



THE IMPACT OF INDUSTRIAL AND COMMUNITY NOISE NUISANCE ON GLOBAL HEALTH AND ECONOMIES

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ARTICLE INFO

Received:

30 Apr 2021

Received in revised form:

10 Jun 2021

Accepted:

12 Jun 2021

Available online:

28 Jun 2021

Keywords: Industrial noise, Community noise, Impact, Global health and economies

ABSTRACT

Noise pollution nuisance results in escalation of health complications for people and the wildlife, both in the land and in the sea. Community noise emanating from traffic, rocks, concerts, loud or inescapable sounds are likely to result in an impaired hearing, stress, high blood pressure, and many other health complications. From the explained health problems emanating from noise pollution, economic stability is disoriented since the governments will be forced to spend vast sums of money on the health sector instead of spending the money on other development activities. To examine the impacts of industrial and community nuisance on global health and economies. This paper conducted in-depth research by reviewing series literature and gathering relevant information from relevant databases such as World Health Organisation, World Bank, and CDC. The results showed that industrial and community noise nuisance negatively impact global health and economies through increased burden on the government and citizens.

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To Cite This Article: Alzain HM, AlJabr IA, Jaafari AKA, Alkhunaizi HA, AlSubaie AS, Hussein KM. The Impact of Industrial and Community Noise Nuisance on Global Health and Economies. *Pharmacophore*. 2021;12(3):64-7. <https://doi.org/10.51847/sAitB4Jr84>

Introduction

National or global health is directly related to the economy; therefore, if global health is not good, the economy will have to perform poorly [1, 2]. It requires a country with a healthy society to grow a healthy economy: people who are sick and incapacitated in the majority of spheres cannot actively participate in economic development Reference [3]. Therefore, it requires the global agencies responsible for economic development to actively work together with the agencies responsible for global health to create the world's economic growth.

Today, globalization has come up with increased industrialization and many other economic activities within the community that in one way or another produces excess noise in the society. Since the majority of these companies and community activities are carried out within urban areas where the majority of the global population live, there are high chances of noise pollution affecting the population's general health [4]. On the other hand, most hospitals are within the urban regions where noise pollution is severe; these excess noises, therefore, worsen the condition of patients since they affect the recovery period.

Noise pollution nuisance causes health problems for people and the wildlife, both in the land and in the sea. Community noise emanating from traffic, rocks, concerts, and loud or inescapable sounds is likely to result in an impaired hearing, stress, high blood pressure, and other health complications. On the other hand, noise from ships and community actions in the ocean seriously harms whales and dolphins, which majorly depend on echolocation for survival [5]. Therefore, from the explained health problems emanating from noise pollution, economic stability is disoriented since the governments will be forced to

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spend vast sums of money on the health sector instead of other development activities. Therefore, this research seeks to conduct an in-depth analysis of how industrial and community noise nuisance can impact global health and economies.

Materials and Methods

Series of researchers and scholars had previously researched the issues related to this topic, with some doing research on the same area; thus, there is a vast body of literature that is enough to provide this research with the necessary information to meet its objectives. Based on the richness in the body of research, this paper will embark on an in-depth literature review where series of secondary materials related to the topic of discussion is reviewed. Series of global databases such as WHO, World Bank, CDC, and much other health and economic or financial electronic databases were reviewed to gather relevant information for the study. The study aims to get access to secondary materials that explain the impacts of company noise on global health and the economy. From the various research centers, the terms were noise pollution, health, and economics.

Results and Discussion

The majority of people or the global population who participate in economic activities that produce excess noise in the community do not believe that noise may have a severe health impact on them. People tend to argue that, in the long run, it's just noise, and it does not pose any severe harm; thus, no need to worry. According to the reports from experts, exposure to extended or excessive noise causes an array of health problems such as stress, poor concentration, productivity losses in the workplace, communication difficulties, and fatigue emanating from lack of sleep [6]. Many other health impacts of excess noise from industry and community activities involve significant issues such as cardiovascular disease, cognitive impairment, tinnitus, and hearing loss. In 2011, a report from WHO entitled "Burden of disease from environmental noise" was based on a series of data collected from numerous large-scale epidemiological reviews on environmental noise within Western Europe for the past ten years.

