Natural Disasters and Children Well-Being: A Review Study

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Abstract

Several studies have shown a large number of negative symptoms of psychological well-being after natural disasters. Natural disasters present a critical and developing threat to the prosperity of children. Consistently, 175 million children get affected by natural events, including earthquakes, typhoons, droughts, heat waves, extreme tempests, and floods. Children are especially vulnerable during these types of disasters and experience expanded issues concerning to their mental health, physical health, and learning after all the exposure. The quantity of children influenced by these disasters every year is alarmingly high and can be expected to ascend as climatic change proceeds. Children and youth are sincerely helpless against their encounters during a calamity.

This paper aims to study the overall well-being of children after their encounters with natural disasters.

A systematic literature review was undertaken by searching and choosing peer-reviewed papers from PubMed, SCOPUS, ResearchGate and Google Scholar four major worldwide electronic databases.

The current paper provides the impact of natural disasters on children's well-being. Further research is vital to design interventions to improve the well-being of survivors of natural disasters. Anticipation and mitigation programs and policies can decrease children's fear and risk by assisting communities to prepare themselves and react in a better manner to these catastrophes. Expanding school security, expanding the accessibility of evidence-based recovery programs, and focusing on administrations to children at most elevated risk for problems and are expected to mitigate the effect of catastrophic disasters on children. Lastly, recognition of severe and troublesome reactions should be trailed by

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satisfactory help and treatment, as per the developmental stage and emotional needs of every child and taking the supportive organizations into consideration.

Keywords: *Natural Disaster, Vulnerability, Children, Child Health, Disaster-related Health*

1. Introduction

Children younger than 18 years are an especially weak populace when presented with natural disasters (Peek 2008). Contrasted with adults, children go through severe ill effects of calamities since they inhale more air per pound of their weight, have more slender skin and are at more danger in instances of loss of fluid and are bound to lose body heat (CDC 2020). Calamities can also hurt children indirectly. At the point when a natural disaster influences guardians and different grown-ups (like educators), children's care, security, and emotionally supportive systems are dissolved (Kousky 2016). Beyond the quick trauma and damage brought about by disasters exposure, children likewise may experience longer-term physical, mental, and educational deficiencies. Disasters are generally acknowledged to be an aftereffect of complex collaborations between perils like earthquakes, typhoons, floods and vulnerability – a result of complex associations between the physical, monetary, social and political circle, experienced in various ways by an assorted scope of people and groups (Gaillard 2010). Vulnerability can be identified with the actual exposure of communities to perilous events, for example, those living in flood fields or alongwith faulty points; yet it is additionally associated with the social and monetary setting inside which these populaces exist (Comfort et. al., 1999). While there stay a few vulnerabilities of the specific relationship between outrageous climatic events (tornadoes, floods and dry season) and worldwide environmental change, the generally recognized proof shows that there will be an expansion in the kinds, recurrence and seriousness of hydro-meteorological (or environment) hazards. The Intergovernmental Panel on Climate Change (IPCC) perceives that changing climatic hazards is probably going to affect the individuals who are already vulnerable, even though they have exposure to outrageous occasions, their capacity to adapt to such shocks is low (IPCC 2007). This is particularly intense in developing nations where the administration is feeble, training frameworks are poor, adapting limits are lower and where climate-sensitive wellbeing components like hunger, diarrhea and intestinal sickness are higher (Anderson, 2010). India is one of the world's most calamity inclined nations with twenty-seven of its twenty-nine

states and seven association regions presented to intermittent natural dangers like earthquakes, cyclones, avalanches, dry seasons and floods. Ecological degradation and environmental change and have additionally intensified the recurrence and severity of calamities alongside expanding the vulnerability of key resources including individuals. Furthermore, very nearly 33% of the nation is likewise influenced by civil conflict. In realism, there is regular ignorance in strategy and problem making for children who are the most at-risk from the effect of catastrophic events.

