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Study reveals the face of sleep deprivation

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A new study finds that sleep deprivation affects facial features such as the eyes, mouth and skin, and these features function as cues of sleep loss to other people.

Results show that the faces of sleep-deprived individuals were perceived as having more hanging eyelids, redder eyes, more swollen eyes and darker circles under the eyes. Sleep deprivation also was associated with paler skin, more wrinkles or fine lines, and more droopy corners of the mouth. People also looked sadder when sleep-deprived than after normal sleep, and sadness was related to looking fatigued.

"Since faces contain a lot of information on which humans base their interactions with each other, how fatigued a person appears may affect how others behave toward them," said Tina Sundelin, MSc, lead author and doctoral student in the department of psychology at Stockholm University in Stockholm, Sweden. "This is relevant not only for private social interactions, but also official ones such as with health care professionals and in public safety."

The study, which appears in the September issue of the journal *Sleep*, was conducted at the Karolinska Institute in Stockholm, Sweden. Ten subjects were photographed on two separate occasions: after eight hours of normal sleep and after 31 hours of sleep deprivation. The photographs were taken in the laboratory at 2:30 p.m. on both occasions. Forty participants rated the 20 facial photographs with respect to 10 facial cues , fatigue and sadness.

According to the authors, face perception involves a specialized neuronal network and is one of the most developed visual perceptual skills in humans. Facial appearance can affect judgments of attributes such as trustworthiness, aggressiveness and competence.

More information: "Cues of fatigue: effects of sleep deprivation on facial appearance," *Sleep*, 2013.

Provided by American Academy of Sleep Medicine

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