WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

THE EFFECT OF ENVIRONMENTAL FACTOR ON HUMAN HEALTH

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ABSTRACT:

Numerous anthropogenic and/or natural activities can release hazardous substances into the environment, which can have negative consequences on both the environment and human health. In this study, we address three significant contributions made by economists to our knowledge of the connection between personal well-being and the environment. As early as the 13th century, when the King of England outlawed the burning of marine coal in London due to its "prejudicial to health" nature, it was recognized that environmental influences may have an impact on human health. Over the past eight hundred years, significant advancements have been made in our comprehension of biology, chemistry, and medicine.

The discipline of toxicology investigates the harmful effects of environmental stressors in controlled environments that are similar to randomized trials. These days, vehicle emissions are overloading the atmosphere above the world's largest cities. In urban regions, the death toll from vehicle pollution is rising quickly. Numerous anthropogenic and/or natural activities can release hazardous substances into the environment, which can have negative consequences on both the environment and human health. Human health is impacted by air pollution in both acute and long-term ways, impacting many different organs and systems.

It might include slight irritation of the upper respiratory tract, exacerbating pre-existing heart and lung illness, lung cancer, acute respiratory infections in children and chronic bronchitis in adults, or asthmatic episodes. One contaminant of concern to the environment is microplastics. It has been observed that they are present in food meant for human consumption as well as in air samples. Therefore, it's possible to be exposed to microplastics through food or inhalation; the consequences on human health remain unknown.

INTRODUCTION:

Water pollution occurs when unwanted materials enter into water, changes the quality of water and harmful to environment and human health . Water is an important natural resource used for drinking and other developmental purposes in our lives. Safe drinking water is necessary for human health all over the world. Being a universal solvent, water is a major source of infection.

Any unwelcome, undesirable, or excessively loud sound that disturbs or irritates others is considered noise. Noise pollution is defined as any sound that is present in the environment for an extended period of time and that harms humans or animals, either permanently or temporarily.A person with a complete or partial hearing loss finds it difficult to function and becomes disabled.

The basic organs of hearing that both humans and animals use to receive sounds within their bodies are their ears. Sounds are often produced outside. Three components make up the human ear.

Additionally, microplastics are produced on purpose for a variety of uses, such as exfoliants (microbeads) in personal hygiene products. Municipal wastewater contains this material as well as plastic microfibers from clothes washed by machines and dumped into the environment. A wastewater treatment facility (WWTP) was found to have decreased the amount of microplastics in its effluent by more than 98%, but reportedly every day, an estimated 65 million microplastics were still discharged into the receiving water. Furthermore, WWTPs are a significant source of the estimated 8 trillion microbeads that enter aquatic environments daily in the United States.There is growing data to support the possibility of human exposure to microplastics. Microplastics have been found in seafood (28–30), as well as processed foods and drinks including salt, sugar, and beer (31–32).33 Furthermore, it has been discovered that synthetic (plastic) clothes fibers can remain in the sludge byproducts of WWTPs sprayed to agricultural land for up to five years after application.34 Microplastics may also enter the air due to other sources such agricultural polyethylene (PE) sheet degradation or the release of fibers from drying garments outside, as well as wind-driven transport of microplastics from sludge-based fertilizer.
The quality features of water resources are a significant factor that have not gotten enough attention.

Even though it aided in economic growth, the fast industrialization of emerging nations has had a negative impact on economic wellbeing due to pollution of the air and water, affects on agricultural practices, human health, and the environment as a whole. Water contamination is a significant issue since it affects a wide range of economic activity. In the setting of an agrarian economy like India, the issue of water pollution becomes more pressing.

Only a small number of studies have addressed environmental issues connected to industrial pollution and its effects on agriculture and other sectors, despite the fact that there are many empirical research on issues related to agriculture, such as soil deterioration and wind and water erosion. The bulk of the indicators are unrelated to industrial pollution, even while Pearce David and Warford (1993) estimated the macro-level costs of environmental deterioration in terms of human health, soil erosion, deforestation, etc. Research has demonstrated that the costs of damage in developing nations are more than those in wealthy nations (Pearce David and Warford, 1993). They calculated that the environmental expenses in emerging nations accounted for around 5% of GDP.