In 5 significant disastrous hazards from 2000-2016 somewhere in the range of 17,671 children die. The 2015-2016 droughts in 10 states influenced an expected 330 million individuals, including 37 million children under age five (UNICEF 2019). Numerous factors of children's lives are influenced unfavorably, like leaving school unwantedly because of schools being utilized for different purposes like safe houses during catastrophic events, missing inoculation because of interruption of health administrations and the non-accessibility of clean water, nutritious food, and sanitization facilities prompting sicknesses and malnourishment. Furthermore, while the calamities are going on, there are likewise expanded rates of savagery, maltreatment and exploitation just as trafficking, child marriage and labor. Thinking about the recurrence of repetitive droughts, floods, serious climate or struggle in various areas across India, development results of children and women, especially from small and marginalized communities are unfavorably affected (UNICEF 2019).

In any calamity, children are bound to be harmed, and unable to get help or medical services. They are likewise more helpless against contaminations and lack of healthy sustenance and are additionally exposed to more serious risk through separation from their parental figures. In the majority of the hazards, between 33% and half of the deaths happen in children (Kamath 2015). The drawn-out outcome of catastrophes additionally affects children more as compared to grown-ups, particularly those who reside in ruined conditions. Ensuring mental issues, for example, post-traumatic stress disorder and depression sway their physical and psychological well-being, just as education and nourishment (Kamath 2015). India and the entire of South Asia, on account of interesting geo-climatic conditions, are inclined to catastrophic events. About 60% of the Indian landmass falls in the seismic zones III-V and consequently is defenseless against earthquakes. The Coastal States, especially in the East Coast (like Andhra Pradesh, Orissa and West Bengal) are inclined to cyclones. As per a report

curated by the International Displacement Monitoring Center, which tracks internal relocations around the world, a bigger number of individuals in India than in some other nations were uprooted by catastrophic events in 2012 (Global Estimates 2013). In the last decade, our nation confronted gigantic calamities like the Indian Ocean tidal wave, the Kashmir earthquake, the Uttarakhand flash flood and the Kosi floods. Security of the children should be a need previously, during and after a catastrophe. Children-centered catastrophe hazard reduction ought to be remembered for the calamity mitigation strategy with sound interests in creating safe frameworks, especially well-located schools and wellbeing offices with great road access. A productive early warning signal framework, a decent pre-disaster readiness and plan from central to village level, inter-area coordination, fast reconstruction and restoration are required. Suitable frameworks ought to be set up to give instant and effective assistance to individuals influenced by disasters, particularly till outside help can reach in conditions when a local organization is likewise influenced by the disaster (Kamath 2015).

2. Methods

2.1 Strategy of Systematic Review

This study was a systematic literature review, which has started with these necessary questions: "What are the pathways of impact on children in the context of a natural disaster?" "What would be the effect of natural disasters on children's overall well-being?" The definition of children was based on that of the UNICEF: "a child means every human being under 18-years-old."

2.2 Data Sources

A systematic search took place during one month period from July 12, 2021 to August 10, 2021. The sources consisted of PubMed, SCOPUS, Research Gate, and Google Scholar. In total, 21 papers out of 68 were selected and evaluated using thematic analysis.

2.3 Database Searching

The initial search process was conducted to find an answer to the designed questions. Furthermore, experts were consulted and the related articles were examined. The Search terms like Child*, adolescent*, teen*, disaster* were used.

3. Pathways of Impact

Children might get at risk after a disaster. They depend on guardians, who might be ill-equipped. Extremely young children will most likely be unable to impart essential information if they get isolated from their guardians. A few children require exceptional consideration, good nourishment, and extraordinary supplies. Children's physical build makes them more unsafe than grown-ups to some health impacts. For instance, children inhale more air per pound of bodyweight than grown-ups do, and their bodies contain less liquid, making them more vulnerable to drying out. They can likewise be at a stage in their development process where medical conditions can have life-long consequences. They might experience more prominent difficulty handling severe injury. For that load of reasons, a disastrous event might affect a child in various ways in comparison to how it affects an adult. Undoubtedly, it might influence children distinctively depending upon their age group (Kousky 2016).

