Chapter

Relations between Dietary Habits, Lifestyle and Leading Obesity

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Abstract

Obesity, hypertension, depression currently in the rise are some of the many problems faced by a common person due to poor dietary and sleeping habits along with some genetic disorders. An extensive study has been done over two years with 205 subjects regarding their eating & sleeping habits and their mental & physical state on a day-to-day basis. The subjects include both males and females ranging from 15 years of age to 70 above. Altogether 12.68% of people suffer from obesity while just 51.21% of them have an appropriate weight. Women below the age of 25 have shown an overpowering presence of PCOS affecting their health and 38.53% of the population showcasing suffering from hypertension and 14.14% suffering from depression. Sleep has yet proven to be a defining factor in wellbeing. 17.07% of the population exhibit signs of sleep deprivation while just 63.9% of the population sleep over 7 hours daily. Like many other countries, in India, the shift from traditional healthy food to fast food & processed food is taking place, resulting in various health problems like obesity, heart problems, arthritis, weakness, diabetes, high blood pressure, difficulty in breathing, stroke & so on. The aim of this meta-analysis was to quantify the effects of nutrition, mental health and exercise on the various aspects of a person’s well-being.

Keywords: Obesity, Hypertension, PCOS, Diet, Sleep, Depression

1. Introduction

Obesity is a chronic medical condition on the rise almost on the global epidemic level, which negatively impacts the health of people. The World Health Organization (WHO) defines it as the accumulation of excessive fat in the body creating risks for a healthy life [1]. In the year 2015, it was estimated that around 603.7 million adults were obese worldwide and then recently in 2018, it shows that the rate has increased and now 650 million adults suffer from obesity and 1.9 billion adults are overweight [2]. Studies have also shown that in the past 25 years, the prevalence of obesity has doubled in 73 countries globally [3]. In the last 30 years the rate of obesity has doubled amongst adults and children, and tripled amongst the adolescents [4]. In India, more than 135 million people are affected by obesity, prevalence rate of obesity and central obesity varies from 11.8% to 31.3% and 16.9% to 36.3% respectively according to the ICMR-INDIAB study conducted in 2015 [4].

Obesity is increasing globally in epidemic proportions over the past 50 years and has become a public burden with profound impacts on mortality, morbidity and cost of living, and thus has been recognised as a diseased state [4–6]. Therefore, to
understand the general public’s standing when it comes to health the commonly used metric is the Body Mass Index (BMI) for defining anthropometric height/weight characteristics in adults and for categorizing them into groups. BMI basically is the ratio between body weight and the square of body height which is commonly used to assess bodily mass in epidemiological studies, since it corrects for height [7]. BMI primarily represents an individual’s fatness, along with the risk factors for the prevalence of various health issues. This survey uses BMI to categorize as well as decipher the prevalence of obesity amongst the 205 individuals who participated, due to its wide acceptance in defining specific categories of body mass as a health issue [3, 7]. Being overweight is defined as the BMI being equal to or higher than 25 kg/m². From the studies, it has been revealed that the mean BMI is increasing by the years and they are skewing towards the right, showcasing a hasty increase of obesity [8]. Multiple Factors create a chronic positive energy balance which leads to obesity. This excess energy gets converted to triglyceride that gets stored in the adipose tissue depots and increases body fat accumulation and weight gain [1].

Obesity rates are rapidly increasing, especially amongst those with low incomes and education levels, suggesting that the gap among socioeconomic strata for obesity rates may be closing [9]. Consequences of leading sedentary life and poor diet leads to obesity, which now is nothing short of a global health hazard. Studies have even shown from both cross-sectional and longitudinal ways that consuming more of Western or highly processed diet over Mediterranean-style diet leads one to develop depression, anxiety and obesity [10]. At same time, sometimes genetics can also play a role in gaining weight. It has been observed that one subjects show resistance towards adipocyte secreted hormone leptin; this hormone opposes fat accumulation [7].

Hypertension is closely associated with the prevalence, pathophysiology, and morbidity of obesity and bears a positive linear correlation with BMI [3]. Heightened inflammatory activity leads to vascular dysfunction, coronary and cardiovascular diseases, and development of hypertension in patients suffering from severe obesity. Therefore, Obesity has been identified as the most important determinant of hypertension [3]. High sodium intake causes increased renal sodium reabsorption along with the combination of amplified renin-angiotensin aldosterone and sympathetic nervous system activity in obesity. All these leads up to hypertension and extracellular volume expansion in obesity [3, 7]. It has been estimated that worldwide over 300 million people suffer from depression and over 650 million are affected by obesity (2019).

Mental health disorders, mood and anxiety disorders are frequently co-occurring with obesity. Studies suggest that exposure to childhood trauma generally contributes in developing obesity as one grows older, especially in women and that rates of obesity are much higher in people who suffer from problems. A recent cross-sectional study also found developing anxiety due to excess weight and vice versa are quite extensive [11, 12].

The relation of obesity and PCOS is intertwined, where obesity is taken under consideration for the pathophysiological cascade of PCOS through 2 major pathways - insulin resistance & hyperandrogenism at the same time the increase in visceral fat due to PCOS can lead to obesity [6]. PCOS is considered a multifactorial disorder with various genetic, endocrine, hormonal alterations like hyperandrogenaemia and environmental abnormalities [13]. During infancy and early childhood, a change in the pre- and postnatal weight gain leads to central obesity, which if not taken under control can develop into polycystic ovary syndrome (PCOS) after reaching adult height [14]. Women with PCOS have higher normal serum concentrations of androgen and show more clinically significant insomnia symptoms & daytime sleepiness in comparison to women without PCOS. Adolescents with PCOS
and obesity have extremely poor actigraphy-estimated sleep, sleep efficiency and show longer sleep onset latency [15]. Thus, obese individuals are at a higher risk of developing sleep apnea, where the airway gets partially or completely obstructed while sleeping [6]. These obstructions in the night-time sleep leads to daytime somnolence, morning headache, systemic hypertension, which circles back and leads to hypertension and cardiac problems [9].

In this survey we also consider women above the age of 45 and women usually experience menopause during that time frame (42–50) which definitely alters the body composition, which usually is an increase in total and abdominal fat mass due to oestrogen deficiency. Usually, the average weight gain ranges between 2.2 kgs to 4.1 kgs during this period. Independent of weight modifications, the menopause has been shown to be associated with major changes in body composition and fat distribution [16].

