

## ASSESSMENT OF BODY MASS INDEX AND THE RELATION WITH QUALITY OF SLEEP IN YOUNG ADULTS

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### ABSTRACT

**Introduction:** The link between sleep and maintaining health and well-being is increasingly relevant for adolescents and adults. The adverse consequences of insufficient sleep on health have been related to obesity, coronary artery disease, hypertension, type 2 diabetes, and even incident pneumonia. **Method:** A total of eighty young adults (female: 29 and male: 51) aged eighteen to twenty-five years were assessed. Anthropometric measurements including age, height, weight and indices like height for age, weight for age, and BMI for age were calculated. The sleep quality was assessed through Pittsburgh sleep quality index questionnaire. The Pearson correlation was carried out to find the relation between BMI and sleep quality. **Result:** The levels of BMI have shown to be more in normal category 30.0% and underweight category 32.5% and the obese class I and class 2 are quite on the lower side. The sleep quality of participants responded shown fairly good quality of sleep which is (63.3) % as follows (20.3) % shows very good percentage whereas, (7.6) % is fairly bad quality of sleep and 8.9% shows very bad sleep quality of a young adults. The Pearson correlation between the BMI and sleep quality showed no significant difference in young adults. **Conclusion:** The result showed that there is no relationship between BMI with sleep quality among adolescents.

**KEYWORD:** BMI- Body Mass Index, sleep quality, PSQI (Pittsburg Sleep Quality Index).

**AIM:** Assessment of the Body Mass Index, and Its Correlation In Terms of Sleep Quality of Young Adults.

### OBJECTIVE

1. To assess the anthropometric measurements and body mass index the subjects
2. To assess the subjects, sleep quality using the PSQI tool.
3. To find the relation between body mass index and sleep quality of the subjects.

### INTRODUCTION

As the next generation of intellectuals, college students between the ages of 18 to 21 constantly gain new experiences, individual autonomy, and identity development. They are in the process of maturing from adolescents to adults. The tendency to eat unhealthily, skip meals, and consume a lot of fast food is particularly widespread at this point in time. College students are more probable to consume "outside meals that are higher in calories and fat and lower in fiber, which leads to obesity and overweight problems" as They are probably

going to be residing far from their parents for the first stage of their life.

Obesity has grown into a huge around the globe health problem due to today's culture of immobility and the accessibility to an inexhaustible supply of high-fat foods, with incidence rates growing in developed nations and harming numerous emerging nations for several decades.<sup>[1]</sup>

An increasingly frequent sleep disorder called obstructive sleep apnea (OSA) is characterized by recurring occurrences of upper airway collapse, which cause oxyhemoglobin desaturation and periodic awakenings throughout the night the predominance of sleep respiratory issues in middle-aged adults.<sup>[2]</sup> In Central Latin America and the Caribbean, the average rate of adult overweight and obesity was 47 percent among men and 57.8% of respondents among women. In sub-Saharan Africa, meanwhile, the prevalence was 6.6% among men and 36.9% among women. In South Asian nations and Southeast Asia, the prevalence was

21.2% among men and 25.4% among women. In East Asia, the northern region of Africa, the Middle East, and Eastern Europe, the prevalence was 55.4% among men and 58.8% among women.<sup>[3]</sup>

A person who is obese has excessive or abnormal body fat that has a detrimental impact on their health. Obesity is often caused by a disparity between calories taken and calories expended by an individual. Weight gain results from increased calorie intake without corresponding increases in sports. Reduced regular exercise will additionally result in an imbalance of energy and weight increase. **Also, it** is a major risk factor for several non-communicable diseases, including "diabetes, cardiovascular disease, hypertension and stroke, and certain cancers", which reduces the overall standard of life by enhancing the risk of early mortality and severe chronic disorders.<sup>[4]</sup> To prevent and reduce global obesity, vital steps are required.<sup>[5,6]</sup> Evidence indicates "dietary weight loss and successful weight maintenance contribute to improved sleep."<sup>[7]</sup> Also, most studies examining college-age students' sleep patterns and needs are limited. All studies agree that regular and occasionally severe sleep issues, which have an adverse effect on student's health and well-being, are common among college students.

