

The Effect of Sleep Deprivation on Recognition of Ambiguous Emotional Facial Expressions in Individuals With ADHD

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Abstract

Objective:

The present study sought to investigate whether young adults with ADHD have more difficulty recognizing emotional facial expressions compared with young adults without ADHD, and whether such a difference worsens following sleep deprivation.

Method:

Thirty-one young men ($M = 25.6$) with ($n = 15$) or without ($n = 16$) a diagnosis of ADHD were included in this study. The participants were instructed to sleep 7 hr or more each night for one week, and their sleep quality was monitored via actigraph. Subsequently, the participants were kept awake in a controlled environment for 30 hr. The participants completed a visual emotional morph task twice—at the beginning and at the end of this period. The task included presentation of interpolated face stimuli ranging from neutral facial expressions to fully emotional facial expressions of anger, sadness, or happiness, allowing for assessment of the intensity threshold for recognizing these facial emotional expressions.

Results:

Actigraphy data demonstrated that while the nightly sleep duration of the participants with ADHD was similar to that of participants without ADHD, their sleep efficiency was poorer. At the onset of the experiment, there were no differences in recognition thresholds between the participants with ADHD and those without ADHD. Following sleep deprivation, however, the ADHD group required clearer facial expressions to recognize the presence of angry, sad, and, to a lesser extent, happy faces.

Conclusion:

Among young adults with ADHD, sleep deprivation may hinder the processing of emotional facial stimuli.