

ENVIRONMENTAL STRESS: A PSYCHOLOGICAL ANALYSIS OF LONG TERM DAMAGE TO THE QUALITY OF OUR LIFE

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When a pollutant enters the environment and causes negative impacts, this is referred to as pollution. Noise pollution, like other types of pollution such as air, water, and light, has a negative impact on the ecosystem. When undesired sounds infiltrate the environment, this is known as noise pollution and various methods should be implemented to regulate it. In this review, we have highlighted the significance of environmental stress from a psychological perspective analysis of long term damage to our quality of life.

Introduction

As humans are responsible for the extensive, irreversible damages that we have been inflicting on our planet for the past seven decades post World War II. Our anthropogenic disturbances have been impacting the planet negatively with respect to an unprecedented increase of global human populations, widespread destruction of our virgin forests, loss of wildlife and biodiversity, extensive pollution of terrestrial as well as freshwater and marine aquatic ecosystems often beyond repair, extensive mono crop-based industrial agriculture using synthetic fertilizers and chemical pesticides, uncontrolled and unmonitored emission and release of toxic industrial gases, sludge, spent heavy water, unused toxic byproducts that are being released indiscriminately into the local ecosystem without any decontamination or detoxification process to mention only a handful factors deteriorating our environment on a daily basis. The cumulative and synergistic impact of such negative anthropogenic disturbances is significantly deteriorating the quality of our life around the planet¹.

However, one silent evil that is slowly penetrating our lives from a human perspective is noise pollution. The constant flow of heavy traffic, the noise of high pitched emergency vehicles, industrial noises, the noise of commercial aircrafts and military jets moving in and out of an airport, loud honks made by vehicles, railway engines and marine going vessels, ambient city sounds and overall crowding in cities and municipalities are all impacting the environment around us. We face challenges to talk to one another clearly during the busy part of the day or suffer from unknown and unseen mental fatigues being exposed to continuous negative impacts of recurrent noise pollution.

Thus we can well understand the dilemma of our modern lives across the planet. Climate change has been impacting all countries whether developed or underdeveloped or developing across the planet. The average increase in the temperature of our planet is facilitating the melting of polar icebergs and glaciers around the planet. Unprecedented floods, drought and famine with unpredictable patterns of weather regimes are impacting our safety, security and economic development. The increase in sea level is threatening future inundations of small island nations as well as low lying areas of different continents around the coastal areas. Excessive accumulation of Greenhouse gases such as carbon dioxide, carbon monoxide, various hydrocarbons, oxides of nitrogen and sulphur, and chlorofluorocarbons are depleting the

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precious ozone layer of our atmosphere making them vulnerable to harmful UV radiations with negative impacts on the health of humans, animals and plants².

In short, we can conclude that numerous anthropogenic factors have made our life directly or indirectly exposed to multiple levels of environmental stress that is turning detrimental to the quality of our lives across the globe. But what actually is ‘environmental stress’ in simplest terms and what do we mean by it. Environmental stress is the negative, cumulative and synergistic impacts of unacceptable or undesirable human actions that impact the environment, ecosystem, society and human health from a long term perspective. It is the product of ecological, sociological, economical and psychological stresses that is impacting both our body and mind negatively, our cognitive abilities, intellect as well as ability to take appropriate judicious decisions due to prolonged exposure and lack of any prevention, protection or medical attention³.

Noise has a wide range of effects on the human body⁴. Noise’s effects range from tiny but nonetheless harmful problems like insomnia to the most significant risks like hearing impairment⁵. The link between health-related quality of life and the auditory environment has long been known⁶.

Cognition

Chronic noise exposure has an effect on central processing and language comprehension in the brain. In

comparison to children in calm situations, studies have shown that children in noisy environments have smaller attention spans and perform worse in cognitive activities. Noise in the classroom can cause a variety of problems in children’s hearing, communication, and intelligence⁷.

