

Original Article



# Combined effect of work from home and work during nonwork time on sleep disturbance

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## ABSTRACT

**Background:** Owing to the coronavirus disease 2019 pandemic, being exposed to work from home and work during nonwork time simultaneously can lead to sleep disturbance; however, their combined effect is unclear. We aimed to investigate the combined effect of work from home and work during nonwork time on sleep disturbance.

**Methods:** This study used data from the Sixth Korean Working Condition Survey and included 27,473 paid workers. Logistic regression analysis was conducted to investigate the relationship between work from home, work during nonwork time, and sleep disturbance according to sex. We re-classified participants into 4 groups based on their working from home (No/Yes) and working during nonwork time (No/Yes). The relative excess risk due to interaction was calculated to examine the effect of exposure to both telecommuting and non-regular work hours on sleep disturbance.

**Results:** Workers exposed to work from home and work during nonwork time had significantly higher risks of sleep disturbance for all, men, and women workers (OR [95% CI]: 1.71 [1.46–2.02], 1.79 [1.43–2.23], and 1.64 [1.29–2.08] for work from home and 3.04 [2.70–3.42], 3.61 [3.09–4.22], and 2.41 [2.01–2.90] for work during nonwork time, respectively). Compared to those who were not exposed to both factors, when workers had both job factors, the ORs (95% CI) of sleep disturbance for all, men, and women were 3.93 (2.80–5.53), 5.08 (3.21–8.03), and 2.91 (1.74–4.87), respectively. The relative excess risk due to interaction of work from home and work during nonwork time was not significant for sleep disturbance.

**Conclusions:** Work from home and work during nonwork time were each associated with sleep disturbance, but the interaction between the two factors on sleep disturbance was not observed in both men and women.

**Keywords:** Telework; Remote working; Flexible workplace; Insomnia

## BACKGROUND

The coronavirus disease 2019 (COVID-19) pandemic, which began in early 2020, has deeply affected daily life. Social distancing was implemented by governments to prevent the spread of this infectious disease, and telecommuting was recommended to reduce human-to-human contact in the working environment. In the United States and Europe, where strong closure























