

Short Sleep and Obesity: Are Poor Sleep, Chronic Stress, and Unhealthy Behaviors the Link?

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WE READ WITH GREAT INTEREST THE TWO COMMENTARIES BY DRS. YOUNG AND HORNE ON THE IMPORTANCE OF THE WELL ESTABLISHED ASSOCIATION between short sleep and obesity.^{1,2} Both papers are methodic with well-thought arguments on complex issues such as association vs. causality, the importance of effect size from an individual vs. public health perspective and applicability of short-term studies to long-term problems. In this exchange of ideas, there is an issue that was missed. Who among obese individuals report short sleep? What are their clinical profiles and characteristics? Is the self-reported short sleep duration a result of voluntary chronic sleep restriction?

In February 2008, we published a study in a large population sample of 1,300 men and women addressing these questions.³ Consistent with most previous reports, obese individuals reported short sleep duration. In addition, they reported a higher incidence of subjective sleep disturbances (47.4% vs. 25.5%, $P < 0.01$) and scored higher for chronic emotional stress than nonobese subjects. Notably, self-reported sleep duration did not differ between obese and nonobese individuals without subjective sleep disturbances, while obese with sleep complaints scored higher in chronic emotional stress compared to obese without sleep complaints. The shortest sleep duration was reported by the obese insomniacs (5.9 h), followed by obese with EDS (6.3 h) or sleep difficulty (6.6 h). The effect of chronic emotional stress was stronger than that of the BMI on the reported sleep duration, with a synergistic joint effect. We concluded that short sleep duration is reported by obese individuals who complain of their sleep and are chronically stressed. Interestingly, in this study and two previous ones^{4,5} there was no association between objective sleep duration and BMI, suggesting that it is an individual's perception of sleep duration rather than actual sleep loss that correlates with obesity. Longitudinal data from the Alameda County Health and Living Study indicated that this perception is also influenced by social stressors such as socioeconomic and minority status.⁶

In a report by the Centers for Disease Control (CDC) released in May 2008, Schoenborn and Adams provided a national perspective on the association between sleep duration and selected health risk behaviors using data from the 2004-2006 National Health Interview Survey.⁷ The findings suggested that U.S. adults who usually sleep less than six hours were more likely than adults

who slept 7 to 8 hours to engage in certain health risk behaviors (i.e., cigarette smoking, consuming five or more alcoholic drinks per day, and not engaging in physical activity on leisure-time).

This emerging literature suggests that obese individuals who report short sleep are psychosocially stressed and unhappy with the quality of their sleep, and engage in unhealthy behaviors. Although these studies, as with most previous ones, do not provide any causal direction, based on existing empirical and scientific evidence, it is reasonable to suggest that chronic stress may lead to the increased consumption of palatable (or "comfort") food⁸ or that reduced physical activity may lead to excess weight. Furthermore, behaviors such as smoking and alcohol consumption are widely used practices to reduce stress and to improve—albeit unsuccessfully—sleep, whereas their discontinuation, e.g., of smoking, is associated with increased food intake and significant weight gain. Thus, from a practical standpoint it appears that the self-reported short sleep duration is a marker of subjective sleep disturbances and their associated chronic psychosocial stress and unhealthy wake time behaviors.

Sleeping better, reducing or coping with chronic stress more effectively, and promoting healthier behaviors appear to be very important for a significant percentage (almost 50%) of obese individuals in the general population of the U.S. Simply recommending to poor sleepers to lengthen their sleep by 1 or 2 hours may be countertherapeutic.

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