Abstract:

**Background.** Increasing evidence suggests an association between both short and long duration of habitual sleep with adverse health outcomes.

**Objectives.** To assess whether the population longitudinal evidence supports the presence of a relationship between duration of sleep and all-cause mortality, to investigate both short and long sleep duration and to obtain an estimate of the risk.

**Methods.** We performed a systematic search of publications using MEDLINE (1966-2009), EMBASE (from 1980), the Cochrane Library, and manual searches without language restrictions. We included studies if they were prospective, had follow-up >3 years, had duration of sleep at baseline, and all-cause mortality prospectively. We extracted relative risks (RR) and 95% confidence intervals (CI) and pooled them using a random effect model. We carried out sensitivity analyses and assessed heterogeneity and publication bias.

**Results.** Overall, the 16 studies analyzed provided 27 independent cohort samples. They included 1,382,999 male and female participants (follow-up range 4 to 25 years), and 112,566 deaths. Sleep duration was assessed by questionnaire and outcome through death certification. In the pooled analysis, short duration of sleep was associated with a greater risk of death (RR: 1.12; 95% CI 1.06 to 1.18; P < 0.01) with no evidence of publication bias (P = 0.74) but heterogeneity between studies (P = 0.02). Long duration of sleep was also associated with a greater risk of death (1.30; [1.22 to 1.38]; P < 0.0001) with no evidence of publication bias (P = 0.18) but significant heterogeneity between studies (P < 0.0001).

**Conclusion.** Both short and long duration of sleep are significant predictors of death in prospective population studies.