The majority of research on the sleeping habits and requirements of college-age students is sparse. All studies agree that regular and occasionally severe sleep issues, which have an adverse effect on student's health and well-being, are common among college students. Additional evidence was obtained to support the idea that sleep dispersion despite sleep length, can influence the balance of glucose. Some studies demonstrated a decline in the sensitivity of Sleep dispersion is associated with insulin and glucose efficiency, Corroborating the idea that sleep disturbances have harmful effects.<sup>[8]</sup>

Students depend a lot on junk food/packed foods/ tetra packs and easy-to-cook food. attitudes towards eating behaviors, particularly the intake of fast food as a result of several causes such as a lack of time and stress, which the majority of young people experience frequently at this period of their lives.<sup>[9]</sup> Nutrition education is the most important part of healthy eating habits. It is However, it is still infrequently utilized by college students. Healthy eating and nutrition information is extensively disseminated across many population groups.

Undernutrition- is a serious issue for public health, particularly for young children and teens in certain developing nations and some families with disadvantages in wealthy nations.

Overeating is a dietary condition that can result in serious disorders, including obesity and overweight.

A healthy lifestyle is determined by health consciousness. Effectively, maintaining a healthy

lifestyle is a need for academic performance. The goal of the study was to investigate any connections between eating habits and health consciousness.

Inactivity and unhealthy eating patterns are two major behaviors that may have a detrimental effect on young adults' bodies and, as a consequence, on young adults' future health.

According to empirical data, obesity, and habitual sleep length are strongly correlated. Insulin glucose and insulin imbalance are one of the suggested causes for this association<sup>[10]</sup>, a pattern of orexigenic behavior characterized by elevated ghrelin and/or reduced leptin<sup>[11]</sup>, increased caloric intake or other dietary modifications<sup>[12]</sup>, elevated chronic inflammation<sup>[13]</sup>, or reduced physical activity, possibly as a result of elevated daytime drowsiness.<sup>[14]</sup>

OSA is a widespread and increasingly recognized sleep condition that is characterized by recurring bouts of upper airway collapse, resulting in oxygenated hemoglobin desaturation and frequent stimulation during sleep through the night.

These and other routes might explain why a lack of sleep leads to a rise in body weight. Obesity and OSA (obstructive sleep apnea) have a complicated relationship. When compared to equally obese people who do not have OSA, newly identified OSA subjects have difficulties shedding weight and may be susceptible to excessive weight gain.<sup>[16]</sup> It is also frequently characterized by means of BMI by body weight compared to height or analyzed in terms of the distribution of fat for central obesity using the circumference of the waist or waist-to-hip ratio measures. Increased obesity would then result in increasing worsening of sleep apnea, creating a vicious cycle of breathing problems and metabolic disorders.<sup>[17]</sup>

The National Institute of Health, or NIH, defines body mass index as an indicator of fat content that is a proportion of the body's weight in kilograms to its height in meters squared.

The current NIH definition of normal BMI is 18.5 to 22.9 kg/m<sup>2</sup>. A body mass index (BMI) of 23.0-24.9 kg/m<sup>2</sup> qualifies as overweight, while a BMI of 30.0 kg/m<sup>2</sup> or higher is considered obese.

### The Body Mass Index Classifications

**Table no. 1.1.**

| BMI Classifications       | (kg/m <sup>2</sup> ) |
|---------------------------|----------------------|
| Underweight category      | < 18.5               |
| Normal category           | 18.5-22.9            |
| Overweight category       | 23.0-24.9            |
| Obesity, Class 1 category | 25-29.9              |
| Obesity, Class 2 category | >30                  |
| Extreme Obesity, Class 3  | 40.0 +               |

This study aims to investigate the cross-sectional differences between the body mass index with the sleep quality of young adults at Manav Rachna university with the help of the PSQI standard sleep quality index.

#### **SLEEP QUALITY/ METABOLIC SYNDROME**

**N Okubo, M Matsuzaka (2014)** Conducted a study to assess the global sleep quality by using the standard PSQI index where they measured 7 elements example, Perceived sleep quality, latency in sleep (long and sleep onset time), sleep in length. normal sleep effectiveness (the proportion of hours slept relatively to time invested in bed), sleep problems (sleep disturbance), sleep medicine, as well as the time of day (difficulty), and getting to sleep while awake throughout social events are all factors to consider. They have established certain criteria for collecting samples with abdomen overweight, high blood pressure, and decreased tolerance to glucose. They observed some differences as per the gender whereas, the males were showing more responses than the females in every aspect, but the Males had a lower incidence of depression than females. In addition, females were less active in smoking and drinking. The study concluded that both males and females with metabolic syndrome have faced problems with sleep latency, and sleep deprivation and use of sleep medications were found high.