2. Methods and materials

Interview surveys include questions on self-reported weight and height, which have been used to monitor trends over time. A total of 205 subjects participated in the study. Following convention, we defined prevalence of overweight and obesity (in adults (aged >18 years) overweight categorised as BMI ≥25 to <30 kg/m² and obesity as BMI ≥30 kg/m²; in children, classification is based on the International Obesity Task Force [IOTF] definition; appendix). We did a systematic literature review with search criteria as those pertaining to our subjects under consideration. We identified all articles reporting prevalence of overweight and obesity based on BMI [5]. In totality data was collected from 120 female subjects and 85 male subjects with their consent. The age group ranged between 15 to 70 years of age. A few above 70-year-old subjects volunteered in this study as well. Data regarding their eating & sleeping habits and their mental & physical state on a day-to-day basis. A special interest was taken to understand the relation between mental and physical disorder, and their association with eating patterns as well as weight gain. The subjects hailed from Mumbai, Kolkata and Bangalore in India. The students were mostly high school and college going individuals, whilst the rest hailed from either corporate sectors (private companies) or government services. Few subjects were also hailing from impoverished backgrounds who have to work as labourers to earn a living. The height was recorded in either centimeters or foot whilst collecting data and converted into centimeters during tabulations. Although all the readings of height were converted into metre so that the BMI value could be calculated. On the other hand, the weight was collected, tabulated as well as implemented in the formula in the form of kilogram units. In our analysis, we recorded a systematic bias, but this bias is greater in some regions than in others. Self-reported weights for women in some countries tend to be under-reported and self-reported heights for men tend to be over-reported. However, self-reported weights and heights are a major source of information for studies of obesity [5]. The body mass index (BMI), calculated by dividing the body weight in kilograms by the square of height in meters, is a simple metric used to indicate overall body fatness [17]. WHO defines a normal BMI range as 18.5 to 24.9, whereas a BMI ≥25 kg/m² is considered to be overweight, and a BMI ≥30 kg/m² is classified as obese, with severe obesity defined as a BMI ≥40 kg/m² [1, 2]. The daily diet of the subjects were segregated on the basis of them either being vegetarians or non-vegetarians, if they consumed dairy products, and if they had breakfast in the mornings. Breakfast is considered the important meal of the day and research findings have proven that skipping the most important meal of the day can lead to weight gain and a slew of other problems like elevated blood
pressure, higher levels of total and low-density lipoprotein cholesterol, gastric problems etc. Another important factor which was considered and given importance was to sleep and the gap between the subject’s last meal and going to sleep. A 7-to-8-hour continuous sleep in the night is an extremely crucial factor for a proper functioning of the human body. Studies have shown that when people don’t get enough sleep, they have increased levels of a hunger hormone called ghrelin and decreased levels of the satiety/fullness hormone called leptin, which could lead to overeating and weight gain. Also, according to the experts it’s crucial that we keep an interval of 3 hours between our dinner and sleep as it allows your body time to digest your food so you’re not up at night with an upset stomach, indigestion or heartburn.

Most of the fast food contains a large amount of sugar, fats and carbs and less minerals and vitamins. They are energy dense food which means that one consumes large amounts of unhealthy calories in the shape of fast food which leads to weight gain and ultimately obesity. The frequency of fast food in a month is an important factor in deciding the reason behind rapid weight gain. The frequency has been recorded in terms of 1–2, 3–4, 5–6 and more than 6 (>6) times in a month. The cheapest foods are those containing high levels of fat and sugar. Thus, the way to get the most calories for the least money is to eat a diet that is high in fat and sugar [9].

Consuming water, at least 4 litres in a day is impertinent with mental and physical wellbeing. Drinking water helps in fighting infections all over your body by flushing out toxins, maintaining homeostasis and also flushing the wastes being generated by the body constantly. It’s especially good for getting rid of and preventing urine infections and kidney stones. We have collected the data regarding consuming water in the form of cups as the standard measurement, where 4 cups of water are equivalent of a bottle of 1 litre water.

Studies have shown that whilst excessively working out to lose weight is not a beneficial method, as diets play more important role than exercise in maintaining body weight, still exercise is extremely important to build stamina, muscle mass, improve immunity, endurance, and keep the vital organs on high functionality. The burning of calories through physical activity, combined with reducing the number of calories you eat, creates a “calorie deficit” that results in weight loss. The record of exercise is more to understand if people devote even an hour of their day to properly exercise where most of today’s work takes place by sitting in front of the computer monitor. The data on exercise was collected on 5 basis- Walking, Cardio regime, Weight’s training, playing sports or none of the physical activities at all. Finally, the mental health disorders as well as hereditary syndromes were also recorded, as they play an important role in the overall wellbeing of a person. The leading disorders kept in mind were blood pressure, diabetes, asthma, thyroid, cholesterol and PCOS. There is a confirmed relationship between obesity and PCOS. Obesity is considered a factor in the pathophysiological cascade of PCOS through 2 major pathways: IR & hyperandrogenism. However, obesity can also be considered a complication of PCOS, considering the presence of increased visceral fat in PCOS [6]. The mental disorders considered in this study were Hypertension/stress, Depression, Anxiety and Sleep Apnea. We did not conduct an elaborate study on the eating patterns in individuals with Bulimia or Anorexia as it was a general public survey and provides scope for further research.

3. Result

The normal BMI defined by WHO ranges normal as 18.5 to 24.9, whereas a BMI $\geq 25$ kg/m$^2$ is considered to be overweight, and a BMI $\geq 30$ kg/m$^2$ is classified as
obese, with severe obesity defined as a BMI $\geq 40\, \text{kg/m}^2$ \cite{1, 2}. In the National Family Health Survey’s report, it is revealed that the population of obese have doubled in the past decade.

Figure 1 shows that from the information collected of the 205 individuals which were self-reported, we can deduce that around 48.78% individuals were harbouring abnormal weight, considering that BMI is directly linked to the body weight and not the fat content in the body. Being underweight also falls under the category of abnormal BMI. Under the abnormal BMI category of men and women, around 11.7% were underweight, 21.66% were overweight and 12.37% were Obese. Although the number of women were higher to men under the underweight and obese category, the populous of men under the overweight category was way higher, by almost a 7.5% hike.

Exercises were divided into four categories after determining that the subjects selected were practising these routines primarily. According to Tables 1 and 2 the data collected shows that 53.65% of the populous exercised by walking for at least 30 minutes, around 20% of them took part in cardio exercises and 11.21% visited the gymnasium to be properly guided by a trainer, who helped them with weights and endurance training along with cardio exercises. Just about 3.9% of the populous practised Yoga, which was observed in individuals who were ageing between the 51 to 70 range. It was also revealed that just 63.9% of the populous were getting an adequate sleep of a minimum 7 hours. Only 58.33% of the women in this study got adequate sleep. Most of the women suffering from sleep apnea or who received inadequate sleep in the night usually were agonized by High blood pressure or Hypothyroidism if they were above 36 years old, whereas the women between the age range of 15 to 35 years couldn’t sleep suffered from PCOS, hormonal disbalances and Hypertension.