Noise can impede a child’s learning ability, particularly when it comes to learning a language. Constant background noise can impair a child’s capacity to interpret words they already know as well as learn new ones. Furthermore, frequent noise exposure can disrupt the clarity of the child’s voice in the classroom, cause loss of attention during school activities, and even lead to a reduction in student academic performance⁸. The noise may limit children’s ability to grow their potential, as the environment is one of the most important aspects in maximizing an individual’s performance in daily activities⁹.

Noise pollution is a significant environmental issue. Noise has become a global problem in modern cities, and it has been studied extensively around the world. Students, particularly those whose schools are located near a major road, bear the brunt of noise in urban settings. Long-term and frequent noise exposure can have a negative impact on children’s mental health as well as their motivation to learn at school¹⁰. Loud sounds of automobiles disrupt pupils’ concentration in class¹¹.

Furthermore, environmental noise has been linked to learning difficulties in students¹². Auditory discrimination, reading comprehension, speech perception, concentration, and memory are all affected by noise. In schools, for example, poor acoustics make it difficult to understand what is being spoken. As a result, a child who cannot hear part of the words the teacher says has a more difficult time learning. Several studies found that children had problems with long-term memory and reading comprehension, indicating that noise exposure had a causal relationship with cognitive impacts¹³.

Mental Health

Besides physical damage, noise is also linked to the most frequent mental health issues. Aggressive behaviour, physical and mental tiredness, stress and

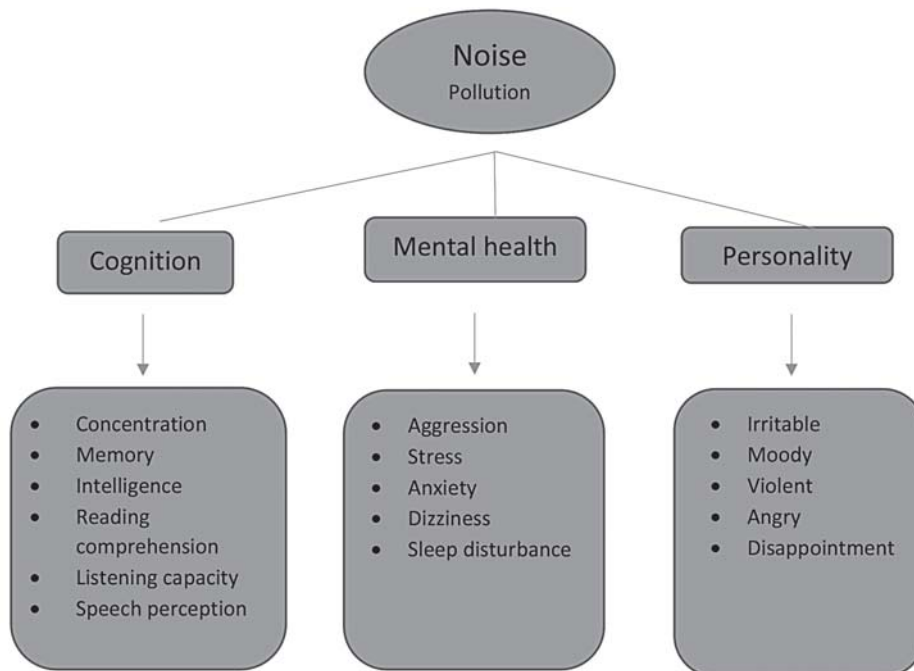


Fig 1: Schematic diagram of the effect of noise pollution

anxiety, dizziness, headache, rage, lack of concentration, sleep problems, and impaired efficiency are some of the negative psychological repercussions of noise exposure in humans that occur gradually. Constant loudness can make a person feel extremely anxious, as well as provoke panic attacks and melancholy.

