Evaluating smartwatch-based sleep quality indicators of fitness to work

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Abstrak

The study sought to evaluate smartwatch-based sleep quality indicators of fitness to work. Eighteen males (aged 20–26 years) were assigned to three randomized daytime sleep conditions (bad/moderate/good), which varied in terms of lighting, noise, and temperature, for a six-hour period. After this daytime sleep, participants completed simulated computer tasks during a 12-hour nighttime waking period. Prior to those tasks, participants' fitness to work was determined by subjective measures that included the Sleep Quality Index-Karolinska Sleep Diary (SQI-KSD)), the Psychomotor Vigilance Task (PVT)), and the Karolinska Sleepiness Scale (KSS) to measure drowsiness. Total sleep time (TST), light sleep quantity (LSQ), deep sleep quantity (DSQ), and REM sleep quantity (REMSQ) were recorded using a smartwatch. The results confirmed that TST, LSQ, and SQI-KSD can be used as measures of sleep quality and fitness to work ($p < 0.05$).