In order, to understand the underlying relation between mental health and obesity. Figure 2 shows that around 30.58% of male and 44.16% of female suffer from Hypertension, almost all the men and women who had developed high blood pressure and hypertension were either overweight or obese and the people having low pressures were mostly underweight. Thus, in the study around 10.73% of the populous were suffering from either high or low blood pressures. Just about 6.82%

![Graphical representation of the percentage of subjects having normal and abnormal BMI values. The abnormal BMI have been further divided into people who are underweight, overweight and obese (n = 205).](image)

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DOI: http://dx.doi.org/10.5772/intechopen.98307
| Sr. No. | Age  | Occupation | Height (cm) | Weight (kg) | BMI  | Status  | Food    | Milk | Breakfast | Sleep (hours) | Gap (hours) | Fast Food | Water (cups) | Exercise          | Disease          |
|--------|------|------------|-------------|-------------|------|---------|---------|------|-----------|---------------|-------------|-----------|-------------|------------------|-----------------|
| 1      | 15-25 | Service    | 154.94      | 52          | 21.7 | Normal  | Non Veg | Yes  | Yes       | 7.5           | 1.5         | 3-4       | 10          | Walk + cardio     | Hormonal        |
| 2      | 15-25 | Student    | 164.59      | 65          | 24   | Normal  | Veg     | Yes  | Yes       | 4             | 6           | 2         | 28          | Cardio           | PCOS            |
| 3      | 15-25 | Student    | 167.64      | 63          | 23.1 | Normal  | Veg     | Yes  | Yes       | 6             | 3           | >6         | 8           | Walk             | Stress          |
| 4      | 15-25 | Student    | 154.94      | 52          | 21.7 | Normal  | Veg     | Yes  | Yes       | 5             | 3           | >6         | 8           | Cardio           | Sleep           |
| 5      | 15-25 | Student    | 164.59      | 69          | 26.3 | Overweight | Non Veg | No   | Yes       | 5             | 2           | >6         | 24          | Walk             | —               |
| 6      | 15-25 | Student    | 167.67      | 70          | 28.4 | Overweight | Veg     | No   | 3-4       | 8             | 2           | >6         | 24          | Walk             | Hypertension    |
| 7      | 15-25 | Student    | 161.54      | 75          | 29.3 | Overweight | Non Veg | No   | 1-2       | 4             | 1           | >6         | 8           | Walk             | None            |
| 8      | 15-25 | Student    | 146.30      | 80          | 39.5 | Obese class 2 | Non Veg | No   | No        | 6             | 2.5         | 5-6        | 6           | Walk             | PCOS            |
| 9      | 15-25 | Student    | 158.49      | 43          | 17.3 | Under Weight | Non Veg | Yes  | 1-2       | 6             | 2           | 5-6        | 12          | Walk             | None            |
| 10     | 15-25 | Student    | 158.49      | 45          | 18.3 | Under Weight | Veg     | Yes  | 1-2       | 9             | 4           | >6         | 12          | Walk             | None            |
| 11     | 15-25 | Student    | 158.49      | 54          | 21.9 | Normal  | Veg     | Yes  | Yes       | 8             | 1.5         | >6         | 4           | Walk             | Stress          |
| 12     | 15-25 | Student    | 164.59      | 64          | 23.6 | Normal  | Non Veg | Yes  | 3-4       | 7             | 4           | 5-6        | 12          | GYM              | PCOS+Depression |
| 13     | 15-25 | Student    | 161.54      | 48          | 18.7 | Normal  | Veg     | Yes  | Yes       | 8             | 2.5         | 5-6        | 13          | Cardio + Weight | Hypertension+Sleep+Anxiety |
| 14     | 15-25 | Corporate  | 167.64      | 40          | 15.1 | Under Weight | Veg     | Yes  | Yes       | 4             | 3           | >6         | 12          | Cardio           | Hypertension+Sleep+Anxiety |
| 15     | 15-25 | Student    | 161.54      | 48          | 18.5 | Under Weight | Non Veg | Yes  | Yes       | 8             | 1.5         | >6         | 8           | Walk             | None            |
| Sr. No. | Age  | Occupation  | Height (cm) | Weight (kg) | BMI   | Status   | Food    | Milk | Breakfast | Sleep (hours) | Gap (hours) | Fast Food | Water (cups) | Exercise | Disease               |
|--------|------|-------------|-------------|-------------|-------|----------|---------|------|-----------|---------------|-------------|-----------|-------------|----------|-----------------------|
| 16     | 15–25| Student     | 164.59      | 53          | 20.1  | Normal   | Non Veg | Yes  | Yes       | 6             | 2           | >6         | 4           | Sports   | None                  |
| 17     | 15–25| Student     | 164.59      | 56          | 21.3  | Normal   | Non Veg | No   | Yes       | 5             | 1           | 1–2        | 7           | Walk     | Depression            |
| 18     | 15–25| Student     | 158         | 70          | 28    | Over Weight | Non Veg | Yes  | 3–4       | 5             | 3           | 1–2        | 17          | Walk     | PCOS + Hypertension    |
| 19     | 15–25| Student     | 173.73      | 48          | 16.6  | Under Weight | Non Veg | Yes  | No        | 7             | 2           | 5–6        | 10          | Walk     | None                  |
| 20     | 15–25| Corporate   | 173.73      | 74          | 25.6  | Over Weight | Non Veg | No   | Yes       | 7             | 1           | 1–2        | 5           | Walk     | None                  |
| 21     | 15–25| Student     | 158.49      | 54          | 21.9  | Normal    | Veg     | Yes  | Yes       | 7             | 2           | 5–6        | 8           | Walk     | None                  |
| 22     | 15–25| Student     | 155.5       | 60          | 25    | Normal    | Non Veg | No   | 3–4       | 7             | 3           | >6         | 4           | Walk     | Anxiety               |
| 23     | 15–25| Student     | 132         | 54          | 31    | Obese class 1 | Non Veg | Maybe | No        | 5             | 3           | >6         | 5           | Walk     | PCOS + Stress          |
| 24     | 15–25| Student     | 164.59      | 50          | 19.1  | Normal    | Non Veg | No   | Yes       | 6             | 2           | 5–6        | 10          | Walk     | Diabetes              |
| 25     | 15–25| Student     | 162         | 59          | 22.5  | Normal    | Veg     | No   | 3–4       | 7             | 2           | 1–2        | 10          | Walk     | None                  |
| 26     | 15–25| Student     | 170         | 55          | 19    | Normal    | Non Veg | Maybe | Yes       | 7             | 4           | >6         | 9           | GYM      | None                  |
| 27     | 15–25| Student     | 170         | 74          | 28.9  | Over weight | Non Veg | Maybe | Yes       | 6             | 3           | 5–6        | 20          | Walk     | Depression            |
| 28     | 15–25| Service     | 170         | 58          | 20.1  | Normal    | Veg     | No   | 3–4       | 7             | 1.5         | 1–2        | 8           | Walk     | Low BP                |
| 29     | 15–25| Student     | 150         | 47          | 20.9  | Normal    | Veg     | Yes  | 3–4       | 7             | 4           | 5–6        | 4           | Walk     | Sleep                 |
| 30     | 15–25| Corporate   | 170         | 82          | 28.2  | Over weight | Non Veg | Yes  | 1–2       | 8             | 4           | >6         | 4           | Walk     | Thyroid               |
| 31     | 15–25| Student     | 156         | 51          | 21    | Normal    | Veg     | Yes  | 3–4       | 6             | 2           | 5–6        | 8           | Cyle + Walk | None                  |
| 32     | 15–25| Student     | 175         | 54          | 17.6  | Under Weight | Veg     | Yes  | Yes       | 6             | 3           | >6         | 8           | Walk     | None                  |
| Sr. No. | Age   | Occupation | Height (cm) | Weight (kg) | BMI    | Status       | Food    | Milk | Breakfast | Sleep (hours) | Gap (hours) | Fast Food | Water (cups) | Exercise | Disease               |
|---------|-------|------------|-------------|-------------|--------|--------------|---------|------|-----------|--------------|-------------|-----------|-------------|----------|-----------------------|
| 33      | 15-25 | Corporate  | 172         | 70          | 23.7   | Normal       | Veg     | No   | 3-4       | 5            | 2           | 1-2       | 8           | None     | Thyroid              |
| 34      | 15-25 | Student    | 165         | 60          | 22     | Normal       | Non Veg | Maybe | 1-2       | 8            | 4           | >6        | 5           | Walk     | Hypertension          |
| 35      | 15-25 | Corporate  | 155.44      | 75          | 31.6   | Obese class 1| Veg     | No   | No        | 6            | 5           | >6        | 2           | Dance    | Hypertension          |
| 36      | 15-25 | Student    | 154         | 45          | 19     | Normal       | Veg     | Yes  | Yes       | 8            | 1           | >6        | 10          | Walk     | None                  |
| 37      | 15-25 | Student    | 160         | 88          | 34.4   | Obese class 1| Non Veg | Yes  | Yes       | 1-2          | 5           | 4         | 1-2         | 24       | Cardio PCOS+ Hypertension |
| 38      | 15-25 | Student    | 160         | 54          | 21.1   | Normal       | Non Veg | No   | Yes       | 6            | 1.5         | 5-6       | 14          | Walk     | Hypertension          |
| 39      | 15-25 | Student    | 172         | 49          | 16.6   | Under Weight | Veg     | Yes  | Yes       | 6            | 2           | 1-2       | 6           | Walk     | PCOS+ Hypertension Depression |
| 40      | 15-25 | Student    | 157         | 45          | 18.3   | Under Weight | Veg     | Yes  | 3-4       | 7            | 1           | >6        | 8           | Walk     | Hormones             |
| 41      | 15-25 | Student    | 160         | 47          | 18.4   | Under Weight | Veg     | Yes  | Yes       | 7            | 3           | 5-6       | 10          | Walk     | None                  |
| 42      | 15-25 | Student    | 145         | 35          | 16.6   | Under Weight | Non Veg | No   | 3-4       | 6            | 0.5         | >6        | 8           | None     | None                  |
| 43      | 15-25 | Student    | 162         | 45          | 17.1   | Under Weight | Veg     | Yes  | Yes       | 6            | 1.5         | 5-6       | 3           | Walk     | None                  |
| 44      | 15-25 | Student    | 160         | 53          | 20.7   | Normal       | Veg     | Yes  | Yes       | 8            | 2           | 5-6       | 10          | Walk     | None                  |
| 45      | 15-25 | Student    | 183         | 78          | 23.3   | Normal       | Non Veg | Yes  | Yes       | 8            | 2           | 5-6       | 10          | Walk     | Depression            |
| 46      | 15-25 | Student    | 167.64      | 74          | 26.3   | Over weight  | Non Veg | No   | Yes       | 8            | 2.5         | 1-2       | 15          | Walk     | Sleep                 |
| 47      | 15-25 | Student    | 161.54      | 52          | 19.9   | Normal       | Veg     | No   | Yes       | 7            | 3           | 1-2       | 10          | Cardio + Weights None |

