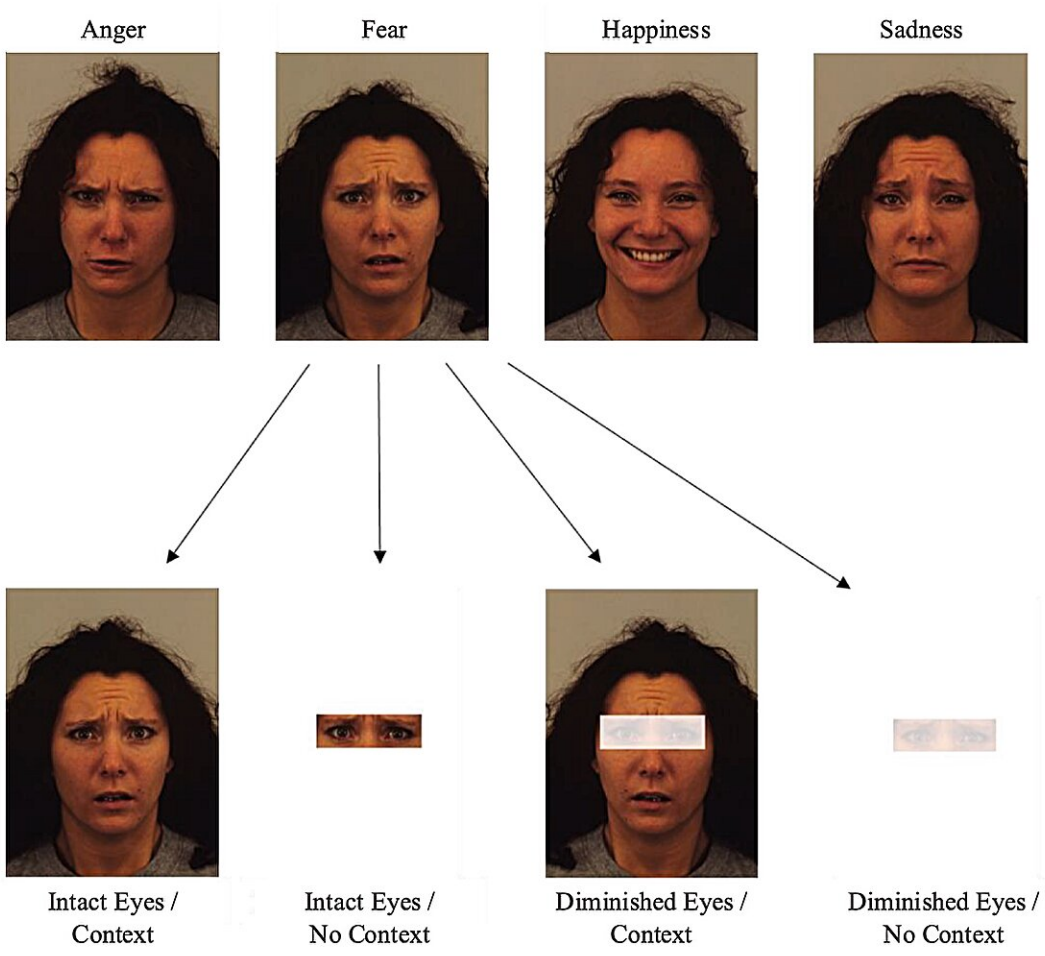
Full faces sharpen emotion recognition, even when eye details are blurred

June 4 2026, by Sanjukta Mondal



People recognize emotions more accurately and quickly when the whole face is visible. Credit: *Brain Research* (2026). DOI: 10.1016/j.brainres.2026.150303

A teary eye, a furrowed eyebrow, creases at the edge of the eye tell us what a person is feeling without them having to express it with words. New data indicate that eyes might be the window to the soul, but with curtains blocking half of their view, because the eyes alone do not contain enough information for our brain to derive emotions solely from them.

Researchers from the College of Wooster, USA, wanted to understand how much we actually rely on the eyes versus the whole face to recognize emotions. After examining participants' brain activity using EEG (electroencephalography) as they viewed photographs of people displaying different emotions, they discovered that people can recognize emotions both more quickly and more accurately when they can see the entire face rather than just the eyes.

Blurring details in the eyes had little impact on people's ability to recognize facial expressions as long as the rest of the face remained visible. When details in the eyes are reduced, the ability to read emotions takes a hit if the rest of the face is concealed, suggesting that the brain uses other features to fill in the gaps when information from the eyes is missing.

