

# Association between Sleep Quality and BMI among Adolescent Girls

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**Abstract:-** The aim of the study is to find the association between sleep quality and BMI among adolescent girls. **The Methodology:** The study is designed as a cross sectional study, the study is set in the saveetha college of physiotherapy, the sample size are 50 students taken from the saveetha college of physiotherapy between the age 18 to 20 years respectively. The materials required are sleep quality questionnaire, weighing machine and a height measuring tape. The Inclusive criteria includes subjects between the age of 18 to 20 years and College students were only taken. The Exclusive criteria includes Subjects who are drug, alcohol addicts, medication and psychological disorder. **The Results determined in our study is** 33 students that is 66% of students having normal BMI determined with good quality of sleep whereas the remaining 17 students that is 34% students having high BMI determined with poor quality of sleep. **Conclusion:** The study shows due to increase in BMI the sleep quality increases from the normal level in the adolescent subjects

**Keywords:-** BMI, Sleep Quality, Adolescent Girls.

## I. INTRODUCTION

Sleep quality is important for a human to develop their physical health and also it helps in healing, restore and rejuvenate, to grow muscle, repair tissue, and synthesize hormones.

“Sleep quality” is poorly defined yet globally used by researchers, clinicians and patients. The main key feature of insomnia is poor sleep quality. So, our aim was to analyze the subjective meaning of sleep quality among normal sleepers and individuals with insomnia.

In different stages of life, especially for women in which they experience greater impact on their sleep quality. Pregnant women who often experience sleep problems because pregnancy can make them feel exhausted and also cause insomnia during night times. Pregnant women also experience reflux and in later stages of pregnancy they may find it difficult to get comfortable. Other group that have disturbed sleep patterns are mothers especially, mothers of newborns who have to provide feeds to their children during night time. Another stage where women have disturbed sleep is menopause because they experience itchy skin and suffer from formication.

Psychological factors may also determine sleep pattern among adolescent which interact with biological regulatory processes[6]. Adolescent’s sleep can be extended possibly by parent’s intervention on setting bedtime. Positive outcomes can be achieved regarding depression, fatigue and sleepiness [6]. There is a wide range of possible causes and consequences of sleep quality among adolescents in which psychological factor seems to be one of the important and relevant factors.

The body mass index (BMI) is defined as the body weight divided by the square of the body height, and is universally expressed in units of kg/m<sup>2</sup>, resulting from mass in kilograms and height in meters.

➤ *BMI – Weight (kg)/ Height (m<sup>2</sup>)*

Commonly accepted BMI ranges are underweight: less than 18.5 kg/m<sup>2</sup>, normal BMI: 18.5 kg/m<sup>2</sup> to 25 kg/m<sup>2</sup>, overweight: 25 kg/m<sup>2</sup> to 30 kg/m<sup>2</sup>, obese: over 30 kg/m<sup>2</sup>. The study is aimed to find the association between sleep quality and BMI.

## II. MATERIAL AND METHODS:

### A. Study Design:

Cross sectional study

### B. Study Setting:

Saveetha Medical College & Hospital, Physiotherapy department, Saveetha University, thandalam, Chennai – 602105

### C. Sampling Method:

Random sampling method

### D. Inclusion Criteria:

- Subjects of age group – 18 to 20 years.
- Subjects of female gender
- College students

### E. Exclusion Criteria:

- Subjects who are drug, alcohol addicts, medication and psychological disorder

### F. Materials Required:

- Sleep quality questionnaire
- Weighing machine
- Height measuring tape

**G. Procedure:**

Students from saveetha college of physiotherapy aged 18 to 20 years were given a sleep quality questionnaire and assessment of BMI of the subjects using Weighing machine and Measuring tape was done.

**H. Treatment Session:**

Duration of each session: 20 min

- Sessions: 1 session/day
- Duration: 3 days

**III. RESULTS**

In our study we determined that 33 students who have normal BMI range has good quality of sleep and whereas the remaining 17 students having increase in the BMI range has poor quality of sleep.

**IV. DISCUSSION**

Our data are fully focused on girls of adolescent age group. Girls are the key targeting group because they perform low physical activity when compared to boys. Also, our study highlights that those who were categorized as unfit were found to have higher rate of negative SRH compared with ones who were fit.

At the period of adolescent many lifestyle habits are introduced such as physical activity, exercise, etc. Therefore, different determinants were identified as significant risk factors of childhood obesity between genders with low activity associated to obesity in girls.