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| Sr. No | Age | Occupation  | Height (cm) | Weight (kg) | BMI  | Status | Food     | Milk | Breakfast | Sleep (hours) | Gap (hours) | Fast Food | Water (cups) | Exercise         | Disease               |
|--------|-----|-------------|-------------|-------------|------|--------|----------|------|-----------|--------------|-------------|-----------|--------------|--------------------|------------------------|
| 48     | 15–25 | Student    | 150         | 50          | 22.2 | Normal | Non Veg  | Yes  | Yes       | 6             | 1           | 1-2       | 5            | Yoga + Dance       | Hypertension + Depression + Anxiety |
| 49     | 15–25 | Student    | 161         | 50          | 19.3 | Normal | Veg      | Maybe| Yes       | 8             | 4           | 1-2       | 6            | None               | Hypertension           |
| 50     | 15–25 | Corporate  | 165         | 56          | 20.6 | Normal | Veg      | Yes  | Yes       | 6             | 2           | 1-2       | 5            | Cardio + Gym        | None                   |
| 51     | 15–25 | Corporate  | 153         | 48          | 17   | Under Weight | Non Veg  | Yes  | Yes       | 7             | 4           | 1-2       | 8            | Walk               | None                   |
| 52     | 15–25 | Student    | 161         | 44          | 20.5 | Normal | Veg      | No   | Yes       | 8             | 3           | 1-2       | 6            | Walk               | None                   |
| 53     | 15–25 | Student    | 170.65      | 80          | 27.5 | Over weight | Non Veg  | Yes  | Yes       | 7             | 2.5         | 5-6       | 4            | Walk               | PCOS                   |
| 54     | 15–25 | Student    | 164         | 60          | 22.3 | Normal | Non Veg  | Yes  | Yes       | 7             | 4           | 5-6       | 7            | None               | PCOS                   |
| 55     | 15–25 | Corporate  | 161.54      | 59          | 22.6 | Normal | Non Veg  | Yes  | Yes       | 8             | 3           | >6        | 5            | Walk + Sports + Weights | Hypertension           |
| 56     | 15–25 | Student    | 152.4       | 60          | 25.8 | Over weight | Veg      | No   | Yes       | 8             | 2           | 1-2       | 5            | Walk               | None                   |
| 57     | 15–25 | Student    | 158         | 57          | 22.8 | Normal | Veg      | Yes  | Yes       | 8             | 2           | 1-2       | 8            | Cardio             | Anxiety               |
| 58     | 15–25 | Student    | 152.4       | 50          | 21.5 | Normal | Veg      | Yes  | Yes       | 8             | 1           | 1-2       | 5            | Walk               | Hypertension + Depression + Anxiety |
| 59     | 15–25 | Student    | 152.4       | 50          | 21.5 | Normal | Non Veg  | No   | Yes       | 8             | 2.5         | 1-2       | 20           | Walk + Cardio       | Hypertension           |
| 60     | 15–25 | Student    | 162         | 49          | 18.7 | Normal | Non Veg  | Yes  | Yes       | 8             | 2           | >6        | 10           | Walk               | Anxiety               |
| 61     | 15–25 | Student    | 162         | 50          | 19.1 | Normal | Veg      | Yes  | Yes       | 8             | 2           | 1-2       | 8            | Walk               | Hypertension           |
| 62     | 15–25 | Student    | 170.6       | 66          | 22.7 | Normal | Non Veg  | No   | Yes       | 8             | 3           | 5-6       | 12           | Walk               | PCOS                   |
| 63     | 15–25 | Student    | 167.64      | 50          | 17.8 | Under Weight | Non Veg  | No   | Yes       | 8             | 2           | >6        | 6            | Walk               | PCOS                   |
| 64     | 15–25 | Student    | 170.6       | 60          | 20.6 | Normal | Non Veg  | No   | Yes       | 7             | 2           | >6        | 28           | Walk + Weights      | Hypertension + Depression + Anxiety |
| Sr. No. | Age | Occupation | Height (cm) | Weight (kg) | BMI | Status     | Food     | Milk | Breakfast Sleep (hours) | Gap (hours) | Fast Food | Water (cups) | Exercise | Disease                  |
|--------|-----|------------|-------------|-------------|-----|------------|----------|------|--------------------------|-------------|----------|-------------|----------|--------------------------|
| 65     | 15–25 | Student | 152.4       | 61          | 26.2 | Over weight | Non Veg  | No   | Yes                      | 7           | 3        | 1–2         | 6        | Walk                     |
| 66     | 15–25 | Student | 172         | 68          | 23   | Normal     | Veg      | Yes  | Yes                      | 8           | 3        | 1–2         | 7        | Cardio                   |
| 67     | 15–25 | Corporate | 158.49     | 65          | 25.9 | Over weight | Veg      | Yes  | Yes                      | 9           | 3        | 5–6         | 8        | Walk                     |
| 68     | 15–25 | Corporate | 165         | 58          | 21.3 | Normal     | Non Veg  | Yes  | 3–4                      | 8           | 4        | 5–6         | 8        | Cardio                   |
| 69     | 15–25 | Student | 158         | 52          | 20.8 | Normal     | Non Veg  | Yes  | No                       | 7           | 5        | 1–2         | 16       | Walk                     |
| 70     | 15–25 | Student | 158.49      | 58          | 23.1 | Normal     | Veg      | Yes  | Yes                      | 6           | 4        | >6          | 5        | Walk                     |
| 71     | 15–25 | Student | 165         | 50          | 18.4 | Under Weight | Veg      | No   | 3–4                      | 8           | 5        | >6          | 6        | Walk                     |
| 72     | 15–25 | Student | 158         | 56          | 22.3 | Normal     | Veg      | Yes  | Yes                      | 7           | 1        | 1–2         | 5        | Walk                     |
| 73     | 15–25 | Student | 149         | 40          | 18   | Under Weight | Veg      | Yes  | Yes                      | 7           | 2        | 5–6         | 6        | Yoga                     |
| 74     | 15–25 | Student | 160         | 45          | 17.6 | Under Weight | Non Veg  | Yes  | 1–2                      | 8           | 3        | >6          | 7        | Walk                     |
| 75     | 15–25 | Student | 164.59      | 70          | 25.8 | Over weight | Non Veg  | No   | 3–4                      | 5           | 5        | 1–2         | 8        | Walk                     |
| 76     | 15–25 | Student | 170.68      | 80          | 27.5 | Over weight | Veg      | No   | 3–4                      | 7           | 2        | 1–2         | 8        | Cycle                    |
| 77     | 15–25 | Corporate | 161.54     | 51          | 19.5 | Normal     | Veg      | Yes  | Yes                      | 7           | 5        | 5–6         | 6        | Sports                   |
| 78     | 15–25 | Student | 159         | 53          | 21   | Normal     | Veg      | Yes  | 3–4                      | 8           | 5        | 5–6         | 8        | Walk                     |
| 79     | 15–25 | Corporate | 161.54     | 55          | 21.1 | Normal     | Veg      | Yes  | Yes                      | 6           | 2        | >6          | 12       | None                     |
| 80     | 15–25 | Student | 173.73      | 102         | 33.8 | Obese class 1 | Veg      | Yes  | Yes                      | 6           | 2        | 5–6         | 8        | Walk + Cardio             |

