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(REVIEW ARTICLE)

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Obesity and lack of sleep-in adults

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Abstract

Sleep deprivation and obesity are two illnesses that plague modern countries. Their prices have been rising significantly all around the world. This short message will look at the relationship between the two states and suggest how that relationship might work. Obesity and sleep deprivation might be related. More research is advised to clarify the potential pathways.

Keywords: Deprivation, Exercise, Lack; Obesity; Sleep

1. Introduction

Sleep deprivation occurs when a person's inherent need for sleep is not satisfied. Sleep deprivation is commonly defined as getting less than 7 hours of sleep-in epidemiological research. Many studies in the scientific literature show that not getting enough sleep affects the metabolism, making weight gain more likely. Obesity is currently on the rise in developed countries. For instance, from 1988 to 1994, 22.9% more Americans were obese than in 2013–2014. Obesity rates among adult men and women had reached 35.0% and 40.4%, respectively, by 2014[1].

Additionally, figures show that adults in the USA sleep less, with many sleeping less than the recommended 7 hours each night. In 1998, 26% of individuals said they slept for less than 8 hours each night, but by 2005, 35% of people said they did. Between 2004 and 2007, 110,442 civilian employed employees participated in the National Health Interview Survey, and the weighted prevalence of self-reported short sleep duration—defined as less than 6 hours per day—was 29.9%. What is known already? Obesity and lack of sleep are related in both directions. What are the fresh discoveries? If you don't get enough sleep, you may have more ghrelin, less leptin, and more hedonic signaling when you eat, all of which can increase your body mass index. Obesity raises the likelihood of sleep disorders, which may impair sleep quality. Decreased sleep causes greater weariness, which may reduce one's capacity for exercise. Methods One researcher (CBC) came up with and used the electronic search method, while the other researchers looked over the results. A computerized literature search was done using the terms "sleep deprivation," "sleep restriction," "short sleep," "sleep duration," "obesity," "weight increase," and "body mass index" in PubMed/MEDLINE and Google Scholar. We looked at the titles and summaries of all English-language papers that might be relevant and that were published between 2000 and 2021. Only studies that were pertinent to the research issue were considered. Based on what the articles were about and how they were done. Mechanistic research helped explain why sleep deprivation and obesity are linked, while prospective, cross-sectional, and mixed studies looked at the epidemiological link between the two [2].

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A pooled regression analysis in adults in one meta-analysis of 30 studies (634 511 participants) revealed that a reduction in 1 hour of sleep per day would be related to an increase in BMI of 0.35 kg/m2. That would be similar to a weight gain of about 1.4 kg for a person 178 cm tall (3.1 lbs). The authors stated inadequate evidence to infer causation and effect from the literature. In a later study, 596 young people were asked questions when they were 27, 29, and 34 years old. At age 27, a link between not getting enough sleep and being overweight was found. However, as people get older, this link begins to weaken. In the same way, a 10-year longitudinal study of 4903 women found a significant association between short sleep duration and the chance of becoming obese in women under the age of 40 but not in women 40 or older [3].

In contrast to sleeping for 7-8 hours, further epidemiological research on older persons found that sleeping for fewer than 5 hours raised the risk of obesity by 40%. A meta-analysis of 11 prospective studies with 197 906 participants confirmed these findings and discovered a substantial link between short sleep duration—fewer than 5–6 hours per night—and the risk of becoming obese in both sexes. The Nurses' Health Study looked into the possibility of future weight growth with little sleep. The authors first registered one hundred twenty-one thousand seven hundred female nurses in 1976. In 1986, a poll of the cohort addressed questions about how long they slept. Women slept an average of 4.3% for 5 hours or less, 25.5% for 6 hours, 42.1% for 7 hours, 23.5% for 8 hours, and 4.5% for 9 hours or more. Respondents were called every two years to report their body weight for the next 16 years [4].

The amount of voluntary physical exercise was comparable between groups. Those sleeping 5 hours or less weighed an average of 1.24 kg (2.73 lbs) more than those sleeping 6 hours, and there was a solid cross-sectional association between weight and sleep duration at the start of the study. In addition, while all groups gained weight during the subsequent ten years, those who slept the least experienced a faster increase in weight. Compared to those who slept for 7 hours or more, those who slept for 6 hours gained 0.26 kg (0.57 lbs), while those who slept for 5 hours or less acquired 0.73 kg (1.61 lbs). 10.5% of the women being monitored gained 15 kg (33 lbs) or more during the 16 years. Women who slept for 5 hours or less were 32% more likely to achieve this weight than those who slept for 7-8 hours, and those who slept for 6 hours were 12% more likely. After 16 years, 15.9% of the women who weren't fat at the beginning had developed obesity, as indicated by a BMI of less than 30 kg/m2. Compared to those who slept 7-8 hours, those who slept 5 hours or less had a 15% greater risk of obesity, and those who slept 6 hours had a 6% increased risk. The comparisons mentioned above were statistically significant. In the statistical analysis, these researchers reported that all models were corrected for potential confounding factors such as age, smoking status, alcohol and caffeine use, and sleep-related drugs. According to a cross-sectional study with 41,610 individuals, men and women who experienced significant weight gain—defined as 5 kg or more in 5 years—were more likely than those with stable weight to report less overall sleep. Interestingly, women who experienced significant weight loss were also more likely to report less overall sleep. In contrast, men did not exhibit this same trend. The scientists pointed out that the composition of the weight gained or lost was not mentioned [5],[6],[7],[8].

2. Conclusion

A wealth of research demonstrates the connection between sleep deprivation and obesity, and weight gain. Even though we don't fully understand how these relationships work, if metabolic changes caused by not getting enough sleep lead to an increase in body weight, insulin resistance, and blood pressure, then interventions that improve the amount and quality of sleep may be able to treat and prevent these metabolic disorders. There needs to be more research with accurate measurements of how long people sleep and regular checks on both body weight and sleep. To properly determine if there is a link between lack of sleep and obesity, experimental study designs that change the length of sleep is also needed.

Compliance with ethical standards

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Disclosure of conflict of interest

There are no conflicts of interest declared by the authors.

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