**LIMITATIONS:**

- Small sample size
- Socio demographic data are not used in the analysis
- Study design precludes conclusion on causality

- Socio economic status could be assessed in order to provide the additional support for the relationship between quality of sleep, Body mass index (BMI), and health perception

Public health promotion activities should be aimed at children and adolescents focusing more on positive aspects of life and health.

BMI does not find changes in fat and fat-free mass even though it became a common method of assessing whether a person is overweight or obese.

But recently it was shown that BMI has become the strong predictor of obesity and other complications such as coronary heart disease, etc especially during young adulthood.

Therefore, our data has been adjusted for age, which may help to overcome those concerns. Also, it can lead to the importance of our data from a preventive point of view.

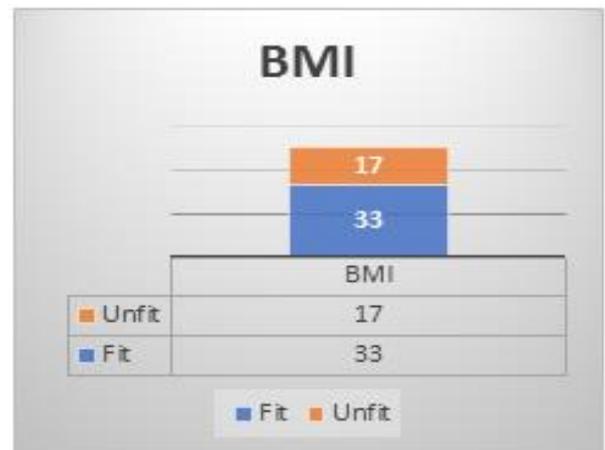


Fig 1:- No.of students who are classified as fit and unfit

S no.	No. students assessed	Sleep quality	
		Fit	Unfit
1.	50	33	17

Table 1

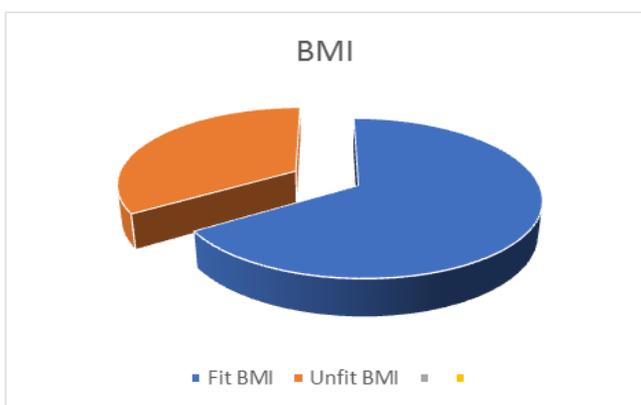


Fig 2:- Percentage of students who are classified as fit and unfit

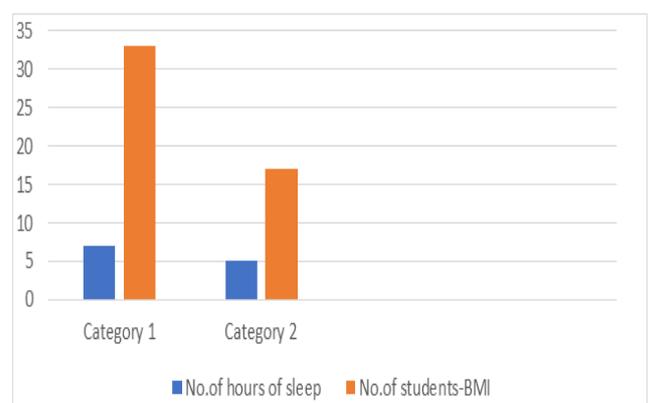


Fig 3:- Association between sleeping hours of adolescent girls and their BMI

S no.	No. students assessed	BMI	
		Normal	Abnormal
1.	50	66%	34%

Table 2

Category	Mean	Standard deviation
Fit	3.727	0.445
Unfit	6.058	0.802

Table 3

## V. CONCLUSION

- In conclusion, the study shows due to increase in BMI the sleep quality increases from the normal level in the adolescent subjects. Sleep quality was significantly associated with BMI.
- Girls who were under fit category were more likely to report better sleep quality compare to their unfit peers.

## ACKNOWLEDGEMENT:

The authors are grateful to the authorities of Saveetha College of Physiotherapy, Chennai.

## CONFLICT OF INTEREST:

The authors declare no conflict of interest.

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