Psychology and Pathophysiological Outcomes of Eating
| Sr. No. | Age | Occupation  | Height (cm) | Weight (kg) | BMI | Status | Food | Milk | Breakfast (hours) | Sleep (hours) | Gap (hours) | Fast Food | Water (cups) | Exercise | Disease                  |
|--------|-----|------------|-------------|-------------|-----|--------|------|------|------------------|--------------|------------|----------|-------------|----------|--------------------------|
| 81     | 15–25 | Corporate | 170.6       | 80          | 33.1| Obese class 1 | Non-Veg | Yes | 8                | 1–2          | 5–6        | 6         | 3           | Cardio | PCOS                     |
| 82     | 15–25 | Student   | 165         | 78          | 28.7| Over weight | Non-Veg | Yes | Yes              | 5–6          | 2          | 5–6      | 9           | Cardio | PCOS                     |
| 83     | 15–25 | Student   | 167.64      | 90          | 33.6| Obese class 1 | Veg   | Yes | Yes              | 5–6          | 8          | 2        | 4           | Cardio | PCOS                     |
| 84     | 15–25 | Student   | 162.56      | 60          | 25.3| Normal     | Veg   | Yes | Yes              | 5–6          | 4          | 4         | 3           | Cardio | PCOS                     |
| 85     | 15–25 | Student   | 162.5       | 65          | 28.2| Over weight | Veg   | Yes | 7                | 1–2          | 3–6        | 1        | 5           | Cardio | PCOS                     |
| 86     | 26–35 | Corporate | 167.64      | 90          | 33.1| Obese class 1 | Veg   | Yes | Yes              | 5–6          | 8          | 5–6      | 9           | Cardio | PCOS                     |
| 87     | 26–35 | Corporate | 162.56      | 60          | 25.3| Normal     | Veg   | Yes | Yes              | 5–6          | 4          | 6         | 2           | Cardio | PCOS                     |
| 88     | 26–35 | Corporate | 167.64      | 90          | 33.1| Obese class 1 | Veg   | Yes | Yes              | 5–6          | 8          | 5–6      | 10          | Cardio | PCOS                     |
| 89     | 26–35 | Corporate | 162.56      | 60          | 25.3| Normal     | Veg   | Yes | Yes              | 5–6          | 8          | 6         | 10          | Cardio | PCOS                     |
| 90     | 26–35 | Field Work| 173.73      | 60          | 19.9| Normal     | Veg   | Yes | Yes              | 5–6          | 10         | 3–6     | 9           | Cardio | PCOS                     |
| 91     | 26–35 | Service   | 155.4       | 78          | 32.3| Obese class 1 | Veg   | No  | Yes              | 5–6          | 11         | 5–6      | 6           | Cardio | PCOS                     |
| 92     | 26–35 | Service   | 158.75      | 80          | 31   | Obese class 1 | Veg   | No  | Yes              | 5–6          | 4          | 6        | 4           | Cardio | PCOS                     |

