Brain responds more quickly to angry voices, says study

Attention is more focused on threatening voices to enable us to clearly recognise the location of the potential threat.

Sight and hearing are the two senses that allow human beings to detect threatening situations. (Photo: AP)

Geneva: We notice aggressive or threatening voices much faster than those that sound normal or happy, scientists say.

According to the study published in the journal Social, Cognitive and Affective Neuroscience, our attention is more focused on threatening voices to enable us to clearly recognise the location of the potential threat.
Researchers from the University of Geneva (UNIGE) in Switzerland showed how our brain leverages resources when we sense danger to allow for adequate survival behaviour.

Sight and hearing are the two senses that allow human beings to detect threatening situations.

Although sight is critical, it does not allow for a 360-degree coverage of the surrounding space -- unlike hearing.

"That's why we are interested in how fast our attention responds to the different intonations of the voices around us and how our brain deals with potentially threatening situations," said Nicolas Burra, a researcher at UNIGE.

To examine the brain's response to threats in the auditory environment, the researchers presented 22 short human voice sounds (600 milliseconds) that were neutral utterances or expressed either anger or joy.

Using two loudspeakers, these sounds were presented to 35 participants while an electroencephalogram (EEG) measured electrical activity in the brain down to the millisecond. More specifically, the researchers focused on the electrophysiological components related to auditory attentional processing.

"Each participant heard two sounds simultaneously: two neutral voices, one neutral and one angry voice, or one neutral and one happy voice. When they perceived anger or joy, they had to respond by pressing a key on a keyboard as accurately and quickly as possible," said Leonardo Ceravolo, researcher at UNIGE.

"We then measured the intensity of brain activity when attention is focused on the different sounds, as well as the duration of this focus before a return to the basic state," he said.

Using data from the EEG, researchers examined the appearance of a cerebral marker of auditory attention called N2ac.

"When the brain perceives an emotional target sound, N2ac activity is triggered after 200 milliseconds. However, when it perceives anger, the N2ac is amplified and lasts longer," Burra said.

Subsequently, after 400 milliseconds, our attention must disengage from the emotional vocal stimulus.
At this moment, a cerebral marker of auditory attention, called LPCpc, intervenes. "Anger can signal a potential threat, which is why the brain analyses these kinds of stimuli for a longer time," said Ceravolo.

The study demonstrated for the first time that in a few hundred milliseconds, our brain is sensitive to the presence of angry voices, researchers said.

This rapid detection of the source of a potential threat in a complex environment is essential, as it is "critical in crisis situations and a great advantage for our survival," said Ceravolo.

**Tags:** brain, angry voice, attention, potential threat, mental health

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Brain responds more quickly to angry voices, says study

The study demonstrated for the first time that in a few hundred milliseconds, our brain is sensitive to the presence of angry voices, researchers said. At this moment, a cerebral marker of auditory attention, called N2ac, intervenes. “Anger can signal a potential threat, which is why our brain is sensitive to it,” stated one of the researchers. Subsequently, after 400 milliseconds, our attention must disengage from the threat and focus on another task. This rapid detection of the source of a potential threat in a complex environment is essential, as it is “critical in crisis situations and a threat to the survival of the organism,” researchers added. They also observed that angry voices could trigger not only the early attentional engagement, but also slow reactions related to an emotional response to the threat.

Researchers studied 37 young volunteers using an auditory oddball paradigm to evaluate the brain’s response to different sounds. Each participant heard two sounds simultaneously: two neutral happy voice. When they perceived anger or joy, they had to respond. “Each participant heard two sounds simultaneously: two neutral happy voice and one angry voice. When perceived, they had to press a button,” said one of the researchers.

The research team found that LPCpc, intervenes. “Anger can signal a potential threat, which is why our brain is sensitive to it,” said one of the researchers. Subsequently, after 400 milliseconds, our attention must disengage from the threat and focus on another task. This rapid detection of the source of a potential threat in a complex environment is essential, as it is “critical in crisis situations and a threat to the survival of the organism,” researchers added. They also observed that angry voices could trigger not only the early attentional engagement, but also slow reactions related to an emotional response to the threat.

They measured the intensity of brain activity when attention is disengaged. “We then measured the intensity of brain activity when attention is disengaged from anger and happiness,” researchers explained. The study showed that the brain takes about 400 milliseconds to disengage from the threat and focus on another task. This is critical in situations where the organism needs to switch its focus from one task to another. Researchers explained that the brain can disengage from an emotion-related task up to 1 second after it is triggered by a threat.

This rapid detection of the source of a potential threat in a complex environment is essential, as it is “critical in crisis situations and a threat to the survival of the organism,” researchers added. They also observed that angry voices could trigger not only the early attentional engagement, but also slow reactions related to an emotional response to the threat.

According to the study published in the journal Social, Cognitive and Affective Neuroscience (SCAND), anger can trigger an emotional response even when the information is not relevant. The study showed that angry voices can trigger a faster attentional disengagement than happy voices. The researchers also observed that the emotional response to angry voices was stronger when the information was irrelevant. This could be explained by the fact that the brain is more sensitive to threat-related information, researchers explained.
Brain responds more quickly to angry voices, says study

Researchers from the University of Geneva (UNIGE) in Switzerland have found that the brain responds more quickly to angry voices than to happy or neutral voices.

This rapid detection of the source of a potential threat in a complex environment, the researchers say, is a great advantage for our survival.

When the brain perceives an emotional target sound, a cerebral marker of auditory attention called N2ac is triggered after 200 milliseconds. However, when it perceives a neutral sound, the same attention marker appears only after 400 milliseconds.

A study published in the journal Social, Cognitive and Affective Neuroscience confirmed the findings. Each participant had to focus on the different sounds, as well as the duration of this focus.

According to the study, the detection of a potential threat is important, especially in potentially threatening situations. Researchers presented 22 short human voice sounds (600 milliseconds) that were neutral utterances or expressed either anger or joy.

Researchers from the University of Geneva said that anger can signal a potential threat, which is why the brain responds more quickly to angry voices. This response is a warning system that helps us to be alert to potential dangers.

The study highlighted that everyone on earth loses about 2.6 years of life due to health problems. However, the detection of a potential threat can help us to be prepared and take necessary precautions.

Researchers also found that attention is more focused on threatening situations than on neutral or happy situations. This can help us to prioritize our actions and react quickly to potential threats.

In conclusion, the brain's rapid response to angry voices is a crucial mechanism for our survival. It helps us to detect potential threats quickly and take necessary actions to avoid dangerous situations.
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