For a long time, environmental contamination has been a cause for concern. The first comprehensive scientific research of smoke abatement was funded by the Mellon Institute in Pittsburgh, Pennsylvania, USA, and led to the creation of laws intended to lessen the impacts of smoke.
Our ecology is deteriorating as a result of over-exploitation of nature for urbanization and development. However, we also understand that halting development will not be possible in order to protect the environment. It is imperative that sustainable developments are balanced at this time. Conflict resolution greatly depends on the environment impact assessment (EIA) (Canter 1977). Thus, in order to put the right mitigation measures into place, it is essential to analyze the current state of urban air pollution and its effects on human health. In order to assess these effects, a fact-finding survey is necessary. This study aims to investigate the current level of urban air pollution in Quetta, Pakistan, as well as the effects it has on public health.

Water Pollution:

The effects of pollution

Pollution has had a significant influence on every facet of village life. For the sake of a thorough examination, we will concentrate on three significant effects here.

These are the effects on livestock, crop output, and other agricultural operations (b), health, and other areas (c). It would be relevant to look at how industrial pollution affects water sources or bodies of water before delving into the specifics of examining the effects of pollution on different aspects. Water bodies serve as a conduit for the effects on the village community because of this.

Water Pollution

The effects on sources of water

Pollution has a negative influence on both surface and groundwater sources, and is thought to be the primary cause of all effects. Water samples have been collected and evaluated from various sources in both the impacted and control communities in order to determine the level of water contamination. Water samples were gathered from various sources, including tank water and bore wells, and placed in sterile bottles.

The hazardous element arsenic is present in the contaminated village's tank water at extremely high concentrations—1.3 mg/l as opposed to the permissible limit of 0.05 mg/l. The health of people and livestock as well as agricultural productivity are negatively impacted by these high pollution levels.

Whilst the health consequences of arsenic exposure, both direct and indirect, have been extensively studied (WHO, 2000; Farid et al., 2003). However, it has been noted that arsenic contamination of soils has led to a 20% decrease in wheat output (Farid et al., 2003). The high concentrations of this deadly metal may be the cause of the ailments and animal deaths that have been recorded from the contaminated village.

Air Pollution:

Pollutant categories

The primary cause of the primary alteration in the composition of the atmosphere is the burning of fossil fuels, which are utilized for energy production and transportation. There have been reports of several air pollutants, with differences in their chemical makeup, reaction characteristics, emission, persistence in the environment, ability to travel over large or short distances, and eventual effects on the health of humans and/or animals. Nonetheless, there are certain commonalities among them, and they fall into four categories.

Routes of exposure

Humans are mostly exposed to various air contaminants through their food and drink, with skin contact being a smaller pathway of exposure. Ingestion is frequently the primary method of pollutant absorption due to the significant role that air pollution plays in the contamination of food and water (Thron, 1996). Pollutants may be absorbed through the gastrointestinal and respiratory tracts, and some harmful chemicals are present in the general circulation and can deposit in various tissues.

Health effects

The effects of variations in air quality on human health were studied in a variety of short- and long-term epidemiological studies, as well as sporadic air pollution events such as the famous London fog of 1952. Air pollution has consistently been linked to higher rates of hospital admissions and mortality. The various chemical compositions of air pollutants, the duration and amount of exposure, and the fact that people are often exposed to mixes of pollutants rather than individual substances can all have an influence on people's health in different ways. Effects on human health might vary from nausea and dyspnea to skin irritation and cancer.

Air pollution's effects on various organs and systems :

Respiratory system

Particularly in asthmatic people, symptoms like irritation of the nose and throat, bronchoconstriction, and dyspnea typically occur after exposure to elevated levels of sulfur dioxide, nitrogen oxides, and specific heavy metals like arsenic, nickel, or vanadium.