The study analyzed and linked environmental noise from the plane, trains, vehicles, and industries to the potential impacts on individual health conditions. The noise sources were linked to sleep disturbance, tinnitus, cognitive impairment in children, cardiovascular disease, and annoyance [3]. The researchers applied the data gathered to find the disability-adjusted life-years (DALYs), which are the healthy years of life lost to detrimental human-induced dissention like noise.

From the calculations, the research proved that not less than one million healthy years are lost annually in Europe and the rest of the world due to noise pollution. The study then ranked industrial and transport noise second amid the environmental dangers to public life. It was justified that vast proof exists that exposure to environmental noise has a severe effect on the health of the global population [7]. Today there are series of global campaigns to end series forms of pollution, but surprisingly, noise pollution is growing because of the increased population and human events.

Majority of activities that lead to noise pollution significantly contribute to economic growth. Activities such as processing and manufacturing industries sound from means of transportation and many other global activities such noise from the market places helps in improving the global economic conditions in one way or another. However, their adverse effects on the global population health are more to bear. It is indeed a fact that all these activities must take place in daily human activities for life to continue [8]. The majority of people do not believe that noise pollution can cause significant harm to their lives compared to other sources; therefore, they increasingly take part in these activities as a means of meeting their daily.

From the literature review, it is fascinating to realize that at some point, it may be the different sounds we are not even aware of that may affect us significantly. More so, the noise that we hear when we are asleep is spelled to be most harmful. The human ear is believed to be very sensitive and never goes to rest; thus, when we are sleep, the ears are not asleep. They work by gathering up and conveying sounds filtered and interpreted by varying parts of the human brain. Ears are eternally open hearing channels; thus, people who stay near factories, within the cities, or along the roads are at risk of noise pollution from these sources even when asleep.

During the night, the most effective noise is interrupted sleep; it, therefore, results in weakened memory and creativity, impaired judgment, and destabilized psychomotor skills. People living near factories, airports, along the roads, or within urban centers with series of noise sources have high incidences of headaches, must take sleeping pills, and become sedatives [9]. These people are more susceptible to negligible accidents and have a high chance of seeking psychiatric treatment. Even if a victim of noise pollution fails to wake during the noise pollution period, the continuous noise may set off the body's acute stress response, raising blood pressure and body heat rate. This will intern mobilize the state of hyperarousal; it is, therefore, this type of rejoinder that is likely to result in cardiovascular disease and many other health-related problems.

It is the responsibility of the governments, both locally and globally, to ensure that their population has good health and that the economy is moving in the right way. This depends on the level of GDP and the annual allocations to the health sector to cater to the treatment processes. The increased health problems emanating from noise pollution greatly burden the government [10]. The fact that most people take part in noise pollution activities, the risk of human health increases. Therefore, it requires the government to increase its expenditure in the health sector and limit expenditure in other sectors, which are equally crucial for the nation's growth.

Economic growth is a subject of macroeconomic factors such as employment, inflation, and GDP. High employment, increased GDP, and reduced inflation justified the economic stability of a nation. However, if there is a negative outcome out of these

factors, then it's a sign of economic stagnation [11]. When the demand for healthcare increases, the government will have to spend excess money to meet the demand and creating a healthy society. However, the increased demand will force the governments to borrow loans and increase taxes to raise enough money to fund its health sector.

An increase in taxes or foreign loans will destabilize the economy since inflation on local goods will be registered, employment opportunities will reduce, and national and global GDP will reduce. Increased noise accruing from industry and community activities will also require the government to invest heavily by creating and sponsoring new innovative institutions and supporting and creating awareness on the use of noise-free machines [12]. This will then divert the government's attention to creating a stable economic nation since much focus will be on reducing noise pollution.

Government resources should be allocated equally in various sectors to ensure that consistent economic growth is achieved. However, once the demand in one sector becomes higher than in other sectors, it becomes a challenge to economic development since funds necessary for creating employment opportunities or lowering interest rates will be used to cater to the increased demand for health.

Exceedingly, increased government expenditure on the health sector due to increased healthcare demand, noise pollution nuisance can also affect global health and the economy in many ways [13]. Health-related problems from noise pollution include memory loss, weakened psychomotor skills, tiredness, and being unproductive directly affects economic growth. For an economy to develop, citizens must be in good health conditions since they are the source of labor, they are the source of innovation, they offer leadership, and it is them that dictates the prices of goods due to the levels of demand and supply. Thus, all economic development activities will stall once these people are sick out of noise pollution emanating from factory and community activities.