#### **OBESITY, SLEEP APNEA, AND HYPERTENSION**

**R.wolk, Abu S.M. Shomousian, VK Somers-Hypertension(2003)-** carried out a study to examine the connection between high blood pressure, obesity, and sleep apnea that is obstructive. Despite the fact that they have completed excellent studies as well as longitudinal analyses, they noticed that obstructive sleep apnea (OSA) has been detected in obese persons with resistant hypertension and that people who have the disruptive sleeping disorder (OSA) contribute to hypertension in obese individuals. Increased rates of caused by inflammation and oxidative stress, characterized by impaired baroreflex function, and possibly by effects on renal function, as well as a history of hypertension that is resistant and lack of a decrease in nocturnal or blood pressure in obese subjects, should prompt the physician to consider OSA, especially if clinical signs indicating of OSA (such as poor sleep quality, noticed apnea, etc.) are present.

#### **SLEEP LOSS AND HYPERTENSION**

**RM Bruno, L Palagini, A Gemignani, A Viridis-Sleep Medicine,(2013)** - carried out a research project to investigate the link between poor sleep and hypertension, although they opted for some articles to review that reported experimental insomnia creates or investigated the length of sleep or sleeplessness and the connection to blood pressure or blood pressure in individuals over the age of 18. Even after correcting for other risk factors, this study found that artificial sleep deprivation, limited sleep duration, and chronic insomnia are related to raised blood pressure and a higher

likelihood of hypertension. They have concluded that due to resistant stress their neurobiological functions impair also the brain receptors become weak. Also, they have analyzed that resistant hypertension may lead to sleep problems and sleep latency.

#### **PHYSICAL ACTIVITY AND SLEEP QUALITY OF MENTAL HEALTH**

**Amer k. Group, Mayumi Mohamad 2015)** –The research project was undertaken to determine the connection between vigorous exercise and sleep quality and psychological wellness among undergraduates using a cross-sectional study in which samples were collected utilizing the conventional sleep quality index from Pittsburgh (PSQI). They gathered 617 students in college-aged between the ages of 18 and 30, which included both men and women. All individuals completed the sleep quality and anxiety scale questionnaires, as well as the worldwide physical activity questionnaire. The conclusion was the students were more prone to anxiety out of which 51% of students reported having low physical activity status, also this 51% of students faced poor sleep quality. Also, they have found mental health is the major reason for physical activity.

#### **SLEEP QUALITY AND OBESITY**

**Y. Fatima, S.A.R Doi, A.A. Mamun (2016)** – the studies took place to investigate the impact of sleep deprivation upon overweight/obesity in young people. **EMBASE** and **MEDLINE** databases investigated some research papers on overweight/obesity and sleep quality which have been searched on young adults, and adolescents. They have concluded that obese/overweight individuals have shorter span of sleep (less than 7 to 8 hours). A pooled estimate (26,553 subjects) suggests insufficient, Limited duration and low level of sleep (Ow/Ob). Analysis of subgroups show that young patients with poor quality of sleep (regardless of duration) had a significantly greater risk of (Ow/Ob).

#### **ASSOCIATION BETWEEN SLEEPING HABITS AND OBESITY**

**Jinn- Shang Wu, Hao-Chang Hung, Yi-Ching Yang, Horng-Yih Ou, and Hao-Chang Hung represent a few of those involved. (2013)-** the study was conducted to investigate the relationship between sleep quality and being overweight in the Chinese population.

The researcher has used anthropometric studies as well as the cross-sectional (PSQI) method for the data collection. And they have found that females have a high score of PSQI than male subjects. women were more likely to complain about poor sleep than men, also the overweight factor is considered higher in females than males, and this could be the reason for sleep quality Moreover females were taking more time to fall asleep, a reason associated with insulin resistance in Chinese women.