Lung inflammation is also caused by particulate matter that enters the alveolar epithelium and ozone layer. Pollutant-induced inflammation will make lung lesions or lung diseases worse in individuals. Additionally, breathing in air contaminants like nitrogen oxides makes one more vulnerable to respiratory infections. Ultimately, long-term exposure to heavy metals and ozone degrades lung function; the latter causes lung cancer and other conditions including emphysema and asthma. Nitrogen dioxide exposure has also been shown to cause emphysema-like lesions in mice.

b)Nervous system

Dioxins and heavy metals including lead, mercury, and arsenic mostly harm the neurological system. Exposure to arsenic, lead, and mercury has been

linked to neurotoxicity that results in neuropathies, which manifest as symptoms including slurred speech, hand tremors, rage, weariness, and sleep difficulties along with memory problems and exhaustion (Ewan and Pamphlett, 1996; Ratnaike, 2003).

The dopamine system, glutamate system, and N-methyl-D-aspartate (NMDA) receptor complex, which are crucial for memory activities, are specifically harmed by lead exposure. Certain incidences of brain cancer have also been linked to mercury. Dioxins impede children's mental development and reduce nerve conduction velocity.

C) Urinary system

One way that heavy metals can harm the kidneys is by causing tubular dysfunction, which starts with increased excretion of low molecular weight proteins and eventually leads to a reduction in the glomerular filtration rate (GFR).

Furthermore, they raise the possibility of developing stones or nephrocalcinosis as well as kidney cancer.

Digestive system

Dioxins cause gastrointestinal and liver cancer, as well as damage to liver cells as seen by elevated blood levels of certain enzymes.

Exposure during pregnancy

It is worth noting that air pollution has the potential to impact the developing fetus. Preterm delivery and low birth weight are associated with increased chances of spontaneous abortion and impaired fetal development caused by maternal exposure to heavy metals, particularly lead. Additionally, there is evidence that congenital abnormalities and lesions of the developing nervous system, which significantly impair a newborn's motor and cognitive abilities, are also related to parental lead exposure.

Similarly, it was discovered that the placenta transmits dioxins from the mother to the fetus.

Noise Pollution:

Places of Noise Pollution

1. Residences, educational institutes and offices
2. Social, religious, public and entertainment areas
3. Transportation
4. Commercial and Industrial areas.
5. Others like war zones, combat-training zones, sports arena, playgrounds, noisy

neighborhood, unruly pets, slums, call centers, telephone exchanges etc.

Sources of Noises

1. Toys and Play stations.
2. Mechanical home, kitchen, office, educational appliances.
3. Entertainment: Radio, TV, music systems, bands, loud speakers, movie theaters, personal audio systems like earphones, headphones,

Bluetooth appliances.

4. Communication devices like cell phones etc.
5. Transport vehicles: Motorized wheelers personally used to commute, public transport vehicles as buses, trains, airplanes, cargo transport vehicles as trucks, goods trains, cargo planes.
6. Mechanical equipment: Hammers, grinders, mowers, mixers, fans, air-coolers, air-conditioners etc.
7. Large machines: Land movers, drills, machines and vehicles used in construction and maintenance of houses, apartments, office blocks, schools, collages, factories etc.
8. Deforestation or urbanization: This is an indirect contributor to noise. Deforestation leads to increase in construction of houses, commercial areas, industries, roads, traffic etc. which ultimately leads to more noise in the previously quiet area.

All animals react to loud noises or noise pollution by either making more noise or by becoming quieter. They get agitated, distracted, and start moving away from the noise either permanently or temporarily, depending on the circumstances.

Auditory Health Effects of Noise Pollution

The unusual ringing sound known as tinnitus primarily originates inside the body. It could sound like whistling, grinding, hissing, buzzing, or anything similar. When it happens frequently or persistently, it gets annoying and interferes with daily tasks including working, learning, and sleeping. Being in a noisy environmentand aging are significant contributors to tinnitus, which has a sensorimotor origin.

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