

Climate Change and Child Health Inequality

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Contributor: Karl Gauffin

Geographical location, socioeconomic resources and intergenerational differences were explored as dimensions of inequality with regard to the increased risk of adverse health outcomes among children resulting from climate change. Definitions and descriptions of climate change and of child health in the reviews were explored as secondary themes.

climate change

children

health inequality

scoping review

global health

1. Introduction

The uneven distribution of social and environmental factors on birth and early life give rise to avoidable child health inequalities ^[1]. Differences in child survival, health, development and well-being are stark between low- and middle-income countries (LMICs) and high-income countries (HICs) ^[2]. Many children in LMICs live in circumstances in which they are deprived of essential determinants of health such as clean air, adequate shelter, nutrition, safe water and sanitation ^[3], all of which contribute to the higher risk of adverse child health outcomes such as stunting secondary to malnutrition ^[4], acute respiratory illness ^[5], diarrheal disease ^[6] and vector-borne diseases such as malaria ^[7]. Despite improvement in child survival rates within these countries, children from poorer households remain disproportionately vulnerable: on average, the risk of dying before age 5 is twice as high for children born into the poorest households as it is for those born into the richest ^[3]. Inequalities within HICs exist as well with many children in low-income households experiencing high levels of air pollution ^[8], food insecurity ^[9] and poor housing conditions ^[10].

Climate change is an ongoing urgent global problem. The recently published sixth assessment Intergovernmental Panel on Climate Change (IPCC) ^[11] asserts that anthropogenic greenhouse gas emissions have been responsible for an increase in yearly average temperatures across the world currently estimated at 1.2 °C over pre-industrial temperature levels. Without mitigation, global temperature change will likely increase by 1.5 °C by 2030 and may increase 4.8 °C by 2100. Observable planetary changes due to climate change including glaciers melting, water levels rising, prolonged heat waves, floods, droughts and rainfall have accelerated in 2020–21 with uncontrolled wild fires in the west coast of North America, parts of Australia and southern Europe and unprecedented flooding in China and central Europe.

Global warming and its consequences are now accepted as a significant threat to global health and well-being, and children are known to be particularly vulnerable to its effects ^[12]. In 2009, Lancet Commission on Climate Change determined that climate change is the biggest global health threat of the 21st century ^[13]. The commission

concluded that most health impacts will be adverse and will occur via direct exposures (e.g., heat waves, extreme weather events) but also by significantly impacting basic social determinants of health. The commission further identified certain populations as “vulnerable” to climate change such as the elderly, children, individuals with underlying health conditions and populations in LMICs.

The main questions were: What is the current state of knowledge on the impact of climate change and its consequences on child health inequalities? What is the evidence that climate change exacerbates child health inequalities? Is the evidence reported in the reviews supported by quantitative data comparing the impact of climate change and its consequences on different social groups within countries and/or between countries? Are the mechanisms by which climate change and its consequences may exacerbate and/or generate child health inequalities addressed in the included reviews?

2. Development and Findings

While inequalities in child health within and/or between countries or geographical regions are touched upon in all the included reviews, few reviews have inequalities as their primary focus. There is descriptive evidence of the differential impact of climate change on children in social groups by relative advantage versus disadvantage within countries and in LMICs compared with HICs; however, quantitative evidence comparing advantaged and disadvantaged children was limited.

Understanding the mechanisms by which climate change may exacerbate child health inequalities is key to interventions to minimize its effects. Identification of specific pathways from climate change to child health inequalities using Bennett and Friel's approach [14] is likely to inform interventions to modify amplification of inequalities by climate change. The urgent need for interventions to mitigate the effects of climate change is illustrated by the recent IPCC report [11] and echoed in the editorials published in 200 medical journals calling for emergency action to limit global temperature increases, restore biodiversity, and protect health [15]. This entry has identified the limited capacity of LMICs to mitigate the negative effects of climate change due to scarce structural economic and political resources and, as demanded by the medical journal editorials [15], enhanced interventions by high income countries will be necessary to promote and fund mitigation and adaptation in LMICs, including improving the resilience of health systems.

The entry has identified knowledge gaps, including limited quantitative evidence of the impact of climate change across socioeconomic groups and between countries, limited examination and understanding of the mechanisms by which climate change exacerbates child health inequalities and minimal focus on the effect of climate change on child health inequalities for older children and on mental health. A program of research to address these gaps will require the measurement of the impact of climate change on child health across socioeconomic groups in defined populations in different settings and between countries and subnational regions. Existing socio-demographic surveys, such as the Demographic and Health Surveys (DHS) (Available online: <https://dhsprogram.com/> (accessed on 8 October 2021)) and other national and regional surveys, could be modified to include relevant data.

Data quality must be considered to improve the validity of results. While maintaining policy and research focus on the most vulnerable children in poor and low resourced families and children in LMICs, it must also be recognized that more children are becoming increasingly vulnerable through various climate patterns. The implications of the relationship of climate change to social determinants of health for policy and research should be explored further. The interactions between social determinants of health and climate change are considered as indirect effects in some reviews [16][17][18][19] and climate change has been characterized as a social determinant of health [20]. Further work should explore how climate change acts both as a social determinant of health and an amplifier of other social determinants to increase child health inequalities, as suggested by Bennett and Friel [14].

3. Conclusions

There was agreement across the reviews that children, particularly poor children, and those in LMICs, are vulnerable to climate change; however, the current state of knowledge of the impact of climate change on child health inequalities is weak. Despite general acknowledgement in the included reviews of the likelihood that climate change will exacerbate child health inequalities, the reported evidence was marginal with little in-depth examination of this issue. There was a paucity of quantitative data comparing children across social groups and countries to support the evidence for the impact of climate change on child health inequalities and mechanisms by which climate change generates child health inequalities warrant further exploration. The findings indicate the need for an enhanced program of research to address the knowledge gaps and provide evidence for effective interventions to mitigate climate change's impact on child health inequalities. Further investigation of geographical and intergenerational inequality is also warranted.

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