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Original Article

On workdays, earlier sleep for morningness and later wakeup for eveningness are associated with better work productivity

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Outline



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Highlights

- Chronotype does not affect presenteeism directly, but affects it indirectly.
- Sleep disturbance has a complete mediating effect between chronotype and presenteeism.
- Early sleep time is associated with better work productivity in morningness people.
- Late wake-up time is associated with better work productivity in eveningness people.

Abstract

Introduction

Misalignment of chronotype and social schedules result in sleep and health impairments. Presenteeism, the work productivity loss caused by health problems, has much more social costs than absenteeism and is associated with sleep disturbance. However, little is known about the link between chronotype and presenteeism. In this study, the associations between chronotype, sleep schedules, presenteeism, and the mediating role of sleep disturbance were examined.

Methods

A cross-sectional survey was conducted on 8155 office workers from 42 companies in Japan, from 2017 to 2019. The participants answered self-administered questionnaires asking about presenteeism (Work Limitations Questionnaire [WLQ]), sleep disturbance (Pittsburgh Sleep Quality Index [PSQI]), and habitual sleep schedules which enable to calculate the midpoint of sleep on free days, sleep corrected (MSFsc). The mediating effect was examined by using structural equation modeling (SEM).

Results

The participants comprised 4462 males and 3677 females (mean age: 36.7 years), and their mean productivity loss was 5.97%. A later sleep onset (+0.29%/h), early wakeup (+0.14%/h), and eveningness (+0.27%/h, MSFsc) were associated with presenteeism in all participants; however, the effect size and significance differed depending on their chronotype. SEM demonstrated a complete mediation model between chronotype and presenteeism, mediated by sleep disturbance and adjusted by age.

Conclusions

Chronotype did not directly, but indirectly affected presenteeism through sleep disturbance. Eveningness leads to sleep disturbance, which then causes presenteeism. On workdays, early sleep times for morningness people, and late wakeup times for eveningness people may improve their work productivity.



Keywords

Chronotype; Presenteeism; Mediator; Sleep disturbance; Sleep schedules; Occupational health

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