

EFFECT OF ARTIFICIAL LIGHT POLLUTION ON OUR HEALTH AND BEHAVIOUR

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Abstract:

Nowadays pollution has become a serious problem. Pollution is a problem that affects everyone on the planet. Urban areas are considered the most polluted. pollution spreads through the air and in a variety of other ways. This is a problem for every person on the planet. Air pollution, water pollution, and land pollution are the three major types of environmental pollution. Pollution can also refer to excessive human activity, such as light and noise pollution, or specific pollutants, such as plastic or radioactive material. In this research paper, we will talk about light pollution and how to reduce it in our environment. How light pollution affects our health and behaviour, among other things.

Key Words: Artificial Light; Pollution; Health; Behaviour

Introduction

The electric light bulb is one of humanity's greatest inventions in this world. Electric light is one of the everyday conveniences that most affect our lives. Nightlife wouldn't exist without the light bulb. But the invention, which was a blessing, is now becoming a curse.

According to International Dark-Sky Association (n.d.), "Artificial Light pollution is the presence of unwanted, inappropriate, or excessive artificial lighting."

Light pollution is emitted by streetlights, illuminated buildings, towers, and other structures. Additionally, some other electronic gadgets such as mobile, computers, tube lights and LED bulbs are also causing light pollution. Light pollution alters the visibility of natural features at night, disorienting migratory animals and increasing the likelihood of bird collisions with illuminated towers and buildings. Light pollution is affecting our health and sleep.

Artificial Light Invention and its Effects

Nowadays

The electric light bulb has been the most significant invention since the invention of fire. After sundown, the light bulb helped to maintain social order, extended the workday well into the night, and allowed us to navigate and travel safely in the dark. There would be no nightlife if the light bulb did not exist. The invention of light was a blessing but the invention of light is becoming a curse today. Most people are aware of the terms "air, water, and land pollution," but did you realize that "light pollution" can also exist?

Artificial light is causing harm in many ways. Disrupting the life cycle of animals, trees, and marine life. Like human beings, every living being rests and can do their work with renewed energy but when they don't get rest, they face problems in their daily activities. Today it has been proved that even trees sleep and artificial light affects all of them. Apart from this, due to the reflection of the light in the night sky in the atmosphere, we cannot see the stars and galaxies. All these many problems are caused due to light pollution but the biggest effect is on human nature and health so we will discuss it in depth.

So many environmentalists, naturalists, and medical professionals believe that artificial light pollution is one of the most rapidly rising and widespread kinds of pollution. Furthermore, a growing amount of scientific evidence demonstrates that artificial light pollution might have long-

term negative consequences on both human and wildlife health.

Artificial Light pollution affects human behaviour and health

In today's modern lifestyle, people keep the lights on even while sleeping at home. They do not know that this light is also affecting their behaviour and health. Even though our eyes are closed, due to some rays of light passing through our eyes, the brain perceives that due to the eyes being open, the body and brain are not getting the rest they should get, so the brain feels stressed and the body's working capacity also decreases.

Increased light at night reduces melatonin production, causing sleep loss, exhaustion, headaches, tension, anxiety, and other health issues. Reduced melatonin levels are connected to cancer.

According to George Brainard, a professor of neurology at Jefferson Medical College, Thomas Jefferson University in Philadelphia, exposure to indoor artificial night-time light is consistently associated with health issues like breast cancer. However, the health effects of light pollution on humans have not been as thoroughly studied as they are for wildlife. "This relationship does not establish that the issue is brought on by artificial light. On the other hand, controlled laboratory studies do show that night-time light exposure can alter neuroendocrine and circadian physiology, increasing tumour

development (Chepesiuk, R., 2009).

Nature has fixed a certain biological clock or period for every organism, just as the time (season) for the fruiting of every tree is fixed. The time of reproduction and birth of the baby of every animal is fixed. Similarly, the day and night cycle and biological clock are important for humans. It affects our mood and health. It affects physiological processes in almost all organisms. These processes include brain wave patterns, hormone production, cell regulation, and other biological activities. Disruption of the biological clock has been linked to several medical disorders in humans, including depression, insomnia, cardiovascular disease, and cancer. The circadian cycle controls ten to fifteen per cent of our genes. A good night's sleep is like taking a car to the garage and getting it serviced. If oil, water, cleaning, etc. are not taken care of in the car, then the car will not work well for a long time, in the same way, a person will not be able to get deep sleep due to artificial light. If we do not take care of it, many health problems can occur.

