Face identification accuracy impaired by poor sleep

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Credit: University of Glasgow

It is often necessary to identify unfamiliar people by comparing face images: for example a CCTV image to a mugshot, or a passport photograph to a traveller.

Now researchers have shown, in a new study published in *Royal Society Open Science*, that the accuracy of these decisions is impaired by poor sleep. However the study also found that poor sleepers were just as confident in their decisions, highlighting possible implications for security and policing.

The study, which was led by the University of New South Wales in collaboration with the University of Glasgow, set out to examine how sleep would affect the accuracy of facial identification. Participants were asked to decide whether two images, presented on a computer monitor at the same time, pictured the same person or two different people.

The researchers set the task to differ from the face recognition tasks most of us encounter in our daily lives in two important ways: firstly, the people pictured in the images are unfamiliar. Secondly, the task did not involve memory, because the images appear on the screen at the same time.

The authors noted that while most people would typically expect to perform well on these tasks, many are surprised at how many errors they make.

Previous studies have shown impaired memory for faces following restricted sleep. However, until now it was not known whether lack of sleep impairs performance on face identification tasks that do not rely on recognition memory.

Dr Louise Beattie, the University of Glasgow's School of Psychology, said: "We found that poor sleep in the three days leading up to the test was associated with poorer performance on the face matching test. In a separate experiment, we also found that participants with insomnia were poorer on the task.

"Sleep disruption is common in the general population, and especially so among night-shift workers. Here we show for the first time that performance in a crucial "passport task" is affected by poor sleep, and our research has important implications for those working in security or forensic settings.

"This adds to the literature showing poor sleep and shift work to be associated with a range of adverse health, cognitive and emotional effects."

The authors noted that poor sleep was not only associated with poorer performance, but also with higher levels of confidence in errors.

David White, from the University of New South Wales, added: "In modern society it is often necessary to identify unfamiliar people by comparing face images. In this study we show that the accuracy of these decisions is impaired in poor sleepers.

"Worryingly, although poorer sleep was associated with reduced accuracy, poor sleepers were not less confident in their responses. This has important implications for security and policing, where shift work is common."

More information: Louise Beattie et al. Perceptual impairment in face identification with poor sleep, *Royal Society Open Science* (2016). DOI: 10.1098/rsos.160321

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