

Torbjörn Åkerstedt, Rino Bellocco, Linnea Widman, Julia Eriksson, Weimin Ye, Hans-Olov Adami, Ylva Trolle Lagerros

T. Åkerstedt¹, R. Bellocco², L. Widman³, J. Eriksson³, W. Ye⁴, H.O. Adami⁴, Y. Trolle Lagerros^{5,6}

¹Karolinska Institute, Clinical Neuroscience, Stockholm, Sweden, ²University of Milan-Bicocca, Statistics and Quantitative Methods, Milano, Italy, ³Karolinska Institute, Institute of Environmental Medicine, Stockholm, Sweden, ⁴Karolinska Institute, Medical Epidemiology and Biostatistics, Stockholm, Sweden, ⁵Karolinska Institute, Clinical Epidemiology Unit, Department of Medicine, Stockholm, Sweden, ⁶Stockholm Health Services, Center for Obesity, Academic specialist center, Stockholm, Sweden

Background: Both short (<6h) and long (>8h) sleep are associated with increased mortality. We here investigated whether the association between sleep duration and all-cause, cardiovascular (CVD), and cancer mortality differs between men and women.

Methods: A cohort of 34,311 participants (mean age and standard deviation = 50.5±15.5, 65% women), with detailed assessment of sleep at baseline and up to 20.5 years of follow-up (18 years for cause-specific mortality), was analyzed using Cox proportional hazards model to estimate hazard ratios (HR) with 95% confidence intervals (CI).

Results: After adjustment for covariates, all-cause, CVD and cancer mortalities were increased for both <5h and ≥9h sleep durations (with 6h as reference). For all-cause mortality women who slept <5h had a HR = 1.54 (95% CI = 1.32-1.80), while the corresponding HR was 1.05 (95% CI = 0.88-1.27) for men, the interaction being significant (p<.05). For CVD mortality, exclusion of the first two years of exposure, as well as competing risk analysis eliminated the originally significant interaction. Cancer mortality did not show any significant interaction. Survival analysis of the difference between the reference duration (6h) and the short duration (<5h) during follow-up, showed a gradually steeper reduction of survival time for women than for men for all-cause mortality. We also observed that the lowest cancer mortality appeared for the 5h sleep duration.

Conclusions: In conclusion, the pattern of association between short sleep duration and all-cause mortality differed between women and men and the difference between men and women increased with follow-up time.