



Excessive Daytime Sleepiness in Tension-Type Headache : a Population-Based Study

Jiyoung Kim¹, Won-Joo Kim², Jiyoung Kim³, Kwang Ik Yang⁴, Chang-Ho Yun⁵, Min Kyung Chu¹

¹Department of Neurology, Bio Medical Research Institute, Pusan National University Hospital, Pusan National University School of Medicine, Busan, Korea
²Department of Neurology, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, Korea
³Department of Neurology, Biomedical Research Institute, Pusan National University Hospital, Pusan National University School of Medicine, Busan, Korea
⁴Department of Neurology, Soonchunhyang University College of Medicine, Cheonan Hospital, Cheonan, Korea
⁵Department of Neurology, Bundang Clinical Neuroscience Institute, Seoul National University Bundang Hospital, Seongnam, Korea
⁶Department of Neurology, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea

Introduction

- Excessive daytime sleepiness (EDS) is defined as ‘sleepiness in a situation when an individual would be expected to be awake and alert.
- EDS has been reported to be associated with several neurological disorders including headache disorders.
- Tension-type headache (TTH) is the most common headache disorder in general population.
- Owing to its higher prevalence, the social burden of TTH is greater than that caused by migraine.
- Previous study has demonstrated that EDS was prevalent among migraineurs and was associated with an exacerbation of migraine.
- Nervertheless, information on the association between EDS and 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.
- The Epworth Sleepiness Scale (ESS) ≥ 11 : having EDS
 - TTH frequency : ≥ 15 /month, 1-14/month, < 1 /month
 - Visual Analogue Scale (VAS) for headache intensity
 - Headache Impact Test-6 (HIT-6) score
 - Goldberg Anxiety Scale (GAS) : ≥ 2 screening and ≥ 5 all
 - Patient Health Questionnaire (PHQ) : ≥ 10 as depression
 - Study Variables