Biological, psychological, social, economic, and environmental elements all play a role in mental health¹⁴. This category includes not just officially observed environmental factors, but also people's subjective perceptions of their surroundings. This is when the annoyance and noise come into play. Noise can have extra-auditory effects, such as stress reactions, in addition to hearing damage. Noise, for example, can disrupt communication, recreation, and concentration^{15,16}. If noise-induced discomfort persists (seen as minor or unmanageable), it can lead to not only stress but also exhaustion from inefficient noise-coping strategies. This, in turn, may have an impact on mental health¹⁷.

According to research done in Germany, high levels of noise irritation have been linked to poor mental health in both men and women. The relationship differed depending on the noise source: Noise nuisance from neighbours and road traffic had the strongest link to poor mental health. Noise irritation caused by aviation traffic had no significant link to mental health¹⁸. On the contrary, even after controlling for age, sex, smoking, height/weight, and socio-economic inequalities, aircraft noise near Schiphol Airport in Amsterdam was linked to more medical treatment for heart disease and hypertension, more cardiovascular medicine use, and higher blood pressure¹⁹.

Even while sleeping, the brain is always monitoring sounds for indicators of danger. As a result, too frequent or too loud noise might cause anxiety or stress. The susceptibility to stress grows as a person is exposed to more noise pollution. People can get impatient, agitated, frustrated, or angry as a result of noise pollution. If a person believes they have little control over the amount of noise in their environment, it has a greater impact on their mental health. Environmental noise is a typical source of sleep disruption, resulting in problems falling asleep, staying asleep, waking up too early, and so on¹². Environmental noise appears to be associated with psychological symptoms but not with clinical psychiatric disease in general. However, at considerably higher noise levels, there could be a relationship to psychological disease¹³.

Personality

Noise can create personality changes in people, such as making them more irritable, moody, violent, and angry. They are unable to focus and concentrate and may make dumb mistakes or forget things as a result. This not only causes turmoil in daily life but can also contribute to a rise in stress levels, which can lead to more health problems²⁰.

Aggression is a major component of occupational health, and it harms people's lives at work and in their social settings. Individuals may experience tensions and aggression as a result of long-term exposure to high-level noise; even different frequencies may act differently, causing impairment in cognitive functions, increase in human errors leading to, negative consequences, and, most importantly, increased psychological reactions in social and family settings. These issues are extremely important in terms of workplace health and safety²¹.

A study of Iranian industrial workers found a link between neurosis and noise irritation. According to the findings, those working in industrial units have an unsatisfactory level of noise irritation. Noise irritation can exist at any level of the noise intensity, depending on the individual and personality characteristics, therefore engineering control solutions cannot manage the noise annoyance to the optimal level. As a result, other non-noise elements that contribute to noise irritation should be taken into account. According to the findings, there is a direct link between psychosomatic personality qualities and noise irritation, but no link exists between other personality or demographic factors and noise annoyance²².

Noise hurts a person's quality of life, especially when it is loud and causes a lot of discomforts. Noise can cause a person to experience a variety of bad feelings, including disappointment, rage, and hatred. Because the noise hinders him or her from going as anticipated, he or she must occasionally change activities or take particular actions. Because of the noise, he or she may need to close windows or turn up the volume on the TV or radio. Noise annoyance might also impede people from reading or sleeping.

Conclusion

We are nearly always surrounded by noise, whether it is natural, such as birdsong, or man-made, such as automobile traffic. We conclude that noise pollution can have a substantial influence on the health of humans and animals. It occurs when undesirable sounds are broadcast into the environment. Any undesired or irritating sound that

has an adverse effect on the health and well-being of humans and other species is referred to as noise pollution. Our ears can tolerate sound up to 60 decibels, and sound below 60 decibels is pleasant, but when it exceeds 80 decibels, it becomes highly unpleasant and uncomfortable. Although everyone is susceptible to noise pollution, which can be perceived as a 'noisy' invasion of one's personal space (the reader may recall times when a loud noise disrupted one's train of thought or caused a task to be disrupted), infants, children, people with illnesses, and the elderly are particularly vulnerable. Hence, it is quite clear that noise pollution generates environmental stress in the long term that impacts the quality of our life. □

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