Association Between Lack of Sleep and Obesity Amongst College Students

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OBJECTIVE

To determine whether there is an association between lack of sleep and risk of obesity amongst college students.

BACKGROUND

- Lack of sleep is commonly experienced by college students; juggling course load, work, social life, and extracurricular activities.
- The CDC recommends at least 7-9 hours of sleep per night.
- Lack of sleep leads to hormone imbalances of cortisol, leptin, and ghrelin, which regulate stress, weight gain, and overeating respectively.
  - May be associated with an increased risk of obesity.

METHODS

The targeted population are college students aged 18-25 years old. Participants were anonymously asked to complete a survey regarding their age, gender, height, weight, and the average amount of hours of sleep per night.

1. Google forms survey to collect data
2. Survey is distributed through various social media platforms
3. Informed consent provided and data kept anonymous

Participant's BMI was then calculated and obesity was measured by:
- Participant's height and weight, using a formula of $BMI = (weight(lb)/height^2(in)) \times 703$
- Validated measure: Participant's BMI is then categorized into the standard BMI weight status category

Outcome and exposure was collected at the same time and analyzed for study results. Spearman correlation analysis was then performed to find the p value for statistical approach.
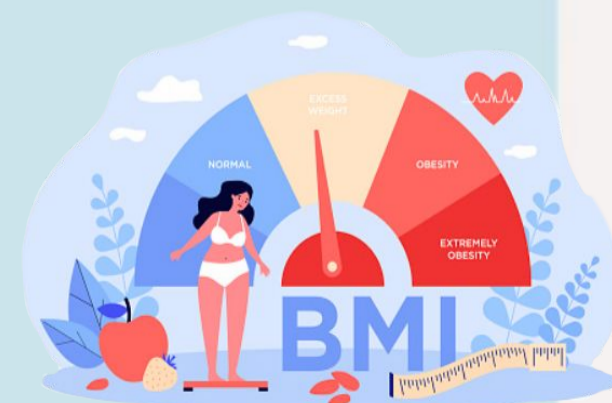
RESULTS

Characteristics	N	%
Gender		
Male	10	32.3
Female	20	64.5
Non-binary	1	3.2
Mean		
Height (in)	64.7	-
Weight (lbs)	138.6	-
Age (years)	21.7	-
BMI	23.2	-
BMI		
Underweight (<18.5)	2	6.5
Normal Weight (18.5 - 24.9)	21	67.7
Overweight (25.0 - 29.9)	6	19.4
Obese (≥30.0)	2	6.5
Typical # Hours of Sleep		
4-6 hours	15	48.4
7-9 hours	14	45.2
10-12 hours	1	3.2
13+ hours	1	3.2
Total sample size	31	100

BMI vs Hours of Sleep

$y = 2.3334x + 17.049$
$R^2 = 0.1928$
P-value: 0.017
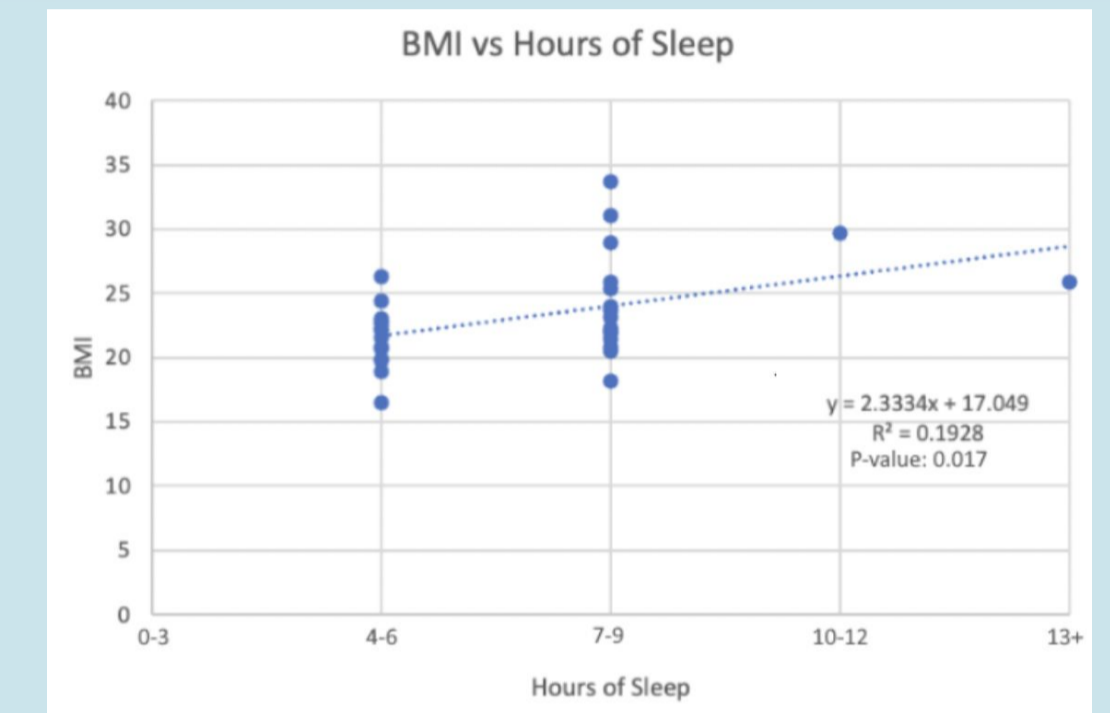
The Spearman Correlation analysis revealed our p-value to be 0.017, which shows that our data is significant. The scatterplot shows a positive correlation between our variables, however, this result does not provide a full understanding of our data.

BMI * Hours of Sleep Crosstabulation

Count		Hours of Sleep				
		4-6	7-9	10-12	13+	Total
BMI	Underweight	1	1	0	0	2
	Normal weight	12	9	0	0	21
	Overweight	1	3	1	1	6
	Obese	0	2	0	0	2
Total		14	15	1	1	31

Through our crosstabulation, we were able to conclude that although the participants were experiencing less sleep, they were still within the normal weight status of BMI.

CONCLUSION

Our results indicate that lack of sleep is not a risk factor for increased risk for obesity amongst college students.

Based on our study results, although the majority of students are sleeping less than the recommended hours of sleep, their BMI is still within the normal weight category, suggesting that our results are inconsistent with the majority of research studies.

There are many limitations in our study that could have produced these inconsistent results. including lack of variability within our participants.

POLICY IMPLICATIONS

Public health interventions should target school institutions so that the appropriate education/ resources can be allocated to aid and allow students to make healthier choices.

As obesity is a growing complex health concern, our research was conducted to open more investigation into sleeping habits and obesity as a whole and propose more ways to tackle this issue.