## ADOLESCENT SLEEP QUALITY AND INCREASED BLOOD PRESSURE

**Carol LaRose, Amy Storer-Isser, and Sogol Javaheri's (2008)** -research are being done to see if poor sleep is linked to prehypertension in teenagers. They have used **Actigraphy** (a validated method to measure sleep parameters). They took the 9 blood pressure readings were taken over the course of two days. Here the objective was to measure sleep quality and also the sleep duration. They concluded the subjects suspected of prehypertension were male and possess an elevated body mass index (BMI). They also determined that the numerous aspects of medical conditions, drugs, and sleep-related ischemia explain the substantial association between teenage low levels of sleep and increased blood pressure.

## NIGHT SHIFTS WORK, SLEEP QUALITY AND OBESITY

**Maria Carlota Borba Brum, Fabio Fernandes Danto's Filho(2020)**- The study seeks to look at the connection between night shift jobs, quality of sleep, and obesity. They conducted a cross-sectional study of the results. The physical activity was measured using the international physical activity questionnaire (IPAQ). Also, venous blood is carried after fasting for 12 hours. They have concluded that individuals who are working night work have poor quality, and had more weight. The night shift workers have almost 3 times abdominal obesity. Social jetlag was also the reason for obesity and weight.

**Lijun Zhu, Yan Chen, and Jun Wang (2019).** The purpose of the investigation is to look at the connection between BMI and sleep quality. of university students. In China, a cross-sectional investigation was carried out. were collected 1328 participants were, the sleep quality was calculated with the help of the PSQI index, The study concluded that the prevalence of obesity was found in males than women Also, they found that females who are on drugs found to be more poor sleep quality and overweight and Sleep medicine usage is also substantial. changes between males and females.

Lovro Stefan, Tomislav Kristicevic (2018) - The primary goal of the research was to research the relationship between the amount of time in sleep and sleep quality in an extensive number of young adults who were overweight or obese. They conducted a longitudinal investigation with 2100 participants and used the PSQI survey to assess the fall asleep time that was spent in bed. They determined that long hours spent in bed could result in obesity or being overweight, and their findings show that both short and long times utilized at night might contribute to poor fall sleep quality in adolescents and young adults.

## METHODOLOGY

The methodology is the logic of scientific investigation. It may be a procedure of analysis technique. The

methodology suggests the description, rationalization, and justification of strategies and not the techniques of themselves. It contains the standards and principles utilized to guide the selection structure use of methods are directed by underlying. The methodology will properly discuss the theoretical analysis of methods applicable to the sphere of study or the body of methods and principles significantly to the branch of knowledge.

**The Study Entitled** – study on body mass index with relation to the sleep quality of young adults.

## Adopted the following methodology for competitive present work

- 1) Locale of the study
- 2) Selection of subjects
- 3) Study tools and data collection
- 4) Statistical analysis

**LOCALE OF THE STUDY:** The research was carried out at the Manav Rachna International Institute of Research and Studies.

- **Sample collection**
  - 1) **Study subject:** young adults ages eighteen to twenty-five years.
  - 2) **Sample size:** The study recruited a total of eighty subjects
  - 3) **Criteria** for selection of subjects.

### • Inclusion Criteria

- 1) Subjects were college students
- 2) Subjects aged between 18- 25 years.
- 3) Both males and females were included
- 4) Subjects were willing to participate.

### • Exclusion criteria

- 1) Subjects who were below 18 and 25 years were free from diseases.
- 2) Who were not willing to participate.
- 3) Subjects who were not from college.

## Sampling methods

Purposive sampling techniques were adopted for achieving the desired number of subjects.

- **TYPE OF STUDY:** A cross-sectional study is been used to conduct this study
- **STUDY TOOLS** - The study subject's data was collected using a Pittsburgh quality of sleep index survey and anthropometric measures.

## Anthropometric Measurements

Anthropometric measurements including height, weight, (The height for age, weight for age, and BMI for age) were calculated. measured.

- **Height (cm):** was measured by a transportable stadiometer which will be to the wall.

**Procedure**

- 1) Participants were asked to get rid of their shoes.
- 2) The participants were asked to stand with her/his back to the peak file and to look straight.
- 3) The head girth of the stadiometer or the slippery part of the measuring device was down so the hairs were ironed flat.
- 4) Heights (cm) was recorded

- **Weight(kg):** was measured by weighing machine.