**DOI**: http://dx.doi.org/10.5772/intechopen.98307
| Sr. No | Age  | Occupation       | Height (cm) | Weight (kg) | BMI  | Status       | Food     | Milk | Breakfast | Sleep (hours) | Gap (hours) | Fast Food | Water (cups) | Exercise | Disease                      |
|-------|------|------------------|-------------|-------------|------|--------------|----------|------|-----------|---------------|-------------|-----------|---------------|----------|-----------------------------|
| 95    | 36–50| Corporate        | 154         | 58          | 24.5 | Normal       | Non-Veg  | Yes  | Yes       | 3–4           | 7           | 2.5       | 1–2           | Walk     | Thyroid + Hypertension      |
| 96    | 36–50| Corporate        | 165         | 74          | 27.2 | Obese Class 1| Non-Veg  | Yes  | Yes       | 8             | 1           | >6        | 7             | Walk     | Sleep                        |
| 97    | 36–50| Corporate        | 162         | 69          | 26.3 | Obese Class 1| Non-Veg  | No   | Yes       | 5             | 1           | >6        | 10            | Cardio   | None                         |
| 98    | 36–50| Corporate        | 170         | 80          | 27.7 | Obese Class 1| Non-Veg  | No   | Yes       | 7             | 0.5         | 5–6       | 10            | Yoga     | Hypertension                 |
| 99    | 36–50| Corporate        | 160         | 72          | 28.1 | Obese Class 1| Non-Veg  | No   | Yes       | 6.5           | 2           | 5–6       | 14            | Walk + Yoga | None                        |
| 100   | 36–50| Corporate        | 165         | 70          | 25.7 | Over weight  | Veg      | Yes  | Yes       | 7             | 4           | 5–6       | 12            | Yoga     | Hypertension                 |
| 101   | 36–50| Home maker       | 157         | 73          | 29.6 | Over weight  | Veg      | Yes  | Yes       | 7             | 1           | >6        | 10            | Walk     | Fatty Liver                  |
| 102   | 36–50| Service          | 157         | 58          | 23.5 | Normal       | Non-Veg  | No   | Yes       | 7             | 3           | 5–6       | 8             | Gym      | Stress                       |
| 103   | 36–50| Home maker       | 152         | 59          | 25.5 | Over weight  | Veg      | No   | 3–4       | 8             | 1           | 5–6       | 8             | Walk     | Asthma                      |
| 104   | 36–50| Service          | 158.49      | 69          | 27.5 | Over weight  | Non-Veg  | Yes  | Yes       | 6             | 2           | 5–6       | 10            | Walk     | High BP and Hormones         |
| 105   | 36–50| Home maker       | 164.59      | 78          | 28.8 | Over weight  | Non-Veg  | Yes  | Yes       | 7             | 2           | 5–6       | 10            | Walk + Dance | Hypertension              |
| 106   | 36–50| Service          | 157.48      | 60          | 24.3 | Normal       | Veg      | Yes  | No        | 6             | 2           | 1–2       | 9             | None     | Anxiety                      |
| 107   | 36–50| Service          | 152.4       | 59          | 25.4 | Over weight  | Veg      | No   | Yes       | 7             | 1           | 1–2       | 9             | Walk     | Hypertension + Sleep         |
| 108   | 36–50| Service          | 172.72      | 80          | 26.8 | Over weight  | Veg      | Yes  | Yes       | 5             | 2           | 5–6       | 6             | Walk     | Hypothyroidism                |
| 109   | 36–50| Home maker       | 158.49      | 65          | 25.9 | Over weight  | Non-Veg  | Yes  | Yes       | 5             | 3           | 5–6       | 8             | None     | High BP                      |
| Sr. No. | Age  | Occupation     | Height (cm) | Weight (kg) | BMI  | Status      | Food   | Milk | Breakfast | Sleep (hours) | Gap (hours) | Fast Food | Water (cups) | Exercise | Disease                          |
|--------|------|----------------|-------------|-------------|------|-------------|--------|------|-----------|---------------|-------------|-----------|--------------|----------|----------------------------------|
| 110    | 36–50| Home maker     | 160         | 58          | 22.7 | Normal      | Veg    | Yes  | Yes       | 9             | 3           | 1–2       | 12           | Walk     | Hypertension + Sleep + Anxiety  |
| 111    | 36–50| Service        | 157.48      | 78          | 31.6 | Obese Class 1 | Veg    | Yes  | Yes       | 8             | 2.5         | 1–2       | 10           | Weights  | Thyroid                         |
| 112    | 36–50| Home maker     | 154.94      | 82          | 34.2 | Obese Class 1 | Non-Veg | No   | Yes       | 5             | 1           | 1–2       | 10           | Walk     | High BP + Sleep                 |
| 113    | 51–70| Home maker     | 155.44      | 60          | 24.8 | Normal      | Non-Veg | Yes  | Yes       | 6             | 2           | None      | 7            | Walk     | None                            |
| 114    | 51–70| Field Work     | 152.4       | 45          | 21.5 | Normal      | Non-Veg | Yes  | Yes       | 7             | 1.5         | 1–2       | 9            | Walk     | Acidity                         |
| 115    | 51–70| Service        | 152.4       | 64          | 27.7 | Overweight  | Veg    | Maybe | Yes       | 7             | 4           | 1–2       | 10           | Walk + Cardio | Diabetes                     |
| 116    | 51–70| Home maker     | 157.48      | 75          | 30.2 | Obese Class 1 | Veg    | No   | Yes       | 5             | 2           | 1–2       | 8            | Walk     | High BP + Thyroid               |
| 117    | 51–70| Home maker     | 161.54      | 61          | 23.4 | Normal      | Non-Veg | Yes  | Yes       | 8             | 2           | 1–2       | 10           | Walk     | High BP + Asthma                 |
| 118    | 51–70| Service        | 152         | 60          | 26   | Obese Class 1 | Non-Veg | Yes  | Yes       | 7             | 1           | 1–2       | 15           | Walk     | None                            |
| 119    | 51–70| Service        | 146.3       | 55          | 25.7 | Overweight  | Non-Veg | Yes  | Yes       | 6             | 1           | 1–2       | 16           | Walk     | None                            |
| 120    | 51–70| Service        | 164         | 64          | 23.6 | Normal      | Veg    | Yes  | Yes       | 7             | 2           | 1–2       | 20           | Yoga     | High BP                         |

