The interaction of sleep and emotion in enhancing reality monitoring

Abstract

Research suggests that sleep plays a role in the preferential preservation of emotional memories over time. The extent and nature of this relationship, however, continues to be explored. The present study uses a reality monitoring paradigm - a task that offers insight into the specificity or abstraction of memories by asking subjects to identify whether words were previously seen as pictures or imagined - to investigate the interacting effects of sleep and emotion in memory consolidation. In Experiment 1, participants were tested on a series of simple neutral and negative arousing stimuli after twelve hours of sleep or wake. In Experiment2, overnight polysomnography recording during the night between the two task sessions was used to investigate the correlation of specific components of sleep with performance. Behavioral data analysis showed that, in accordance with previous research, reality monitoring ability was better on negative arousing than neutral stimuli. In addition, sleep led to improved reality monitoring for negative arousing but not neutral stimuli across sleep. Emotional content thus appeared to preferentially preserve source identification ability across sleep. In Experiment2, however, overnight subjects' reality monitoring scores indicated a global improvement on both neutral and negative arousing stimuli. Furthermore, no correlations between performance and sleep architecture were detected, suggesting that further research is necessary to determine whether sleep plays an active or passive role modulating reality monitoring ability.