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## IMPACT OF ENVIRONMENTAL POLLUTION ON THE HEALTH OF CHILDREN

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### ABSTRACT

Environmental dangers from conception impact children's health and development through infancy, adolescence, and adulthood. The environment shapes a child's future since ecological risk factors can affect fetal programming and early growth, and early life exposures impact adult health. Air pollution impairs neurodevelopment, resulting in poorer performance on cognitive tests, which harms the development of the mind and the body. Even at modest exposure levels, air pollution harms children's lungs.

**KEYWORDS:** Environmental Risks, Air Pollution, Child Health, Noise Pollution, Ecological Impact.

### INTRODUCTION

Children are especially sensitive to environmental concerns, such as air pollution, poor water quality, inadequate sanitation and hygiene, toxic chemicals and waste, radiation, climate change, and new dangers like e-waste. Particularly in underdeveloped nations, poor environmental conditions and pollution play a significant role in the deaths, diseases, and disabilities of children. Children are more susceptible to ecological dangers than adults are: Children are always developing. In proportion to their weight, they breathe more air, eat more, and drink more water than adults. The systems of children are still growing. This covers their immune, reproductive, digestive, and central neurological systems.

Exposure to environmental toxins during specific early developmental phases can result in irreparable harm. Because they behave differently from adults, children might be exposed to environmental dangers in various ways. For instance, children may be exposed to dust and

chemicals that accumulate on floors and soils when they crawl on the ground. Little can be done to influence the environment around children. In contrast to adults, they could not aware of threats and be unable to make decisions to safeguard their health. India has started a national clean air program, but a greater coordinated multi-sectoral strategy is needed to reduce air pollution's burden on children's health. Treatment of air pollution as a public health emergency that can only be controlled through scientifically supported policy, a gradual shift to clean energy use, emission reduction supported by clean air technologies, long-term commitment from the government, and citizen involvement.<sup>1</sup>

### **The Main Environmental Risks Are:**

#### **1. Climate change:**

##### **Rising Temperature and spread of diseases**

Increasing temperatures and other changes to the environment make the impact of diseases on children even worse and more likely for children to be exposed.

For example, the range in which mosquitoes spread malaria, dengue fever and yellow fever is expected to grow, leaving new communities vulnerable.

In Indonesia, changes in rainfall patterns have led to mosquitoes exploding in numbers driving up the transmission of malaria in the community.

#### **2. Climate Change further increases the prevalence of drought and causes hunger**

As water becomes unavailable, food runs out, children suffer. Elsewhere, in regions vulnerable to drought, climate change is increasingly exacerbating water shortages, resulting in major crop failures, far more frequently.

Madagascar is just one country where deadly droughts are pushing families to the brink of starvation in the battle to feed their children.

#### **3. Children become sicker, less developed due to climate change**

When deadly heat combines with air pollution and wildfires, infants and children are at high risk of developing chronic diseases or having their lives cut short.

Children are particularly vulnerable to heatstroke, which can lead to organ and brain damage, during periods of extreme heat.

#### **Water sanitation and hygiene:**

Unsafe sources of water are another grave danger. Children are more susceptible to diarrheal

diseases, cholera, typhoid and parasitic infection due to the consumption of contaminated drinking water.<sup>3</sup> Heavy metals like lead, arsenic and mercury in the water supply are known to harm neurodevelopment leading to learning disorders, behavioral problems and lower IQ levels.<sup>4</sup> Such effects are not reversible and lead to lifelong roadblocks to education and social progress.

More than three billion people globally still do not have access to safe drinking water, basic toilets or good hygiene. Children who make up a higher proportion of infectious disease deaths than adults, the results can be fatal. Every day, hundreds of children under the age of 5 die from diarrhoeal diseases due to lack of basic wash services in their homes, in health centres, and in schools. Millions more go without basics such as food and schooling often forced to stay home from waterborne illness.<sup>5</sup> Urban and rural children are at an increased risk of being deprived of access to clean water and sanitation. So are the lives of people who are coming of age in water-impacted regions, because as droughts, floods and heat waves become commonplace, water sources are less safe even as they become scarcer. In times of humanitarian crisis, kids who are already living life on the edge face the added threat of waterborne disease. In reality, children in conflict areas are nearly 20 times more likely to die from diarrhoeal diseases caused by infected water than from violence.