Table 1.
Compilation of all the information collected by Females in the study (n = 120).
| Sr. No. | Age (years) | Occupation | Height (cm) | Weight (kg) | BMI | Status | Food | Milk | Breakfast | Sleep (hrs) | Gap (hrs) | Fast Food | Water (cups) | Exercise | Disease |
|---------|-------------|------------|-------------|-------------|-----|--------|------|------|-----------|-------------|----------|-----------|-------------|----------|---------|
| 1       | 15–25       | Student    | 157         | 64          | 26  | Overweight | Veg  | Yes  | 1–2       | 7           | 1        | >6        | 12          | Walk     | None    |
| 2       | 15–25       | Student    | 177         | 105         | 33.5| Obese Class 1 | Non-Veg | Yes  | Yes       | 7           | 3        | 5–6       | 8           | Walk     | High BP |
| 3       | 15–25       | Student    | 168         | 64          | 22.7| Normal     | Veg  | Yes  | Yes       | 7.5         | 1.5      | 5–6       | 8           | Weight   | None    |
| 4       | 15–25       | Student    | 175         | 74          | 24.2| Normal     | Non-Veg | No   | Yes       | 5           | 1        | >6        | 15          | Walk     | Hormonal + Stress |
| 5       | 15–25       | Student    | 182         | 84          | 25.4| Overweight | Non-Veg | Yes  | Yes       | 7           | 1        | 5–6       | 15          | Sports   | Hypertension |
| 6       | 15–25       | Student    | 172         | 65          | 22  | Normal     | Non-Veg | Yes  | Yes       | 6           | 4        | >6        | 6           | Walk     | None    |
| 7       | 15–25       | Student    | 180         | 78          | 24.1| Normal     | Non-Veg | No   | Yes       | 8           | 4        | 5–6       | 20          | Walk     | Hypertension |
| 8       | 15–25       | Student    | 185         | 73          | 21.3| Normal     | Veg  | Yes  | Yes       | 6           | 2        | 1–2       | 15          | Sports   | None    |
| 9       | 15–25       | Student    | 170         | 70          | 24.2| Normal     | Veg  | Yes  | Yes       | 6           | 2.5      | >6        | 10          | Sports   | None    |
| 10      | 15–25       | Student    | 180         | 94          | 29  | Overweight | Non-Veg | Yes  | Yes       | 6           | 3        | >6        | 15          | Walk     | Hormonal + Stress + Depression + Anxiety |
| 11      | 15–25       | Student    | 170         | 61          | 21.1| Normal     | Non-Veg | Yes  | Yes       | 7           | 2.5      | >6        | 7           | Weight   | Anxiety |
| 12      | 15–25       | Student    | 172         | 56          | 18.9| Normal     | Veg  | Yes  | No        | 7           | 4        | >6        | 10          | Walk     | None    |
| 13      | 15–25       | Student    | 190         | 73          | 20.2| Normal     | Veg  | Yes  | Yes       | 7           | 1        | 1–2       | 25          | Sports   | None    |
| 14      | 15–25       | Student    | 172         | 59          | 19.9| Normal     | Veg  | Yes  | No        | 7           | 2        | >6        | 12          | Sports   | Hypertension |
| 15      | 15–25       | Student    | 182         | 80          | 24.2| Normal     | Veg  | Yes  | Yes       | 6           | 3        | >6        | 20          | Weight   | Hormonal + Stress + Depression + Anxiety |
| 16      | 15–25       | Student    | 183         | 90          | 26.9| Overweight | Veg  | Yes  | Yes       | 8           | 2        | 5–6       | 15          | Cardio   | Hypertension + Anxiety |
| 17      | 15–25       | Student    | 168         | 85          | 30.1| Obese Class 1 | Non-Veg | Yes  | Yes       | 8           | 0.5      | 5–6       | 18          | Weight   | None    |
| Sr. No. | Occupation | Age (years) | Height (cm) | Weight (kg) | BMI Status | Food | Milk Break | Sleep Gap | Fast Food | Water (cups) | Exercise | Disease |
|--------|------------|-------------|-------------|-------------|------------|------|------------|-----------|-----------|-------------|----------|---------|
| 18     | Student    | 15-25       | 172         | 71          | Normal     | Yes   | Yes        | Yes       | Yes       | 6           | 2        | None    |
| 19     | Student    | 15-25       | 175         | 75          | Over       | Yes   | Yes        | Yes       | Yes       | 7           | 0.5      | None    |
| 20     | Student    | 15-25       | 180         | 65          | Normal     | Yes   | Yes        | Yes       | Yes       | 6           | 2        | >6      |
| 21     | Student    | 15-25       | 182         | 49          | Under      | Yes   | Yes        | Yes       | Yes       | 6           | 1        | >6      |
| 22     | Student    | 15-25       | 180.34      | 70          | Over       | Yes   | Yes        | Yes       | Yes       | 7           | 0.5      | >6      |
| 23     | Student    | 15-25       | 172         | 83          | Over       | Yes   | No         | Yes       | No        | 8           | 1        | 1-2     |
| 24     | Field Work | 15-25       | 181         | 109         | Over       | Yes   | Yes        | Yes       | Yes       | 6           | 4        | 1-2     |
| 25     | Student    | 15-25       | 182.88      | 85          | Over       | Yes   | No         | Yes       | No        | 9           | 2        | 1-2     |
| 26     | Corporate  | 15-25       | 167.64      | 60          | Under      | Yes   | Yes        | Yes       | Yes       | 10          | 1        | >6      |
| 27     | Student    | 15-25       | 182.88      | 65          | Normal     | Yes   | Yes        | Yes       | No        | 8           | 3        | 1-2     |
| 28     | Student    | 15-25       | 175         | 80          | Normal     | Yes   | Yes        | Yes       | Yes       | 7           | 3        | 1-2     |
| 29     | Student    | 15-25       | 183         | 100         | Over       | Yes   | No         | Yes       | Yes       | 7           | 3        | 5-6     |
| 30     | Student    | 15-25       | 182.88      | 81          | Over       | Yes   | No         | Yes       | No        | 8           | 3        | 5-6     |
| 31     | Student    | 15-25       | 172.72      | 50          | Under      | Yes   | Yes        | Yes       | Yes       | 10          | 3.5      | 5-6     |
| 32     | Student    | 15-25       | 172.72      | 50          | Under      | Yes   | Yes        | Yes       | Yes       | 10          | 3.5      | 5-6     |
| Sr. No. | Age (years) | Occupation    | Height (cm) | Weight (kg) | BMI  | Status    | Food    | Milk | Breakfast | Sleep (hrs) | Gap (hrs) | Fast Food | Water (cups) | Exercise      | Disease     |
|---------|-------------|---------------|-------------|-------------|------|-----------|---------|------|-----------|-------------|-----------|-----------|-------------|---------------|-------------|
| 33      | 15–25       | Field Work    | 182.88      | 50          | 14.9 | Underweight | Non-Veg | No   | Yes       | 9           | 0.5       | 3–4       | 10          | Labour        | None        |
