

Objective cognitive functioning in self-reported habitual short sleepers not reporting daytime dysfunction: examination of impulsivity via delay discounting

Brian J Curtis, Paula G Williams, Jeffrey S Anderson

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Abstract

Study Objectives

(1) Examine performance on an objective measure of reward-related cognitive impulsivity (delay discounting) among self-reported habitual short sleepers and medium (i.e. recommended 7–9 hours) length sleepers either reporting or not reporting daytime dysfunction; (2) Inform the debate regarding what type and duration of short sleep (e.g. 21 to 24 hours of total sleep deprivation, self-reported habitual short sleep duration) meaningfully influences cognitive impulsivity; (3) Compare the predictive utility of sleep duration and perceived dysfunction to other factors previously shown to influence cognitive impulsivity via delay discounting performance (age, income, education, and fluid intelligence).

Methods

We analyzed data from 1190 adults from the Human Connectome Project database. Participants were grouped on whether they reported habitual short (≤ 6 hours) vs. medium length (7–9 hours) sleep duration and whether they perceived daytime dysfunction using the Pittsburgh Sleep Quality Index.

Results

All short sleepers exhibited increased delay discounting compared to all medium length sleepers, regardless of perceived dysfunction. Of the variables examined, self-reported sleep duration was the strongest predictor of delay discounting behavior between groups and across all 1190 participants.

Conclusions

Individuals who report habitual short sleep are likely to exhibit increased reward-related cognitive impulsivity regardless of perceived sleep-related daytime impairment. Therefore, there is a reason to suspect that these individuals exhibit more daytime dysfunction, in the form of reward-related cognitive impulsivity, than they may assume. Current findings suggest that assessment of sleep duration over the prior month has meaningful predictive utility for human reward-related impulsivity.

[short sleep](#), [daytime dysfunction](#), [delay discounting](#), [reward sensitivity](#), [cognitive impulsivity](#)

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