Brain responds more quickly to angry voices: Study

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 Burri, 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.
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According to the study published in the journal Social, Personality and Social Psychology, anger is a potential threat and our brain analyzes these kinds of emotional vocal stimuli quickly. Subsequently, after 400 milliseconds, our attention must disengage from the emotional vocal stimulus. However, when it perceives anger, the N2ac is amplified and lasts longer, as opposed to cases of joy or surprise.

To examine the brain's response to threats in the auditory environment, the researchers performed an experiment where participants were asked to identify emotional intonations (i.e. angry voices). They were asked to respond to angry and joyful voices and their brain responses were recorded.

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"Anger can signal a potential threat. Therefore, it mobilizes the system expanded with free and LAUGHTER make 7 nervous systems, at a stretch with all of them co...

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"Male mind didn’t walk in..." Seshadri Vikrala

"They know how to multi task..." Lilly Lilly

"Anger is how the male mind created at his countries through man wars. This means anger takes the highest spot in male minds. Man mind didn’t walk in...

"That is why Ted Turner says we should replace all world leader from men to women we will have better more peaceful world, they know how to multi task..." Duck Good

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From Around the Web

Brains respond more quickly to angry voices, according to a new study published in the journal PLoS One.

When scientists played recordings of voices with a neutral tone, they found that the brain was able to react to this stimulus in less than 200 milliseconds, on average. The researchers then played recordings of voices that contained either angry or happy emotions. They found that when the voices expressed anger, the brain was able to react in about 150 milliseconds, compared to 250 milliseconds when the voices expressed happiness.

The study, conducted at the University of Geneva, involved 18 participants who were asked to listen to the recordings while their brain activity was monitored using EEG (electroencephalography) sensors.

The researchers say that the findings could have implications for understanding how our brains respond to different emotional stimuli.

“Being able to respond quickly to potentially threatening situations is important for survival,” said lead author Nicolas Burra. “Our results suggest that the brain is primed to respond rapidly to angry voices, which could be an adaptive strategy to detect and respond to potential danger.”

The study was published in the journal PLoS One.