The findings are published in *Brain Research*.

The eyes vs. face debate

There has been a long-standing debate about which part of the face is crucial to deciphering human emotions. Shakespeare believed it was the eyes, while many scientists agree that eyes are the most important feature; some would like to dispute this notion.

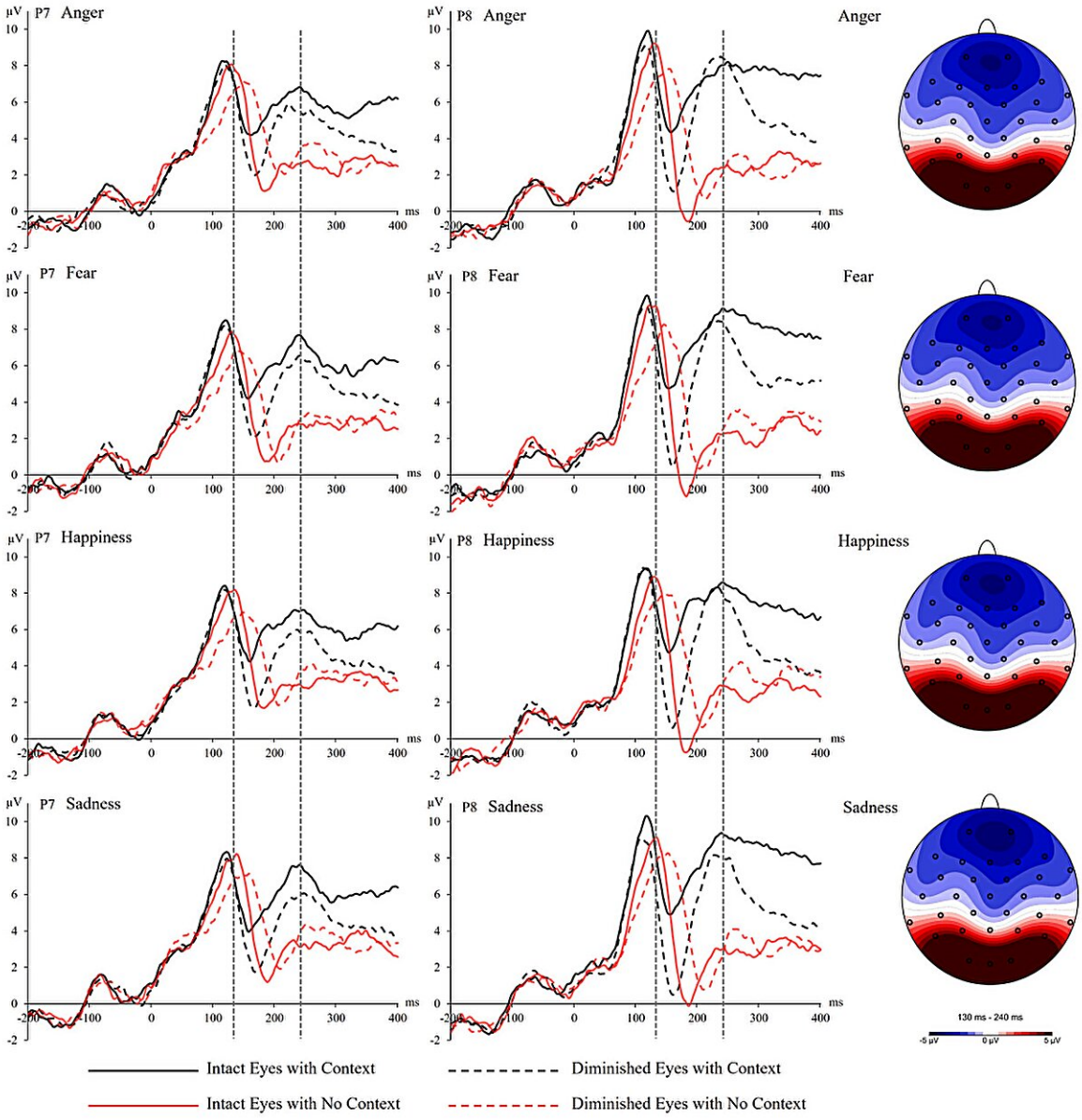
According to some studies, the mouth may be more important because its larger size makes it easier for our peripheral vision to pick up,

making it a more reliable cue than the eyes. Some, however, argue that the eyes and mouth are both key to cracking the emotional code. There remains a clear lack of consensus.