With unique metabolism, physiology and developmental needs, children are more susceptible to pollutants than adults,” Dr. Fine said, “so much so that exposures early in life can lead to disease, disability and premature death throughout the entire life span.” Children are the most vulnerable to pollution exposure due to the small amounts of toxic and acidic chemicals and waste in utero and during young childhood that can lead to disease, disability and premature death over a lifetime as well as lower learning and earning potential.<sup>6</sup>

**Air Pollution:** Air pollution is a leading cause of environmental danger for children. Their lungs are growing, and they breathe faster than adults, so they inhale more of the pollutant air than do adults, given their body size. Fine particulate matter (PM<sub>2.5</sub>), nitrogen dioxide, and ozone has been clearly associated with childhood asthma, bronchitis, and diminished lung function growth.<sup>7</sup> Longitudinal studies have demonstrated that early exposure to dirty air may lead to heightened susceptibility towards chronic respiratory diseases in later life.<sup>8</sup>

In the world, 1.8 billion children under 15 breathe 93% polluted daily, seriously endangering

their health and development. Unfortunately, many of them pass away: According to the WHO, air pollution-related acute lower respiratory infections claimed the lives of 600,000 children in 2016. Research demonstrates that pregnant women exposed to polluted air are more likely to give birth prematurely and have babies who are undersized and underweight at delivery. Asthma and childhood cancer can be brought on by air pollution, which also affects neurodevelopment and cognitive function. High levels of air pollution may put children at higher risk for developing chronic conditions like cardiovascular disease in later life.

In India, household emissions, coal combustion, agricultural burning, and transportation are the main sources of air pollution. In certain places in India, air pollution levels have risen to alarming levels due to a lack of effective regulatory policies to control pollution. This calls for a greater examination of the air pollution issue from the perspective of the welfare of the younger generation, who is currently exposed to dangerous contaminants and may suffer long-term health effects. According to a newly released analysis by the Health Impact

**Noise Pollution:** Noise means unwanted sound. We call an acoustic signal creating a comfortable impression as ‘sound’, and that for creating an uncomfortable impression as ‘noise. Noise has become a contemporary pollutant and environmental stressor. The source can be both indoor (such as audio and video equipments, toys for music, games, electronic appliances, kitchen devices, sounds in the classroom etc.) and outdoor (like traffic noise starting from aircraft and ending with road traffic, factory sirens, loud speaker users, environmental sounds that appear in play grounds etc.). Pollution and industrialization have worsened the threat. Most of what we know about detrimental effects of noise comes from studies on the effects of noise in adults, usually occupational noise exposure, and how the risk of noise induced hearing loss is dependent on the amount of noise in a dose response relationship. Adverse effects of noise on children may commence in the intrauterine environment. Contrary to adults, newborn infants and young children are victims of harmful noise, and therefore, more vulnerable to harm from its exposure.<sup>10</sup>

#### **Land contamination Due to pollution of soil**

Industrial waste, pesticides and poor management of toxic substances is making the food we grow to be contaminated.<sup>11</sup> Ingested, these toxins may be retained in children’s bodies. S.C. in the Czech Republic POPs and pesticide residues are related to immune response inhibition and endocrine disruptors.<sup>12</sup> Malnutrition increases the toxic impact of the soil burden, leading children in developing countries to be particularly susceptible.

### **Brain Development and Environmental Toxins**

Brains grow rapidly in children in their first years of life and intelligence is particularly vulnerable to toxic chemicals. (Lead exposure is one of the most thoroughly studied examples: even the lowest levels of concentration in the blood can have effects on cognitive ability and behavior.)<sup>13</sup> Long-term neurological sequelae of such exposure are frequently irreversible and entail lifelong disabilities for the affected children.

### **Policy and Child Protection**

Strong regulatory frameworks are needed to protect children from environmental hazards. Environmental law experts say children's vulnerability mandates stricter application of pollution control measures.<sup>14</sup> International legal instruments, like the Convention on the Rights of the Child (CRC), are rooted in the states' duty to protect children's health and well-being, as well as guaranteeing a stable and healthy environment. National governments are morally and legally bound to incorporate child-sensitive legislation in the field of environmental regulation.

### **CONCLUSION**

Health issues in children are frequently brought on by their exposure to various environmental risk factors in the settings where they live, work, play, and learn. Significant advancements in lowering the environmental burden of disease on a global scale can only be realised by taking a holistic approach to environmental risk factors. Such a strategy entails participation from all spheres of society, including individuals, groups of people, municipalities, specialists in the medical field, and decision-makers. Environmentally-related childhood illnesses are a significant global public health issue. This is especially true in underdeveloped nations and poor neighborhoods, where there is frequently a lack of awareness and knowledge about how environmental risks affect children's health.

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