Results

Figure 1. Participation of Subjects in the Korean Headache-Sleep Study

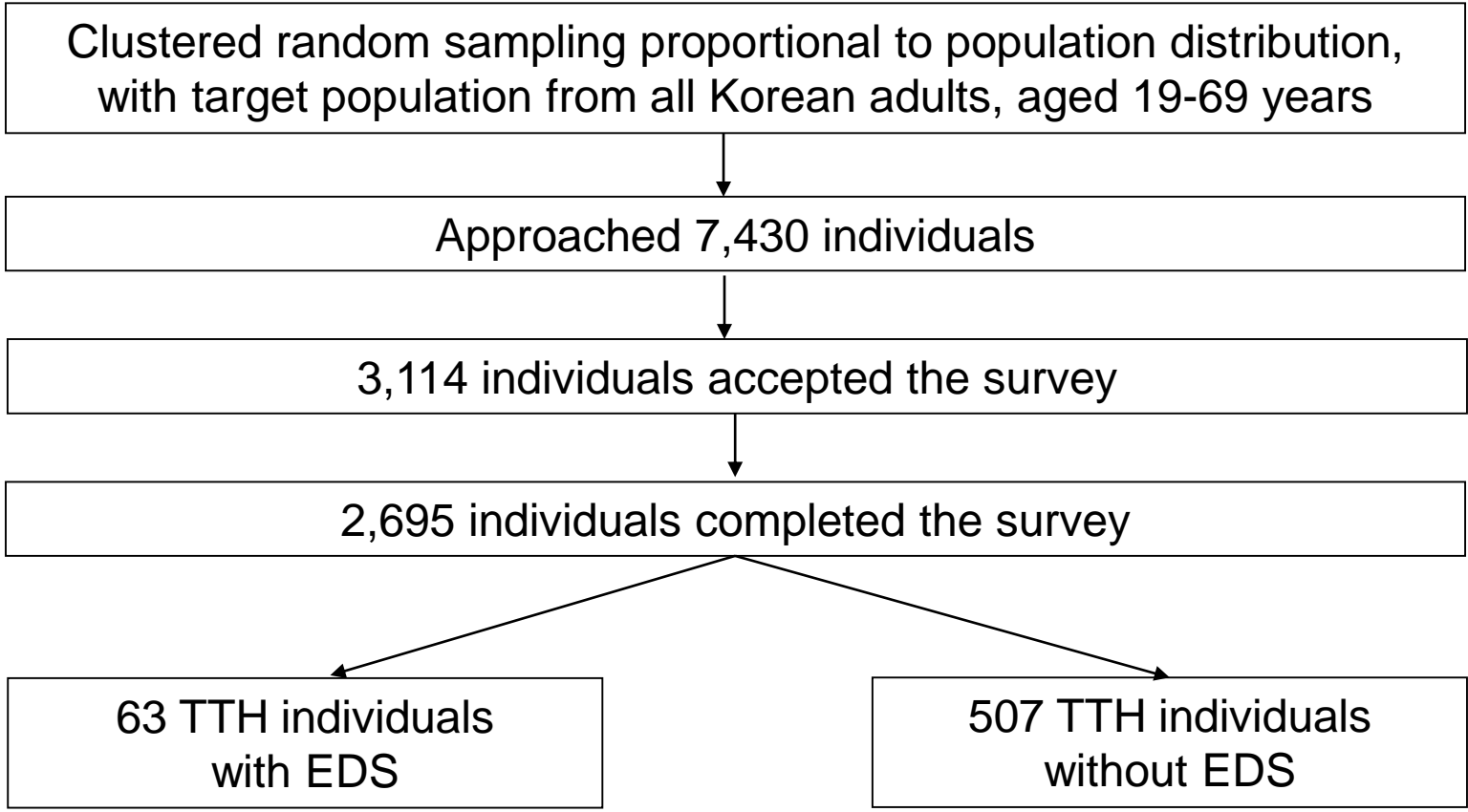
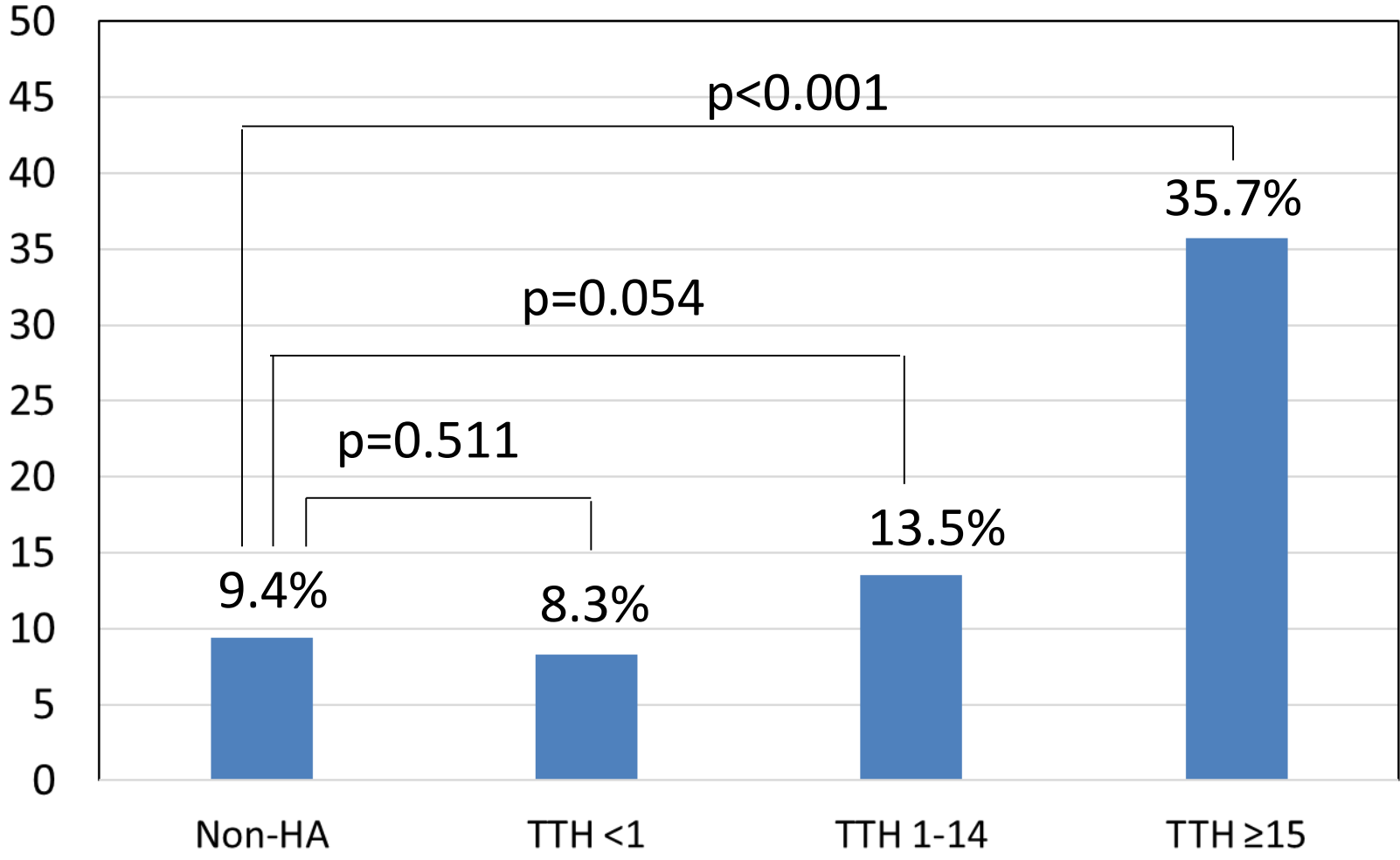