Natural disasters can affect children through numerous pathways. To begin with, they cause immediate bodily damage. A disastrous event can harm schools and medical services offices, intruding on education and diminishing the accessibility of medical care. Hazardous events can demolish a family's resources. Relatives or children can be harmed or killed, or they can contract diseases from post-catastrophe circumstances. Families might lose pay either because employed individuals from the family lose their jobs because of injury or macroeconomic conditions or because the functioning individuals from the family are killed. In most of the developing nations, loss of income joined with loss of resources and higher uses for disaster fixes could make families send children into the labor work. Families may have less monetary resources to spend on medical care, food, or school supplies all with adverse consequences on children. At last, a disaster can cause children stress and injury, which can be exacerbated by seeing their parents under stress. For children, such a circumstance can prompt psychological wellness issues that can affect physical wellbeing and schooling. Stress can likewise have an impact on pregnant ladies (Kousky 2016).

Children who get separated from their parents or essential guardians during or after a disaster address another reason for concern, particularly concerning to non-governmental organizations. Such children might be manhandled, taken advantage of, and disregarded. A calamity's effects are intervened by the characteristics of families, children, communities, nations, and the actual disastrous events. Various children in

different circumstances won't respond the same way to a particular catastrophe. Effects on children likewise change across nations because of financial conditions, nearby organizations, and political realities that impact disaster reaction and recovery. However, studies have analyzed whether living in a space vulnerable to a disaster has any impact on children and a few investigations have investigated what living with hazard can mean for family income and utilization decisions. For instance, families in dangerous regions might be bound to grow crops low in risk yet in addition low in returns, for example, a variety that endures droughts yet produces lower yields. Then again, families may decide to live in more dangerous regions that give different advantages to children, like nearness to occupations or education (Kousky 2016).

Turoff et. al., (2021) outlined five pathways between natural disasters and violence, including: (i) environmentally induced changes in supervision, accompaniment, and child separation (ii) transgression of social norms in post-disaster behavior (iii) economic stress (iv) negative coping with stress and (v) insecure shelter and living conditions.

3.1 Effects on Physical Health

Following serious disasters, children frequently experience the ill effects of medical conditions. Disastrous events can impact children's well-being through a few channels. Initially, a hazard can lessen the intake of fundamental nutrients, calories and of supplements because a family loses food yields or monetary resources to buy food. Secondly, a disaster can demolish the well-being foundation. This can imply that diseases or wounds brought about by the disaster are hard to heal and turn out to be more terrible, yet it additionally implies that non-disaster-related medical issues might go untreated. Contaminated surfaces and the absence of clean drinking water can make irresistible infections spread. During and after floods in Bangladesh, for instance, cases of diarrhea, cholera, and other intestinal illnesses expanded because of the absence of safe drinking water (Brouwer 2007). The diarrheal ailment can prompt dehydration and malnourishment. Because of their little size, infants and exceptionally small kids are particularly defenseless, and lack of hydration can become perilous. Also, those pathways can connect, all in all, impoverished nutrition can worsen sickness.

Children's well-being might be more at risk in a disaster for various biophysical reasons. Their immune systems are less experienced, their respiratory rates are

higher and numbers of their systems are as yet going through fast development and growth. It has been reported that fetuses in the belly and extremely small children are especially vulnerable to intense or life-long impacts from negative health shocks. Different researches have clarified the physical and mental health impacts of the flood (Tapsell et. al., 2002). For example, during and after flood circumstances individuals experience physiological health impacts like cold, hack, influenza, sore throat, or throat contaminations and cerebral pains, skin rashes, gastrointestinal sickness, chest disease, hypertension, asthma which brings about mental pressure (Tunstall et. al., 2006).

