

# LETTER TO EDITORS

(DECEMBER 21, 2015)

## SLEEP DURATION AND METABOLIC SYNDROME

Dear Editor,

I am writing to express my concern about the article by Chang et al. entitled “Association between sleep duration and sleep quality, and metabolic syndrome in Taiwanese police officers” that was published in the “International Journal of Occupational Medicine and Environmental Health” 2015;28(6):1011–23 [1].

The authors reported a cross-sectional study on the association between total sleep duration and having metabolic syndrome (MS) among male police officers aged 20–60 years old. The total sleep duration of 7 h to < 8 h was set as a reference, and sleep quality was also evaluated by the Pittsburgh Sleep Quality Index. The adjusted odds ratios (ORs) (confidence intervals stated at 95% (95% CIs) for having the MS among the subjects with < 5 h, with 5–6 h, 6–7 h, and > 8 h of the total sleep duration were 1.04 (0.51–2.13), 1.01 (0.6–1.72), 1.01 (0.63–1.61), and 1.44 (0.69–2.98), respectively. The authors concluded that not only did the total sleep duration but also sleep quality show no association with having the MS, although abdominal obesity was significantly associated with the sleep duration of < 5 h [1]. I have some concerns on their study.

Firstly, Kim et al. investigated the association between the total sleep duration and the incidence of the MS among adults aged 40–70 years old by means of a prospective cohort study [2]. The total sleep duration was determined by a self-reported questionnaire, and 6–7.9 h was set as a reference. In multivariable logistic regression models, the adjusted OR (95% CI) for the incident

of the MS with < 6 h of the total sleep duration among adults was 1.41 (1.06–1.88). In contrast, there was no significant OR for the incident of the MS with a longer total sleep time among adults.

Li et al. also reported a prospective study on the association between the sleep duration and the incidence of the MS among adults aged 30–65 years old [3]. The total sleep duration was also determined by a self-reported questionnaire, and 7–8 h was set as a reference. In the multivariable Cox regression adjusted models, the adjusted hazard ratio (HR) (95% CI) for the incident of the MS with < 6 h of the total sleep duration among male adults was 1.87 (1.51–2.3). In addition, the adjusted HRs (95% CIs) for the incident of the MS with 8–9 h and > 9 h of the total sleep duration among male adults were 1.73 (1.37–2.19) and 1.96 (1.35–2.85), respectively. In the case of females, there was no significant association. Those two prospective studies observed that the total sleep duration was significantly associated with the MS among male adults or sex-adjusted adults.

Secondly, Iftikhar et al. reported a meta-analysis on the association between the sleep duration and the MS with special reference to the dose-response relationship [4]. They collected 18 cross-sectional studies from 75 657 participants, and the total sleep duration of 7–8 h was set as a reference. The adjusted ORs (95% CIs) for having the MS with < 5 h, with 5–6 h, and 6–7 h of the total sleep duration among subjects were 1.51 (1.1–2.08), 1.28 (1.11–1.48), and 1.16 (1.02–1.31), respectively. In contrast, there was no significant association between a long total sleep duration and having the MS. This meta-analysis showed

a contradictory finding by Chang et al., that a short total sleep duration had no significant association with the MS. I suppose that the job content in the case of police officers has special confounders on the association, and exploring the cause of no association between the total sleep duration and having the MS is needed. There is a bi-directional association between the short sleep duration and mental health [5], and psychosocial factors should also be included as confounders on the association between the sleep duration and the MS. In addition, causal association should be determined by prospective cohort studies as well as by a meta-analysis.

**Key words:**

**Short sleep duration, Long sleep duration, Metabolic syndrome, Cross-sectional study, Sex difference, Causality**

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