

Air pollution may be affecting how happy you are



Analysing data from 144 Chinese cities, they found that self-reported happiness was significantly lower on days with relatively higher pollution levels.

Image: REUTERS/Damir Sagolj

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For decades now, GDP has been the standard measure of a nation's well-being. But it is becoming clear that an economic boost may not be accompanied by a rise in individual happiness.

While there are many reasons for this, one important factor is that as nations become richer, environmental features such as green space and air quality often come under increasing threat.

The mental health benefits of [access to parks or waterfronts](#), for instance, have long been recognised but more recently researchers have also started to look at the role air pollution can play in our general mental health and happiness.

With more tangible outcomes such as health, [cognitive performance](#) or [labour productivity](#), the adverse effects of poor air are significant and well-established. The link to infant mortality and respiratory disease is well known, and the World Health Organisation estimates that around [7m deaths](#) are attributable to air pollution each year.

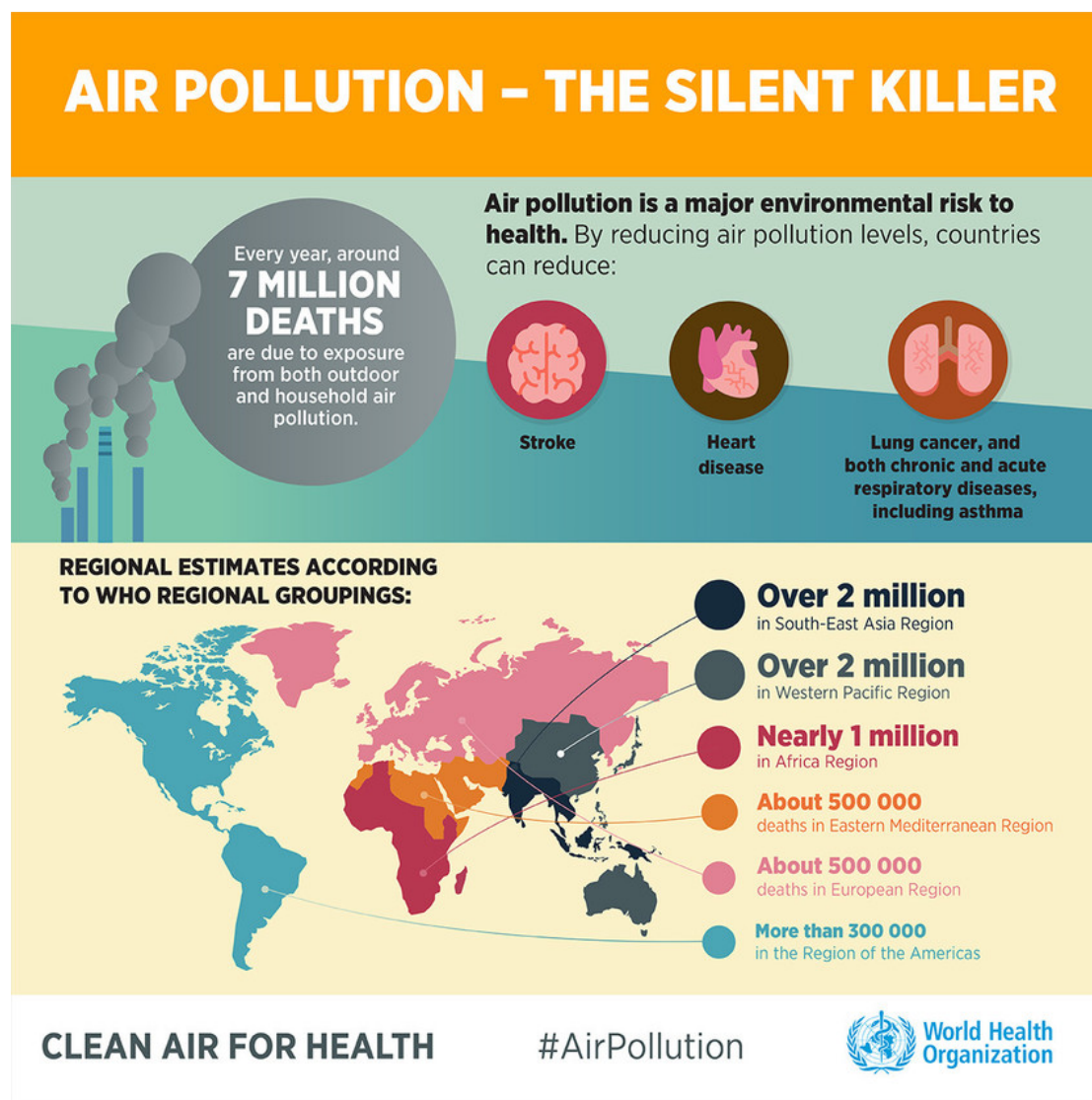


Image: WHO

But while many people will die and many more will acquire a chronic health condition, focusing on objective indicators such as these may still understate the true welfare cost. This is because there is now good evidence of a direct link between air quality and overall mental health and happiness.

Evidence from all over the world

This evidence comes from a diverse array of studies in different countries and using different analytical approaches. The most compelling of these studies track the same people over time, and find that changes in the air quality in these people's neighbourhoods are related to changes in their self-reported happiness.

One particularly [innovative study](#) looked at what happened when large power plants in Germany were fitted with equipment designed to reduce emissions. Researchers had access to happiness data from a long-term survey of a panel of around 30,000 Germans, and categorised everyone by whether they lived upwind or downwind of a power plant (or nowhere near).

The research found that those downwind underwent a significant improvement in their happiness levels after the installation, while their upwind neighbours did not benefit. This sort of comparison – a natural experiment that would be impossible and perhaps unethical to replicate in a lab – helps to ensure that the improvement in happiness was due to the improvement in air quality as opposed to other factors.

Economists and scientists are continually on the lookout for new ways to test the association. One example, recently published in [Nature Human Behaviour](#), comes from China. Researchers looked at the sentiment expressed in 210m geotagged messages on the microblog platform Sina Weibo (a Chinese equivalent to Twitter). Given they knew where these tweets had been sent from, and how happy or sad they were, the researchers were then able to match the tweets to a daily local air quality index, providing a real-time connection between air pollution and happiness. Analysing data from 144 Chinese cities, they found that self-reported happiness was significantly lower on days with relatively higher pollution levels.

This study adds to a pile of research which suggests that air pollution can be [detrimental to happiness](#) – but we still need more research on why this is. While health is undoubtedly a factor, we know from studies that control for health status that air pollution affects happiness over and above any indirect effects on physical condition. Some possible reasons for the direct link include aesthetics such as haze, smell and even taste, as well as anxiety about personal health or the health of others. Air pollution has also been a focus of several studies on [cognitive impairment](#), but it is still too early to say if it really plays a role in brain health.

Improving the well-being of citizens remains an obvious and important aim of public policy. To date, the principal focus has been on material well-being but many social scientists and indeed policy makers now argue that we need to take account of how people think and feel about the quality of their life. This is not to ignore material factors like income or physical health. Rather, a comprehensive picture of societal well-being needs to integrate objective indicators with