3.2 Effects on Mental Health

Disastrous events can cause multiple emotionally destructive conditions for children. Not exclusively is the occasion distressing and alarming, however after it goes away, stress can be brought about from the harm to children's houses and assets, from relocation, and breakdowns in society and nearby economies. At the point when friends and family are absent or harmed the sorrow can be significant and children might make some harsh memories handling and adapting to these misfortunes. Children might get stressed when their guardians' capability to secure their decays or when they watch parental figures experiencing dread and stress. A number of studies have discovered that when guardians have undeniable degrees of post-disaster symptoms, their children have significant levels also. Children (like grown-ups) can be pretty much vulnerable to psychological issues like tension or sadness, also, a few groups respond more intensely to a hazard than others do. A disaster's effect on children fluctuates dependent on their earlier encounters to awful mishaps, financial elements, age, sexual orientation, character qualities, intellectual abilities, and associations with their folks and families. Mental health symptoms typically decrease as a catastrophe subsides into the past. Yet, when disaster produces an extreme threat to life or emotional disturbances, the effects can persevere for quite a long time. Notwithstanding, a few components, like accessible and strong guardians, have been found to buffer the effects.

Jenkins & Meltzer (2012) clarify the psychological health effect of the Indian Ocean tsunami, 2004. The survivors showed a wide scope of symptoms identified with nervousness, depression and PTSD. The displaced victims of the disaster showed a higher rate of symptoms when contrasted with the non-displaced victims. Superfluous fear and adjustment issues were normal. The sensation of hopelessness and a steady

condition of despair was likewise found in the people who were victims. There were a lot of psychological issues in the survivors from the Nordic nations. The most usually announced issues were relentless grief, a condition of shock and dread, maladjustment and dysfunctionality. Few victims were determined to have mental issues containing the side effects, for example, staying away from a particular circumstance with a fear of being dismissed or embarrassed, a condition of consistent bitterness and vulnerabilities, neglecting to comprehend the causes and explanations for the anguish; dread of socializing and steadily staying away from social circumstances.

3.3 Effect on Social Health

Children often relapse after a disaster, losing abilities they obtained before the disaster or getting back to practices they had grown out of. They stick more with the guardians or other essential parental figures. They begin mentioning guardians for taking care of or dressing. They attempt to compete with younger siblings for attention from guardians or other essential parental figures. Children begin confronting the inability to perform chores and fulfill typical obligations. Indeed, even the report about disaster influences children in a few different ways like they might confuse reality and realities with their dreams. They might get worried about separation from guardians. They might compare a scene from an alarming film with a news film. Children might experience issues perceiving that the disaster isn't up close and personal. Indirect exposure to calamities can happen via exposure to the media (like radio, TV or web-based media) or guardians' gossips. Children, who watch media coverage might show symptoms of being stressed, depressed or restless, they may also get exposed to sleep disturbances due to these responses or their failure to quit thinking about what they have seen or heard. A part of these reactions could be incited by the dread that they, or their families, will experience what they are finding in the media. These symptoms are relative to the amount of time these children are exposed to inclusion (Houston et. al., 2011). Children presented to media inclusion of catastrophes could be in danger of re-traumatization (Koplewicz and Cloitre 2006). Another source of exposure to calamity is prenatal exposure to the disaster. In a study researching school performance following prenatal exposure to calamities, the prenatally exposed children accomplished lower scores on 3rd-grade standardized tests in math and reading (Fuller 2014).

3.3.1 Inequalities in Child Health

A variety of ideas have emerged surrounding the mechanisms by which Socio-economic circumstances (SECs) influence health, most of which were established with adult health in mind and distinguish between material, psychological and behavioral aspects (Whitehead et. al., 2016).

Material: This pathway focuses on living conditions and the reality that persons in higher social positions have more access to resources that promote health, such as a warm, safe house and nutritious foods (Cooper and Stewart 2013). The physical home environment has a significant impact on the health of young children. Less well-off families have less influence over the physical components of their living environment; they are more likely to live in homes of inadequate size and quality, and they are less likely to have direct access to the garden. The relationship between SECs and child health, notably respiratory difficulties in children, has been found to be mediated by material hardship and poor home condition (Spencer 2005).