- 1) The size was adjusted to bring the world to zero point.
- 2) Participants were asked to get rid of their serious outer clothes and shows
- 3) Posture of the topics throughout the burden activity was unbroken straight.

- **Growth grade:** was measured by using Growth percentile charts by WHO. the expansion percentile was categorized into 3 teams' example - The height for age, weight age, and BMI age are all factors to consider.

- **Height for age**

The age corresponds to the child's height once premeditated at the fiftieth grade on a Growth chart.

**2) Weight for age**

By applying WHO international deviance and knowledge criteria, the best box-Cox power exponential models were accustomed to match ironed weight for age percentiles. Bootstrap resampling was used to access the exactitude of percentile estimates.

**3) BMI for age**

BMI changes considerably with youth (BMI) age starts rising gradually throughout adolescence and the majority of adults. The reversal or elevation of BMI that happens after it has reached its lowest value is known as

"adiposity rebound." This is a usual pattern of growth that happens.

**Questionnaire on Sleep Quality is Pittsburgh**

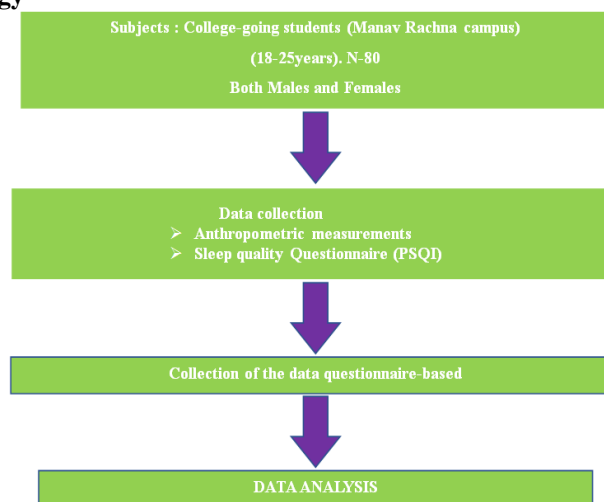
The PSQI was applied to determine the sleeping habits of (N-100) undergraduates from a Manav Rachna institution (It is a uniform, statistical evaluation of the quality of sleep with established high standards of stability and reliability).

It is made up of nineteen self-reported questions that are scored in seven parts. The seven sections were assessed on a 0-3 scale, with lower scores suggesting no difficulties and higher numbers indicating more and worsening problems. As an example: (1) perceptual sleep quality (very good to terrible), (2) sleep latency (15 ins to >60 minutes). (3) sleep durations (from more than 7 hours to 5 hours) (4) sleep efficiency of more than 85% to a half dozen5% of total sleep time is spent in bed. (5) Sleep dispersion (not uniform).

**Procedure**

All the information was collected, and participants were directed to finish the PSQI, questionnaire. The questionnaires in the survey asked concerning claimed measurements of height and weight, as well as a variety of other defined health-related variables with the PSQI, and variance in accustomed confirm the link between the conventional BMI individual's sleep qualities with the overweight or obese individuals. The sleep quality index makes it possible to assess young adults' sleep quality in relation to the seven aspects of the standardized index. Furthermore, literature and art, cultural society, legal and business disciplines, technology, wellness, and welfare services were all involved.

Also, informed consent was collected from participating students and the collaborating institutions also provided ethics approval for the study procedure.

**Flow chart of the methodology****RESULT AND DISCUSSION**

The current study sought to find out the impact of body

mass index on sleep of young adults age (18-25 yrs.). A total of 80 participants from Manav Rachna international

institute of research and studies were selected for the study. Investigations were made in detail about the individuals where we have collected socio-demographic profile, anthropometric measurement, sleep quality, sleep latency and sleep disturbance to assess the quality of sleep of individuals.

**Table 5.1 Socio-demographic profile of the subjects**  
Age group

| AGE   | PERCENTAGE |
|-------|------------|
| 18-20 | 32%        |
| 20-24 | 35%        |
| 25    | 33%        |

#### Gender

| Gender | Frequency | Percentage |
|--------|-----------|------------|
| Male   | 29        | 36.7%      |
| Female | 51        | 63.75%     |

Table 5.1

The table 5.1 demonstrates the demographic profile of the subjects. Among them we have the age group of 18 and 20 is 32% and 20-24 is 35% we have the majority of 24 yrs. Age group. Among 80 subjects, 36.7% were female and 63.75% were males from both the age group.