It requires a healthy individual to become productive in the workplace; being healthy increases investments in other sectors since the money used to get treatment can be invested in the business. Thus, the healthier the population, the more investments are made, creating more employment opportunities and reducing inflation as GDP increases. Healthy people can wake in the morning, go to the farm to cultivate, and get the bumper harvest consumed domestically, and others were taken to the market [14]. Therefore, this increases the circulation of food in the market, hence improving people's living standards. Instead of spending much money on treatment, people will spend money and energy on other activities that directly increase the level of economic development of a nation.

Conclusion

Industrial and community noise nuisance is a significant threat to global health and economies. Health problems associated with noise pollution such as stress, hearing loss, high blood pressure, and cardiovascular complications risk human life. They reduce the life span of people or lower their healthy years of life. On the other hand, increased demand for healthcare imposed a burden on the government since it requires a hefty investment in the sector to keep individuals healthy. On the other hand, sick people are unproductive; they cannot effectively participate in economic growth due to their poor health conditions [13]. The majority of an individual's income will be spent on treatment hence limiting chances of investments. More so those in developing countries, the governments will be forced to borrow loans or increase taxes to fund the increased demand for healthcare. Chances of employment opportunity creation will reduce as the general inflation increase hence lowering the global GDP.

Acknowledgments: The authors are grateful to all support and guidance of Dr. Hassan Mohammed Alzain.

Conflict of interest: None

Financial support: None

Ethics statement: None

References

1. Hanawi SA, Saat NZ, Zulkafly M, Hazlenah H, Taibukahn NH, Yoganathan D, et al. Impact of a Healthy Lifestyle on the Psychological Well-being of University Students. *Int J Pharm Res Allied Sci.* 2020;9(2):1-7.
2. Ren-Zhang L, Chee-Lan L, Hui-Yin Y. The awareness and perception on Antimicrobial Stewardship among healthcare professionals in a tertiary teaching hospital Malaysia. *Arch Pharm Pract.* 2020;11(2):50-9.
3. Ezzati M, Webster CJ, Doyle YG, Rashid S, Owusu G, Leung GM. Cities for global health. *BMJ.* 2018;363.
4. Allshouse WB, McKenzie LM, Barton K, Brindley S, Adgate JL. Community noise and air pollution exposure during the development of a multi-well oil and gas pad. *Environ Sci Technol.* 2019;53(12):7126-35.
5. Schwela D. Review of environmental noise policies and economics in 2014-2016. *South Florida J Health.* 2021;2(1):46-61.
6. Anees MM, Qasim M, Bashir A. Physiological and physical impact of noise pollution on environment. *Earth Sci Pakistan.* 2017;1(1):08-11.

7. Baumgartner J, Brauer M, Ezzati M. The role of cities in reducing the cardiovascular impacts of environmental pollution in low-and middle-income countries. *BMC Med.* 2020;18(1):1-11.
8. Jariwala HJ, Syed HS, Pandya MJ, Gajera YM. Noise Pollution & Human Health: A Review. *Indoor Built Environ.* 2017:1-4.
9. Slabbekoorn H. Noise pollution. *Curr Biol.* 2019;29(19):R957-60.
10. Tezel MN, Sari D, Ozkurt N, Keskin SS. Combined NOx and noise pollution from road traffic in Trabzon, Turkey. *Sci Total Environ.* 2019;696:134044.
11. Bello JP, Silva C, Nov O, Dubois RL, Arora A, Salamon J, et al. Sonyc: A system for monitoring, analyzing, and mitigating urban noise pollution. *Commun ACM.* 2019;62(2):68-77.
12. Sánchez M, López-Mosquera N, Lera-López F, Faulin J. An extended planned behavior model to explain the willingness to pay to reduce noise pollution in road transportation. *J Clean Prod.* 2018;177:144-54.
13. Basu B, Murphy E, Molter A, Basu AS, Sannigrahi S, Belmonte M, et al. Investigating changes in noise pollution due to the COVID-19 lockdown: The case of Dublin, Ireland. *Sustain Cities Soc.* 2021;65:102597.
14. Lu C, Gao L, Li X, Zheng J, Gong W. A multi-objective approach to welding shop scheduling for makespan, noise pollution and energy consumption. *J Clean Prod.* 2018;196:773-87.