations of the existing literature, it is possible to draw a tentative mapping of the likely pathways to violence and possible points of intervention that service providers should consider when designing their programming. The mapping outlined presents a starting point in identifying viable points for intervention and creating programmatic structures to prevent violence against children (refer to Fig. 2).



Changes in supervision, accompaniment, & child separation	Transgression of social norms	Economic stress	Negative coping with stress	Insecure shelter & living conditions
Community sensitization & risk reduction training (i.e. importance of mixed-gender water & firewood collection)	Menstrual hygiene management kit distribution for violence prevention	Cash transfer & livelihoods programming	Psychosocial support	Shelter engagement on policies for the number & composition of temporary housing units
Risk mapping & adaptation of security planning	Shelter & WASH engagement on gender-segregated sleeping & bathing in temporary housing	Gender-sensitive, psychosocial support to adult male caregivers	Substance abuse counselling	Shelter & WASH engagement on gender-segregated sleeping & bathing in temporary housing
Local income generation programming, tailored to boys & girls	Training of men & boys to prevent sexual violence	Trauma-informed parenting interventions	Integrated prevention programming for intimate partner violence & violence against children	Shelter engagement in secure construction & locking of temporary housing
Incorporation of family & community safety nets into programming	Age- & gender-sensitive income generation programming	Policy & response strengthening for sexual violence in work settings	School-based bullying policy & education	Shelter & WASH engagement on lighting in public spaces & latrines

**Figure 2:** Pathways to violence against children and potential interventions by pathway type. WASH refers to the Water, Sanitation, and Hygiene sector and programming of a humanitarian response

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## Conflict of interest

The authors declare no conflict of interest.

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