Not many studies have tested what happens when information from the eyes is blurred while the visibility of the rest of the face is also altered. So, the researchers in this study decided to put this to the test in hopes of finding the answer to the question: which facial cues do we rely on most when detecting emotions?

A group of 40 undergraduate students, with an average age of about 19, were shown 120 images of people displaying four emotions of anger, fear, happiness, and sadness.

To determine which facial information people rely on most, the researchers presented the images under four viewing conditions: full face was visible with normal, clear eyes; only the eye region was visible, with the rest of the face covered by white boxes; full face was visible, but eyes were slightly blurred; and only the blurred eye region was visible.

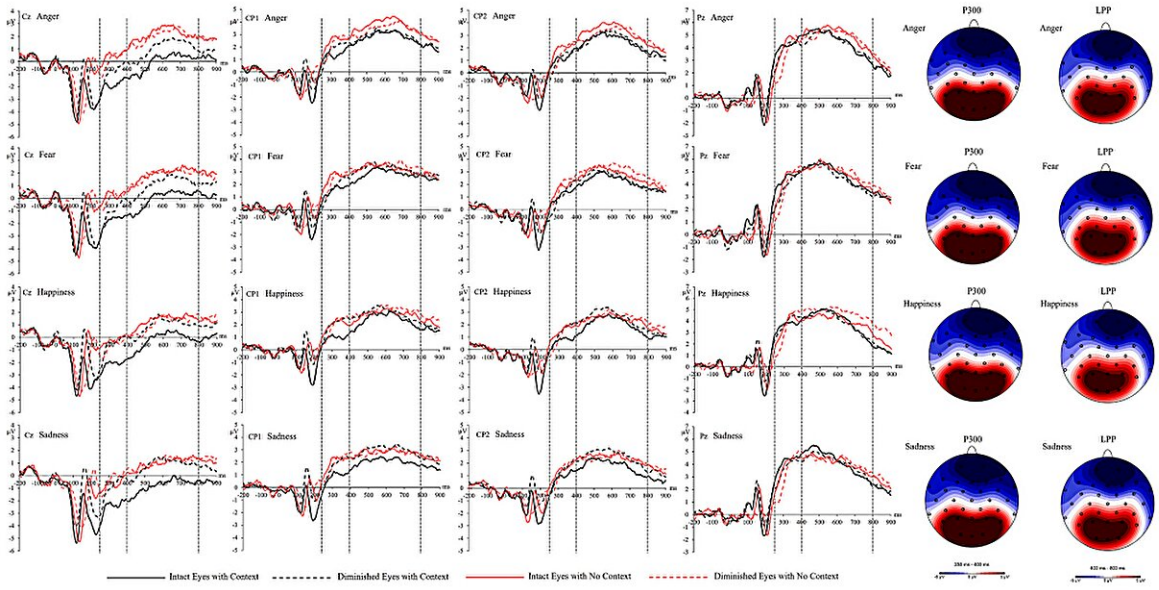


N170 ERP Waveforms and Topographies. Credit: *Brain Research* (2026). DOI: 10.1016/j.brainres.2026.150303

While the participants identified the emotions, the researchers recorded their brain waves using an EEG cap with 32 sensors. The study tracked three key brain signals.

The first was N170, occurring around 130 to 240 milliseconds, which captured the brain's initial recognition of a face. The second, P300, kicked in shortly after and reflected how much attention the brain was paying to the images. The third, late positive potential, which revealed how the brain evaluated the emotional significance of the stimulus.

The data pointed to the fact that the brain processes a full face more efficiently because it looks at how all the features fit together rather than just individual parts, resulting in clear and quicker recognition.



P300 and LPP ERP Waveforms and Topographies. Credit: *Brain Research* (2026). DOI: 10.1016/j.brainres.2026.150303

The brain did not treat all facial cues equally. Signals linked to early perception and later evaluation showed that the eyes and the surrounding facial context each shaped emotion recognition, but at different stages of processing. Their importance also shifted depending on the emotion

being viewed. For instance, anger could often be identified from the eyes alone, whereas happiness was more strongly tied to cues from the mouth or the full face.

The findings make it clear why people struggle to read emotions when someone is wearing a mask where only the eyes are visible. The nuanced cues our brain gathers from both the face and the eyes make social perception possible.

More information: Katherine A. Billetdeaux et al, Are the eyes the window to the soul? The importance of the eyes in facial expression recognition, *Brain Research* (2026). DOI: 10.1016/j.brainres.2026.150303