

Invisible health risks from harmful environmental exposures in slum areas

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As an increasing proportion of the population in low- and middle-income countries migrates to urban slums areas, the risk of illness and death increases due to harmful environmental exposure. This is presented in a doctoral thesis at Umeå University in Sweden.

"Improving the urban environment is a critical effort towards reaching a sustainable development goal of ensuring healthy lives and promoting well-being for all," says Thaddaeus Egondi, [doctoral student](#) at the Epidemiology and Global Health at Umeå University, in his doctoral thesis. "Additionally, those who residing in cities are more susceptible to illness and even death due to harmful [environmental exposure](#), such as air pollution and extreme temperatures."

Rapid urbanisation is a challenge for many cities in low- and middle-income countries where the urban growth is associated with the formation of informal settlements. A number of studies have established various [health](#) problems and determinants in socially deprived urban populations. However, it is not understood how environmental conditions are contributing to disease and mortality burden in these populations.

In his [doctoral thesis](#), Thaddaeus Egondi examined the health risks from environmental exposure based on data of a population followed since 2003 in two slums of Nairobi, Korogocho and Viwandani, by the African Population and Health Research Center (APHRC).

The findings demonstrated that residents in these slum areas of Nairobi

are exposed to [air pollution levels](#) reaching up to 214 microgram per cubic meter compared to the recommended WHO 24-h levels of 25 microgram per cubic meter. The study also found that children below 5 years of age living in highly polluted areas had 30% increased risk of developing illnesses such as cough, fever, difficulty in breathing and a 15% increased risk of dying.

According to Thaddaeus Egondi, the health risks from environmental exposure remain invisible mainly because of the lack of data to provide evidence on the impact of exposure on health outcomes.

"The data from APHRC has provided a great opportunity to assess the burden of exposure to air pollution and temperature variation in two slum residential areas," says Thaddaeus Egondi. "It is likely that the urban poor bear a large burden from the exposure due to the multiple risks with limited access to proper health care."

He believes that the health burden from [air pollution](#) is likely to continue unless proper measures are taken, as the population of Nairobi continues to grow with large proportion residing in slum areas. Such measures could include proper waste management, increasing urban vegetation and appropriate urban planning.

Thaddaeus Egondi has also investigated the association between temperate extremes and mortality. The study found that the risk of mortality increased during periods of low temperatures. During such episodes, the risk of mortality increased by 40% among children less than 5 years of age. Contributing to this upsurge is likely due to the poor housing and heating standards, as well as a high pollution level observed during the cold season.

"Our estimates revealed that each period of extreme cold temperatures contributed to 26 years of life lost in the population of the study

population," says Thaddaeus Egondi. "Simple improvements in clothing and housing standards would likely mitigate these negative health impacts from cold weather."

More information: Making visible the invisible: Health risks from environmental exposures among socially deprived populations of Nairobi, Kenya, umu.diva-portal.org/smash/record.jsf?pid=diva2%3A846541&dswid=-5448

Provided by Umea University

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