

## Excessive daytime sleepiness in tension-type headache: a population-based study.

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Background: Previous study has demonstrated that EDS was prevalent among migraineurs and was associated with an exacerbation of migraine. Nevertheless, information on the association between EDS (excessive daytime sleepiness) and tension-type headache (TTH) is limited. The aim of this study is to investigate the association and impact of EDS on participants with TTH in a population-based setting. Methods: This study used the data of the Korean Headache-Sleep Study (KHSS), which was a population-based survey regarding headache and sleep for Korean adults aged 19–69 years. If the score on the Epworth Sleepiness Scale (ESS) was more than or equal to 11, the participant was classified as having EDS. Results: Of the 2695 participants, 570 (21.2%) and 313 (11.6%) were classified as having TTH and EDS, respectively. EDS was more prevalent among TTH participants with  $\geq 15$  headache frequency per month compared with participants with non-headache (35.7% vs. 9.4%,  $p = 0.001$ ). TTH participants with EDS had higher headache frequency per month ( $4.3 \pm 8.1$  vs.  $1.7 \pm 4.2$ ,  $p = 0.013$ ), Visual Analogue Scale for headache intensity ( $5.0 [3.0 - 6.0]$  vs.  $4.0 [3.0 - 6.0]$ ,  $p = 0.008$ ), Headache Impact Test-6 score ( $47.1 \pm 7.3$  vs.  $43.5 \pm 7.6$ ,  $p = 0.001$ ) and more depression (Patient Health questionnaire score  $\geq 10$ ) (12.7% vs. 3.2%,  $p = 0.001$ ) compared to those without EDS. Multivariable logistic regression revealed that headache frequency ( $\beta=0.051$ ,  $p=0.016$ ), Headache Impact Test-6 score ( $\beta=0.051$ ,  $p=0.016$ ), and depression ( $\beta=1.230$ ,  $p=0.011$ ) were independently associated with the existence of EDS among TTH participants. Conclusions: EDS is more prevalent in TTH participants with  $\geq 15$  headache frequency per month compared to those with non-headache. TTH participants with EDS was independently associated with higher headache frequency, increased impact of headache and higher prevalence of depression compared to those without EDS.