Psychosocial: Infants and early children have minimal understanding of social structures and limited control over their health and health behaviors, the influence of this pathway must almost materialize through the feelings and subsequent behaviors of their caregivers. Psychosocial factors on health may become more relevant when children enter adolescence and begin to develop a sense of social standing and independence from their families. After controlling for other components of SECs such as household income, perceptions of social status or family wealth relative to peers have been linked to physical and socio-emotional well-being (Sweeting and Hunt 2014). The stressors associated with living in social disadvantage and their impact on health and health behaviors are referred to as the psychosocial pathway. Parents who are suffering more financial difficulty, for example, are less likely to quit smoking and are more likely to relapse. Poverty has a negative impact on maternal mental health, which in turn has an impact on child health (Wickham et. al., 2017).

Behavioral: Health Inequalities, according to this pathway, are caused by disparities in health behaviors such as smoking, alcohol intake, nutrition, and physical activity. Unhealthy behaviors are more common in less advantaged groups, and they surely have an impact on health. Children have little control over what they consume or how active they are during pregnancy, infancy, and early childhood (Dahlgren and Whitehead 2007). As a result, this pathway comprises socially distributed parental and caregiver

health-related behaviors (such as smoking during pregnancy, newborn feeding, and immunizations), which have direct effects for child health. This pathway could contain some parts of parenting, such as parental activities. Mealtime interactions and limits around screen time, for example, have been linked to inequities in childhood obesity. As children grow older, they begin to develop their own health-seeking and risk-taking behaviors, which are impacted by SECs as well as the health behaviors of others in their immediate environment (including siblings and peers) (Chambers et. al., 2017).

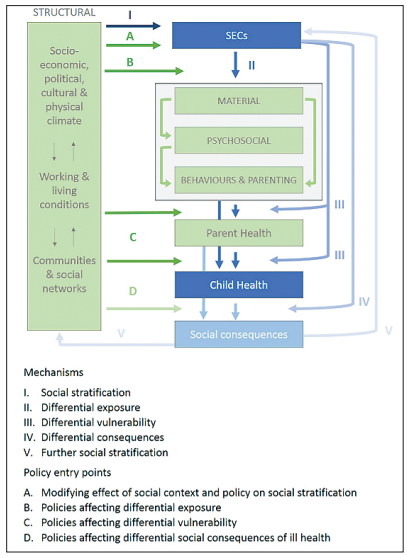

Figure 1: Conceptual Model Demonstrating the Pathway to Child Health Inequalities (adapted from Diderchsen et al. SECs, socioeconomic circumstances)

3.4 Future Challenges and Possible Actions for Health Inequalities

Immediate action is also essential in the face of widening health inequality. The value of the early years for population health, Health Inequalities, and society as a whole cannot be overstated, and efforts to address inequities must begin before conception and continue throughout life. Reduced child poverty and continuing investment in high-quality, accessible early childhood education and day-care, parental programmes, key workers, and children's centres should all be part of this (while ensuring that the least advantaged benefit most). Despite the fact that child health professionals may

feel powerless to impact Social Determinants of Health and compelled to focus on immediate clinical issues, there are a number of crucial activities that they might undertake:

1. Take an equity-focused approach to practise and training: be conscious of the unequal distribution of health and make others aware of it. Consider the material, mental, or behavioral challenges that patients may be facing, as well as potential solutions (for example, referrals to welfare benefit advice, food banks, parenting programs, children's centres, and psychiatric assistance).
2. Generate evidence: Consider the representativeness of participants and the possibility of uneven uptake and effectiveness when designing, implementing, and evaluating programs and services. Create best-practice examples.
3. Advocate: for more equal and child-centered resource allocation and distribution, both within and between government sectors.

3.5 Effects on Schooling

Disaster can damage education and schooling in three essential manners. To start with, it can obliterate schools themselves, intruding on children's schooling. Secondly, in case of children are harmed or debilitated or undernourished, then they may not go to class as often and additionally may function all the more ineffectively in school. Thirdly, in developing nations specifically, a disastrous event that lessens family abundance or pay might force guardians to move kids out of the school and into the labor market to assist with improving family pay. In case these effects on schooling continue and regardless of whether they do, it is as yet an inquiry among researchers that they could lessen monetary resources further in their life. Serious disasters can harm or destroy schools. At the point when schools can't open after a hazard, not exclusively is a child's schooling disturbed; however, the child might need to stay in possibly dangerous conditions. In case there is no other child care, the child's parents might be kept from getting back to work, accordingly making monetary pressure (NCCD 2010).

