Independent and combined effect of sleep quality and night sleep duration on health-related quality of life in rural area: A large-scale cross-sectional study

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Abstract

Background: The combined effect of sleep quality and night sleep duration on health-related quality of life (HRQoL) remains unclear and scarce studies were conducted in resource limited countries and areas. The aims of this study were to explore the independent and combined effect of sleep quality and night sleep duration on HRQoL.

Methods: A total of 21926 eligible participants from Henan rural cohort study were included. The Pittsburgh Sleep Quality Index (PSQI) was utilized to evaluate sleep quality and night sleep duration. Tobit regression, generalized linear (GLM) and logistic regression model were performed to assess the association of sleep quality and night sleep duration with HRQoL. Restricted cubic spline was applied to identify the dose-response relationship of sleep quality and night sleep duration with HRQoL.

Results: After multivariable adjustment, the Tobit regression and GLM indicated that the coefficients [95% confidence interval (CI)] for poor sleep quality were -0.124 (-0.133, -0.114) and -6.25 (-6.71, -5.78) on utility index and VAS score, respectively. Compared with reference group (7~ h), short sleep duration (<6 h) and long sleep duration (10~ h) were associated with low HRQoL. A U-shape relationship between night sleep duration and low HRQoL along with a J-shape relationship between sleep quality and low HRQoL were observed (P for nonlinear <0.001). Furthermore, individuals with longer night sleep duration (10~ h) and poorer sleep quality were strongest associated with low HRQoL (utility index [odds ratio (OR) (95% CI)]: 6.626 (3.548, 8.920), VAS score [OR (95% CI)]: 2.962 (1.916, 4.578)).

Conclusion: Poor sleep quality and extreme night sleep duration were independently and combinedly associated with low HRQoL, suggesting that maintaining good sleep quality and appropriate night sleep duration was important.

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