

Sleep and cognition in the elderly

Yu Sun Bin

University of Sydney

Our aim

Older people are often affected by sleep problems and are commonly treated with sleep medications. We know that sleep problems and sleep medications have acute effects on cognition. The aim of this project was to see if sleep problems and sleep medications could have a long-term impact on cognition. If it is found that cognition is affected by sleep medications, other therapies may be better suited to help prevent or delay loss of cognition in older people.

What we did

We examined data from a representative group of older Australians. The participants, aged between 60 and 64, completed surveys about their sleep and general health in 2001. At the same time, they were also asked to complete a series of brief tests of cognition, including tests of memory and attention. The participants were followed up eight years later in 2009 and asked to complete the same series of tests. There was a small decrease in the cognitive test scores between 2001 and 2009.

We compared the change in test scores in those with sleep problems and those without sleep problems. We also compared the change in test scores in those who used sleep medications and those who did not. We took into account the effects of age, gender, and depression on the test scores.

We also examined data from a representative group of older Americans. These participants were aged 57 to 85 and they were interviewed about their general health and completed a cognitive test measuring cognition on multiple domains. Afterwards, the participants wore a wrist accelerometer for three days to measure their sleep and filled in a sleep log. As with the Australian participants, we compared the cognitive test scores of participants with and without sleep problems and we also looked at the wrist measurements of sleep against their cognition scores. We accounted for the effects of age, depression, education and other health problems in the analyses. In contrast to the Australian data, information from the Americans was only available from one time point.

What we found

In the Australian participants, we found that people who had sleep problems and used sleep medications did not have a larger drop in cognitive test scores than those without sleep problems or did not use sleep medications. This was surprising because we expected people with sleep problems or who were using sleep medications to have a bigger decrease in cognition scores.

In the American participants, we also found that those who complained of sleep problems did not have worse cognition than those without sleep problems. This suggests that what we found in the Australian participants, although unexpected, were probably not due to chance. Additionally, we were able to look at objectively measured sleep from the wrist accelerometers, something which we could not do in the Australian study. This data showed that people who had objectively worse sleep quality did in fact, have worse cognition, as did people who reported very short sleep durations of less than five hours per night.

What this means

Our work suggests that people with objectively poor sleep have worse cognition, although people's report of sleep problems is unrelated to cognitive performance. This could be because more severe sleep problems are picked up by objective measurements. This might be why people who report very short sleep durations also have worse cognitive test scores. These results need to be replicated and combined with results of other published studies. The combined results would give stronger evidence for whether sleep problems should be targeted to help prevent cognitive decline in the elderly.

This project was funded through IRT Foundation's Research Grants program.

IRT Foundation directly aligns with IRT Group's mission to create age-friendly communities where older Australians can age without barriers. We support research projects promoting a greater understanding of the ageing process and the care and wellbeing of seniors. IRT Foundation also funds community grants and educational activities.

IRT Group has committed over \$1.6 million in grants to leading Australian researchers since 2009. By making a commitment to research, advocacy and partnering with community groups and businesses, IRT Foundation will fund programs and services to change people's perceptions of older Australians and of ageing.

Our Foundation is a key part of IRT's commitment to give back \$20 million in community dividends by 2020. In doing so, we will create age-friendly communities – a society for all ages.

IRT Foundation
A division of IRT Group

PO Box 2106
Wollongong DC NSW 2500

T 1800 024 915 (Freecall)
E irtfoundation@irt.org.au
W irtfoundation.org.au