3.6 Long-term Consequences

Proof from outside the field of catastrophe looks at long-term mischief to prosperity from malnourishment in the womb and adolescence. Malnourishment while in delicate stages have been connected to the major danger of disease and passing among babies

and grown-ups to a more limited height, less work limit, less strength, hypertension, and elevated cholesterol. Numerous studies have connected well-being disturbances early in life to education and labor market results. For instance, health disturbances in early life are related to fewer years of schooling, diminished monetary action, postponed development, more behavioral issues, lower IQ, and lower test scores (Currie 2009). Proof also depicts that the impacts of early-life health disturbances can endure for ages. Women who were malnourished as youngsters have lower-birth-weight kids themselves. Not exclusively did women in Tanzania encounter an extreme flood before they were 18 years old experience durable adverse consequences, yet their children had lower tallness for-age z-scores. (This wasn't the situation among offspring of men presented to the flood) (Caruso 2015). Not all effects might be so diligent. For instance, stunting in extremely small children can probably be turned around to some extent if a child's current circumstance significantly improves for instance, in case the child's degree of nourishment increments drastically (Martorell et. al., 1994).

4. Interventions

These are some post-disaster intervention strategies to deal with children and help them with coping:

1. **Settings:** Recovering after a disastrous event can get started in a non-clinical atmosphere. Schools perform a significant part in calamity recuperation and are usually the foundation of relief activities. Through the execution of constructive school-based and instructor-based interventions following calamities, children can recapture a feeling of regularity in their lives and get mental help at the same time. Also, these facilities can be conveyed in schools without the stigma that is usually connected with psychological interventions, and guardians and families know and by and large trust school staff and the whole process.
2. **Group Interventions:** Group interventions can help more disaster-impacted children at a lower cost than individual interventions and as such, they might be a decent decision after a disaster when assets might be more restricted than expected. Also, numerous children presented to disaster will encounter just low or moderate degrees of stress and won't need individual interventions.
3. **Social Help:** Social help is gigantically significant in assisting with adapting after a

disastrous event, acting to further develop prosperity and mental well-being, and setting the direction after a hazard for recuperation. In children explicitly, social help from guardians, schoolmates or companions filled in as a defensive factor against negative symptoms. It is hence imperative to pick interventions that cultivate an encouraging groups of people and access social help to children to help them in adapting after a disaster.

4. **Key Partnerships:** Awareness and cooperation between and among clinicians and psychological wellness support staff, including school and local area faculty, is important to encompass the kid with protective and supportive advisers.

5. Limitations

Articles in English only were incorporated in this systematic literature review. Secondly, Time frame was a limitation as there was only one month to prepare the review.

6. Conclusions

In conclusion, the present review paper demonstrated several impacts of natural disasters on children's well-being. Despite the methodological limitations of the studies, these findings are valuable for understanding how well-being of children is impacted following a natural disaster. Natural Disasters can damage children's physical and psychological wellness just as their schooling. More youthful children appear to be generally vulnerable. The impacts of the intense calamities or shocks to health and schooling at crucial times in children's growth can keep going for quite a long time, even into adulthood. Children's reactions to hazards generally depend upon the sort of disasters, the nations, networks, and families in which children reside and the attributes of individual children. As climatic change adjusts outrageous events, some places might start to see more recurring catastrophic events, from floods to heat waves. Families could make some bad memories recuperating from frequent disasters and the consequences for children could be ordinarily more serious than those from one-time shock. Contemplating regions that as of now face frequent disasters could assist with distinguishing strategies for different regions as the climate warms. Further research will be needed to find appropriate strategies for enhancing the mental health of survivors in natural disaster-affected communities. The high-risk population of natural disaster

survivors, in particular, need post-disaster mental health recovery programmes that involve early detection, on-going monitoring, prevention and intervention programmes, and long-term psychosocial support.

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