**Table 5.2 Anthropometric measurement**

Self – reported weight and height of the subjects were recorded. After their BMI were calculated. Subjects were classified on the basis of their WHO's BMI classification criteria (Asian) mean weight, height and BMI is shown in the table 5.2

**Table 5.2 Mean weight, Mean height and Mean BMI of the subjects.**

| Subjects | Mean weight(kg) | Mean Height(cm) | Mean BMI (kg/msq) |
|----------|-----------------|-----------------|-------------------|
| N =80    | 58.6±11.19      | 161.7±8.996     | 17.04±0.7         |

The mean weight with standard deviation of the subjects (n=80) came out to be 58.6± 11.19 The mean height and BMI with the standard deviation came out to be 161.7±8.996 and 17.04±0.7 respectively.

**Table 5.3 Body mass index status**

The nutritional status is a self-made Questionnaire in which anthropometric details were take like Height, weight collected of the different participants. Weight (kg) and height (cm) was incorporated to compute body mass index (BMI)kg/m<sup>2</sup> and the formula was used to calculated body mass index.

#### Level of BMI

| BMI           | N  | %    |
|---------------|----|------|
| Normal weight | 24 | 30.0 |
| Under weight  | 26 | 32.5 |
| Over weight   | 8  | 10.0 |
| Obese1        | 17 | 21.3 |
| Obese 2       | 5  | 6.3  |

From this table the levels of BMI we have seen the individuals are more in normal category 30.0% and underweight category 32.5% and the obese class I and class 2 are quite lower side.



Figure 5.1.

#### Sleep quality among participants

The sleep quality is asses by the scale (PSQI) perceive sleep quality scale to see the quality of sleep among the participants. Here we can see their sleep quality with some major questions.

#### (Q1) Cannot get a sleep within 30 minutes?

| Option                     | Mean | Percentage% |
|----------------------------|------|-------------|
| Not in the last month.     | 24   | 19.2        |
| less than once a week      | 29   | 23.2        |
| less than once a week      | 17   | 13.6        |
| Three or more times a week | 10   | 8           |

**Q2) Have you ever woken up in the midst of your sleep in the morning or night ?**

| Option                     | Mean | Percentage% |
|----------------------------|------|-------------|
| Not in the last month.     | 17   | 13.6        |
| less than once a week      | 24   | 19.2        |
| less than once a week      | 25   | 20.0        |
| Three or more times a week | 13   | 10.4        |

**Q3) You cannot breathe comfortably during sleep?**

| Option                     | Mean | Percentage% |
|----------------------------|------|-------------|
| Not in the last month.     | 58   | 46.4        |
| less than once a week      | 10   | 8.0         |
| less than once a week      | 8    | 6.4         |
| Three or more times a week | 3    | 2.4         |

**Q4) Do you cough or snore loudly?**

| Option                     | Mean | Percentage % |
|----------------------------|------|--------------|
| Not in the last month.     | 55   | 44           |
| less than once a week      | 14   | 11.2         |
| Once or twice a week       | 6    | 4.8          |
| Three or more times a week | 4    | 3.2          |

**Q5) Do you feel too cold during sleep?**

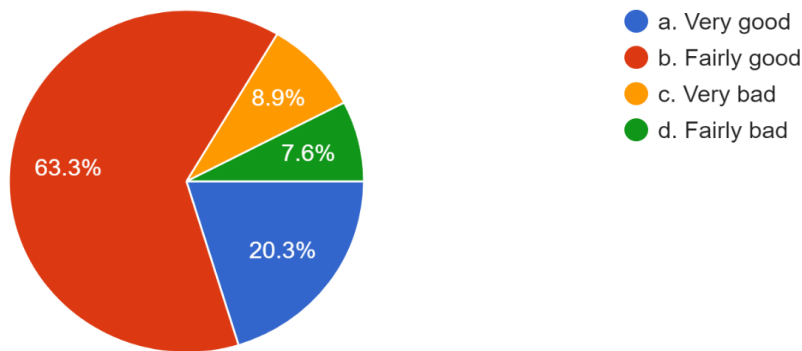
| Option                     | Mean | Percentage % |
|----------------------------|------|--------------|
| Not in the last month.     | 47   | 37.6         |
| less than once each week   | 11   | 8.8          |
| Once or twice each week    | 14   | 11.2         |
| Three or more times a week | 2    | 1.6          |