Figure 2. Prevalence of EDS : TTH according to frequency



- Excessive daytime sleepiness was more prevalent among TTH participants with ≥ 15 headache frequency per month compared with participants with non-headache (35.7% vs. 9.4%, $p < 0.001$).
- Prevalence of EDS among TTH participants with headache frequency < 1 per month (8.3%, $p = 0.511$) and TTH participants with headache frequency 1 – 14 per month (13.5%, $p = 0.054$) was not significantly different from that of those with non-headache (Figure 1).

Table 1. Demographics and Clinical Presentation of Individuals with TTH according to the Presence of Insomnia

	TTH subjects with EDS N=63	TTH subjects without EDS N=507	P-value
Demographics			
Mean age \pm SD (years)	45.46 \pm 13.48	42.38 \pm 13.72	0.092
Women, N (%)	31 (49.2)	271 (53.5)	0.524
Headache character, N (%)			
Bilateral pain	36 (57.1)	338 (66.7)	0.133
Non-pulsating quality	24 (38.1)	203 (40.0)	0.766
Mild-to-moderate severity	62 (98.4)	498 (98.2)	0.915
Non-aggravation by movement	51 (81.0)	400 (78.9)	0.705
Associated symptoms			
Photophobia, N (%)	6 (9.5)	40 (7.9)	0.653
Phonophobia, N (%)	22 (34.9)	159 (31.4)	0.567
Osmophobia, N (%)	17 (27.0)	78 (15.4)	0.020
HA frequency	4.32 \pm 8.08	1.68 \pm 4.16	0.013
VAS score	4.92 \pm 1.64	4.30 \pm 1.87	0.007
HIT-6 score	47.05 \pm 7.29	43.45 \pm 7.63	<0.001
Anxiety	9 (14.3)	45 (8.9)	0.167
Depression	8 (12.7)	16 (3.2)	<0.001

- TTH subjects with EDS > TTH subjects without EDS
 - Osmophobia (27.0% vs. 15.4%)
 - Headache frequency per month (4.32 vs. 1.68)
 - Visual Analogue Scale for headache intensity (4.92 vs. 4.30)
 - Headache Impact Test-6 score (47.05 vs. 43.45)
 - Depression (PHQ-9 ≥ 10) (12.7% vs. 3.2%)

Table 2. Multivariable logistic regression analysis for contributing factors to EDS among individuals with TTH.

Characteristics	β	SE β	p-value	Exp(B) (95% CI)
Osmophobia	0.510	0.335	0.128	1.665 (0.864-3.210)
HA frequency	0.051	0.021	0.016	1.052 (1.010-1.096)
VAS score	0.043	0.082	0.605	1.043 (0.888-1.226)
HIT-6 score	0.052	0.021	0.013	1.054 (1.011-1.098)
Depression	1.230	0.484	0.011	3.423 (1.326-8.834)

Conclusions

- EDS is more prevalent in TTH participants with > 15 headache frequency per month compared to those with non-headache.
- TTH participants with EDS had higher headache frequency, increased impact of headache and higher prevalence of depression compared to those without EDS.



References

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