

Science for Environment Policy

How sounds affect our state of mind

Sounds affect our state of mind differently depending on whether they are pleasant or annoying. In a theoretical study, researchers developed a model for exploring human responses to sound. Their work may help us to better understand the health impacts of long-term exposure to noise, as well as the potential benefits of spending time in quiet spaces.

It seems clear that there are health benefits to living in a quiet, pleasant environment. But the researchers wanted to consider what 'quiet' actually means. Within policy contexts, 'quiet' may be interpreted as meaning little or no noise. However, other interpretations may have less to do with sound levels than with a lack of disturbances in a given location or a level of control that people feel they have over the sounds.

While pleasant, natural sounds make us feel calm and safe and allow us to remain in a tranquil state of mind, sudden 'loud' and 'annoying' sounds made by machines or other people may force us out of this tranquil state and become the focus of our attention. We may even have evolved—like other animals—to pay attention to the annoying sounds, because they indicate danger. People can become finely attuned to the sounds that most disturb them, heightening their annoyance. In the same way, an absence of pleasant sounds may also put us on high alert, because it offers no guarantees of safety.

After reviewing existing studies on the way that people react to pleasant and annoying sounds, the authors developed their own model which focuses on the influence of sound on 'mind states'. The model draws on theories from different disciplines, including psychology and neurobiology. They describe four possible states of mind: (1) maximally restoring (sleep); (2) restoring; (3) effortful (requiring focused attention); and (4) inefficient and more effortful.

When we are in environments that make us feel safe, according to the model, our state of mind is restorative. Therefore, in the second, 'restoring' waking state, we have freedom in our thinking and behaviour. However, if we feel threatened by our environment, we have to pay more attention to it and—in the authors' fourth state—switch constantly between thoughts about the tasks we're trying to get on with and potential external threats.

Continually being in this state of high alert and carrying out such mental switching means not only that we can't focus on specific thoughts, but that we miss out on the restorative benefits of free thinking. These various states of mind may be strongly influenced by the 'soundscapes' (acoustic environments) we are exposed to.

However, the researchers also think that people may benefit from changes in soundscapes - from spending time in lively places as well as quiet places. They say a diversity of acoustic environments is preferable over more uniform acoustic environments that comply with certain legal noise limits. Such an approach might also be less costly than trying to keep sound levels uniformly low.



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Noise impacts
on health

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