**Q6) Do you feel too hot?**

| Option                     | Mean | Percentage% |
|----------------------------|------|-------------|
| Not during the past month  | 48   | 38.4        |
| less than once a week      | 19   | 15.2        |
| Once or twice a week       | 9    | 7.2         |
| Three or more times a week | 3    | 2.4         |

**Q7) Do you experience any pain?**

| Option                     | Mean | Percentage% |
|----------------------------|------|-------------|
| Not during the past month  | 47   | 37.6        |
| less than once a week      | 14   | 11.2        |
| Once or twice a week       | 13   | 10.4        |
| Three or more times a week | 5    | 4.0         |



**Figure no. 5.5 Level of sleep.**

For assessing the level of sleep the PSQI scale was used to determine the level of sleep of the participants, the scoring level of sleep are mainly 0 (no sleeping challenge), 1-7 (mild sleep quality), 8-14 (average sleep difficulty), and 15-21 (severe sleep difficulties).

Participants have rated their sleep quality on the basis of Scale (PSQI) as follows:

From the Figure no. 5.5 we can conclude that the sleep quality of participants responded shown fairly good

quality of sleep which is (63.3) % as follows (20.3) % shows very good percentage whereas, (7.6) % is fairly bad quality of sleep and 8.9% shows very bad sleep quality of a young adults.

**PSQI RESULT**

The Pittsburgh Sleep Quality Index (PSQI) is an expressed questionnaire that assesses sleep quality. and interruptions during the course of one month. And as per the study I have corelated the sleep quality with the Body mass index.

**TABLE No. 5.6**

| Relation of Sleep quality and BMI among adolescents |                                    |      |               |
|---|------------------------------------|------|---------------|
|   |                                    | BMI  | SLEEP QUALITY |
| BMI   | Pearson Coefficient of Correlation | 1    | .011          |
|   | Sig. (2-tailed)                    |      | .917          |
|   | N                                  | 80   | 80            |
| SLEEP QUALITY                                       | Pearson Coefficient of Correlation | .011 | 1             |
|   | Sig. (2-tailed)                    | .917 |               |
|   | N                                  | 80   | 80            |

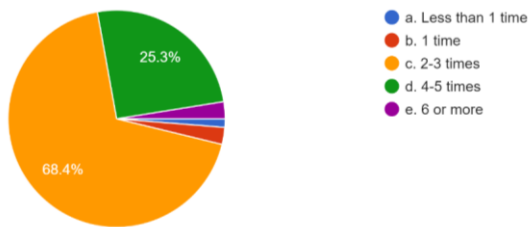
As the table No.5.5 shows There is no link between sleep quality and Body mass index Among participants. As the Pearson correlation value is more than 0.05 this shows there is no relationship between two variables.

**Table 5.7 quality of diet**

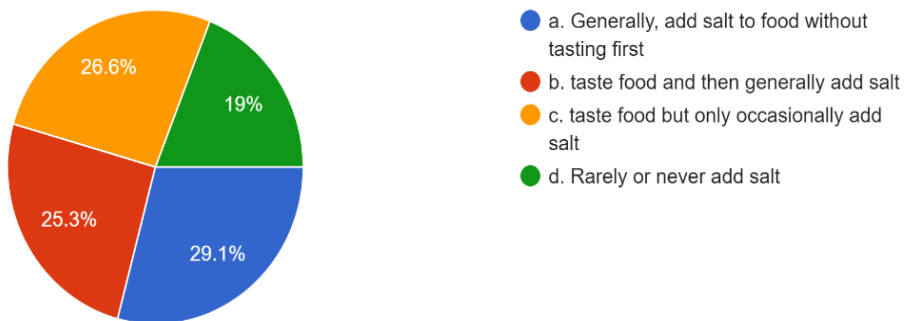
The food frequency method was used to calculate the quality of diet that what type of diet the participants were taking with quality of sleep some major foods and drinks groups were added to evaluate the nutritional value of a diet the level of sleep.