The connection between artificial light and sleep disorders is quite intuitive. Naturally from ancient times, we are accustomed to sleeping at night and working during the day. In today's modern times, due to artificial light exposure, more night waking and daytime sleepiness are observed. The circadian clock, therefore, has difficulties adjusting and humans can be predisposed to several sleep disorders, including shift-

work sleep disorder, which affects people who work or rotate night shifts. Some work one weekday and one weeknight so their biological clock is very disturbed so their nature becomes irritated. every disease affects more naturally and their cells can also be affected by diseases due to lack of proper rest.

Animals are also confused and lost. Research has shown that animal behaviours including migratory patterns, wake-sleep schedules, and habitat development are all being impacted by light pollution. Sea turtles and birds using the moonlight to guide them during migration become disoriented, lose their route, and frequently perish as a result of light pollution. Many insects, a major source of food for birds and other animals, are attracted to artificial lights and promptly destroyed upon coming into contact with them. This has an impact on birds as well, thus several cities have implemented the "Lights Out" program to turn off building lights when birds are migrating (National Geographic Society, 2022)

Blue light Also affects human behaviour and health. Fluorescent lights and widely used electronic gadgets like laptops, computer displays, cell phones, and televisions. Excessive exposure to blue light damages retinal cells and also increases the risk of cataracts, eye cancer and a clear coating on the white part of the eye. Young children look at mobile phones more than older adults, thus harming children's eyes health more. Some people experience

the common problem of eye irritation and soreness due to excessive exposure to mobiles, tablets and computers. Our eyes tend to blink less while using digital devices, which contributes to dry eye and eye strain. Headache, blurred vision and neck and shoulder pain are seen along with eye problems. Moreover, exposure to blue light before bedtime can also disrupt sleep patterns.

The circadian rhythm that distinguishes humans from other animals is that they are awake during the day and asleep at night. The widespread use of artificial lighting in streetlamps, structures, stores, homes, and a variety of other places across the world has disrupted its natural cycle. It might be argued that very few of us ever have seen a truly dark night. Melatonin, a hormone, is the cause of this. Too much light at night inhibits the production of this hormone, which the body produces in response to the circadian cycle. In addition to having antioxidant characteristics, melatonin also lowers cholesterol, promotes healthy sleep patterns, and strengthens the immune system. Moreover, it supports the proper operation of the thyroid, pancreas, ovaries, and testes.

How to reduce Artificial light pollution?

Now that we know that light pollution occurs, it's important to think about what we can do to reduce that light pollution.

Switch off the lights when not in use. By turning off the lights, you not only save

your home's energy expenditures but also assist to minimize overall light pollution.

Use fewer lights, it's merely common sense to use lights only when you need them when inside the building mentioned above. You're already doing well if you enjoy dim, ambient lighting. Moreover, consuming less total light is possible with dimmers fitted in every area.

While going to bed, turn off all lights. It should go without saying that you don't need lights while you're asleep. Motion sensor lights for safety are OK, as are small nightlights to light your path during a nocturnal restroom break.

How can we reduce the negative effects of blue light? Using blue-light filters for your smartphone, tablet and computer screen. Take a moment to look away from the display and look around. Dim the screen brightness and set the correct distance and height from the screen. Take the right vitamins to improve eye brightness. Wash your eyes frequently with cold water and look at a green plant.

Conclusion

Through this research paper, we know how artificial light is spreading pollution. So, if we become aware of this pollution and work together to make our life and earth more beautiful and work on ways to reduce this pollution, the purpose of this research paper will be successful. If we don't take artificial light pollution seriously, we and

future generations and all living things on earth will have to bear the brunt of it.

Reference

1. Chepesiuk, R. (2009). Missing the dark: health effects of light pollution.
2. International Dark-Sky Association (n.d.). Light Pollution. Retrieved from <https://www.darksky.org/light-pollution/>
3. National Geographic Society (2022). Light Pollution. Retrieved from <https://education.nationalgeographic.org/resource/light-pollution/>