

# Does Late Sleeping Time Results Increased Bedtime Snack? What is the Risk of this in Childhood Obesity?

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**Objective:** Several studies have shown that sleep plays an important role as a modulator of metabolic homeostasis. Indeed, hundreds of studies have been published to examine the relationship between insufficient sleep, late bedtime and obesity. We have studied bedtime snack as another parameter. We suggested that it may be a risk factor for obesity. When we looked at the literature, we could not find any study about bedtime snack in childhood, but there are a few studies in adults. In this study, we aimed to determine the relationship between obesity and late sleeping time and increased bedtime snack due to that.

**Methods:** Our study was prospectively conducted between July 2017– November 2017 by enrollment of children, aged 6–18 years, who admitted to the pediatric primary care clinic of Ankara University School of Medicine. Children with any chronic disease or a history of drug use which increases the risk of obesity were excluded. Anthropometric values were recorded. Approximate bedtime and bedtime snack habits of each child were questioned. Data were evaluated by appropriate statistical methods.

**Results:** The mean age of 1949 cases in our study was 11.1±3.8 years. Of the cases, 57.6% were female, 42.4% were male. We found that 12.5% of our cases were overweight and 17.9% were obese. We found that 32.5% of the cases were have bedtime snack. The obesity rate was 16.2% in those who did not eat before going to bed, whereas the obesity rate was 21.5% in those who had eaten before going to sleep. We found a significant relationship between bedtime snack and obesity (P <0.001). In our study, it was observed that 70.8% of cases were sleeping after 22:00 at night. Obesity was found to be 14.9% in those who slept before 22:00, while it was 19.2% in late sleepers with bed time snack. There was no significant difference in obesity between late sleepers and the other group (P:0.82). Obesity frequency were higher among late sleepers who had bedtime snack.

**Correlation between eating habit before sleeping and obesity**

		Others	Overweight	Obese	
Yes	n	413	81	135	629
	%	65,7%	12,9%	21,5%	100,0%
No	n	934	162	212	1308
	%	71,4%	12,4%	16,2%	100,0%
Total	n	1347	243	347	1937
	%	69,5%	12,5%	17,9%	100,0%

**Correlation between late sleeping and obesity**

		Others	Overweight	Obese	
Sleeping time	Before 22:00	405	74	84	563
		71,9%	13,1%	14,9%	100,0%
After 22:00	936	166	262	1364	
		68,6%	12,2%	19,2%	100,0%
Total	1341	240	346	1927	
		69,6%	12,5%	18,0%	100,0%

**Conclusion:** Our study represents as the first study to evaluate the relation between childhood obesity and bedtime snack habit. We observed higher risk of obesity in children who slept late in addition to having bedtime snack. This should be accepted as a dramatic consequence of irregular eating habits of today's life. We believe that increasing number of well-designed preventive studies on this issue should be conducted in the future.

**Key words:** Obesity in childhood, Sleeping Time, Bedtime Snack