**Food frequency to determine the sleep quality**

Q1) How much do you eat in a day?

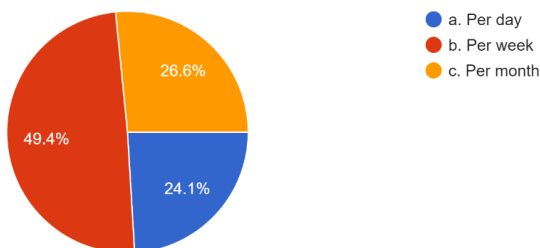


Q-3 How much table do you take salt?



As the pie chart demonstrate most of the participants chooses to add salt without tasting first 29.1% As follows as per the data participants rarely or never add salt about 19% the high intake of salts disturbs sleep.

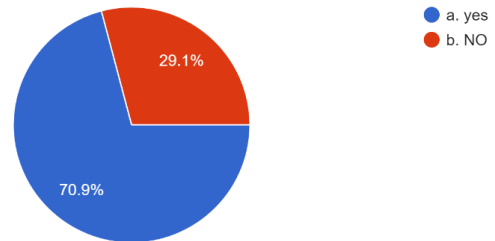
Q-4 How many times do you eat sweets, chocolates, cakes, pastries or biscuits?



As the pie chart demonstrate shows most of the participants take sweets chocolates 49.4%. Also, the consumption of sweets and chocolates may have impact on their sleep quality.

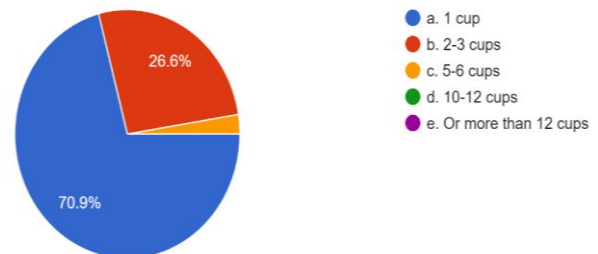
As the pie chart shows the 25.3% who eats 4-5 times in a day as follows 68.4% people eats 2-3 times in a day. Which shows the respondents taking their meals on time and they are not skipping their meals.

Q-2 Do you usually take sugar in?



As per the pie chart the respondents are taking high sugar inside their body as the data shows 70.9% and the 29.1% respondents. As per the study shown the sugar has negative impact on sleep lead to insomnia.

Q-5 How many cups do you consume coffee and tea in a day?



As per the data shown most of the participants consume coffee 1 cup on a daily basis the percentage is 70.9% and 26.6% consumes 2-3 cups of coffee a day. Also, some of the participants consumes 5-6 cups of day. This effects their sleep quality.

**RESULT AND SUMMARY**

The study focused on the sleep quality, sleep disturbance and with its correlation with the body mass index in young adults (18-25) years. The objective of the study



was:

- To assess the anthropometric measurements and body mass index the subjects.
- To assess the subjects, sleep quality using the PSQI tool.
- To find the relationship between the body mass index and the quality of sleep of the individuals

Subjects from 18-25 years who were college going were selected from the Manav Rachna international institute of research and studies. The data was collected through forms which was circulated through me and by some of my friends were included.

A standard questionnaire by Daniel J. Buysse called The Pittsburgh Sleep Quality Index, also known as the PSQI, was established to evaluate the sleep quality of young people.

The scoring was done and the raw score was modified into the transformed score. Karl Pearson test was used for data analysis. And by this significant difference between the body mass index and sleep quality was analyze. It was noted showed there was no statistically significant connection between sleep quality and BMI.

Young adults suffered with this problem a lot they cannot get to sleep within 30 hours. With this young adult claimed they have issues College students around the ages of 18 and 24 frequently encounter fresh perspectives, independence as individuals, and identity development as they advance as intellectuals for the next generation. They pass through a transition period between youth and maturity. During this stage, it is normal to engage in bad sleeping cycles, miss meals, and consume a lot of fast food. College students are more inclined to be the cause since they reside far from family at that point in their life.

#### Future scope

- The study can be evaluated in larger population
- PSQI questionnaire can be used for conducting similar studies
- Generalized questions were added on dietary habits it can be used for the future studies.

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