| 34      | 15–25       | Field Work    | 144.78      | 50          | 23.9 | Normal    | Non-Veg | No   | Yes       | 9           | 1.5       | 1–2       | 8           | Labour        | None        |
| 35      | 15–25       | Field Work    | 167.64      | 65          | 23.1 | Normal    | Non-Veg | Yes  | Yes       | 10          | 1         | 1–2       | 9           | Labour        | None        |
| 36      | 15–25       | Field Work    | 152.4       | 51          | 22   | Normal    | Non-Veg | Yes  | Yes       | 9           | 1         | 1–2       | 8           | Labour        | None        |
| 37      | 15–25       | Field Work    | 170.18      | 45          | 15.5 | Underweight | Non-Veg | Yes  | Yes       | 9           | 1         | 1–2       | 10          | Labour        | None        |
| 38      | 15–25       | Student       | 172.72      | 65          | 21.8 | Normal    | Veg     | Yes  | Yes       | 5           | 0.5       | 5–6       | 24          | Walk + Sports | Hormonal   |
| 39      | 15–25       | Student       | 177.8       | 60          | 19.2 | Normal    | Non-Veg | Yes  | No        | 4           | 5         | >6        | 8           | Walk          | Sleep       |
| 40      | 15–25       | Student       | 170         | 63          | 21.8 | Normal    | Veg     | Yes  | Yes       | 7           | 0.5       | >6        | 4           | Walk          | Sleep       |
| 41      | 15–25       | Student       | 162.56      | 60          | 22.7 | Normal    | Non-Veg | Yes  | Yes       | 8           | 1         | 5–6       | 20          | Walk + cardio | None        |
| 42      | 15–25       | Student       | 172.72      | 95          | 31.8 | Obese Class 1 | Non-Veg | Yes  | No        | 10          | 2         | >6        | 20          | Cardio + Weights | None        |
| 43      | 15–25       | Corporate     | 172.72      | 66          | 22.1 | Normal    | Veg     | Yes  | Yes       | 8           | 3         | 5–6       | 20          | Walk          | Hormonal   |
| 44      | 15–25       | Student       | 187.96      | 64          | 18.1 | Underweight | Non-Veg | Yes  | Yes       | 6           | 1.5       | 1–2       | 4           | None          | Stress + Depression |
| 45      | 15–25       | Student       | 172.72      | 95          | 31.8 | Obese Class 1 | Veg     | Yes  | Yes       | 6           | 2         | >6        | 16          | Weight        | None        |
| 46      | 15–25       | Student       | 177.8       | 71          | 22.5 | Normal    | Veg     | Yes  | Yes       | 8           | 3         | >6        | 12          | Sports        | None        |
| 47      | 26–35       | Corporate     | 173         | 75          | 25.1 | Overweight | Non-Veg | No   | Yes       | 7           | 3         | >6        | 10          | Walk          | Diabetes    |
| 48      | 26–35       | Service       | 170         | 75          | 26   | Overweight | Non-Veg | No   | Yes       | 6           | 1         | 5–6       | 5           | Walk + cardio | None        |
| Sr. No. | Age (years) | Occupation    | Height (cm) | Weight (kg) | BMI    | Status     | Food  | Milk | Breakfast | Sleep (hrs) | Gap (hrs) | Fast Food | Water (cups) | Exercise | Disease          |
|---------|-------------|---------------|-------------|-------------|--------|------------|-------|------|-----------|-------------|-----------|------------|--------------|----------|-----------------|
| 49      | 26–35       | Corporate     | 177.8       | 80          | 25.3   | Over weight | Veg   | Yes  | Yes       | 8           | 2         | 5–6        | 5            | Walk     | None            |
| 50      | 26–35       | Field Work    | 160.02      | 57          | 22.3   | Normal      | Non-Veg| Yes  | Yes       | 10          | 2         | 1–2        | 12           | Labour   | Stress          |
| 51      | 26–35       | Field Work    | 172.72      | 67          | 22.5   | Normal      | Non-Veg| Yes  | Yes       | 10          | 2         | 1–2        | 15           | Labour   | None            |
| 52      | 26–35       | Field Work    | 182.88      | 50          | 14.9   | Under weight| Non-Veg| No   | Yes       | 10          | 2         | 3–4        | 12           | Labour   | None            |
| 53      | 26–35       | Field Work    | 165         | 50          | 18.4   | Under weight| Non-Veg| No   | Yes       | 9           | 2         | None       | 12           | Labour   | None            |
| 54      | 26–35       | Service       | 182.88      | 100         | 30.2   | Obese Class 1| Non-Veg| No   | Yes       | 8           | 2         | >6         | 12           | Walk     | High BP         |
| 55      | 26–35       | Service       | 67          | 68          | 24.4   | Normal      | Veg   | Yes  | Yes       | 6           | 2         | 1–2        | 8            | Walk     | None            |
| 56      | 26–35       | Service       | 177.8       | 63          | 19.9   | Normal      | Veg   | No   | Yes       | 6           | 1         | >6         | 6            | Walk     | None            |
| 57      | 26–35       | Service       | 182.88      | 93          | 28.1   | Over weight | Non-Veg| No   | Yes       | 7           | 2         | 1–2        | 12           | Walk     | None            |
| 58      | 26–35       | Field Work    | 172         | 60          | 20.3   | Normal      | Veg   | Yes  | Yes       | 10          | 2         | 1–2        | 12           | Labour   | None            |
| 59      | 36–50       | Corporate     | 167.64      | 69          | 24.6   | Normal      | Non-Veg| No   | Yes       | 7           | 1.5       | 5–6        | 20           | Walk     | Diabetes        |
| 60      | 36–50       | Corporate     | 177.8       | 89          | 28.2   | Over weight | Non-Veg| No   | Yes       | 7           | 2         | 5–6        | 12           | Walk     | None            |
| 61      | 36–50       | Corporate     | 174         | 90          | 29.7   | Over weight | Veg   | No   | Yes       | 6           | 2.5       | >6         | 10           | Cardio   | High BP         |
| 62      | 36–50       | Corporate     | 185.4       | 125         | 36.4   | Obese Class 2| Non-Veg| Yes  | Yes       | 8           | 1.5       | 5–6        | 8            | Walk     | High BP         |
| 63      | 36–50       | Service       | 170         | 65          | 22.5   | Normal      | Veg   | Yes  | Yes       | 8           | 3.5       | 1–2        | 10           | Walk     | None            |
| 64      | 36–50       | Service       | 172.72      | 51          | 17.1   | Under weight| Veg   | Yes  | Yes       | 6           | 1.5       | 5–6        | 5            | Walk     | Hypertension    |
| Sr. No. | Age (years) | Occupation | Height (cm) | Weight (kg) | BMI | Status   | Food  | Milk | Breakfast | Sleep (hrs) | Gap (hrs) | Fast Food | Water (cups) | Exercise | Disease                      |
|--------|-------------|------------|-------------|-------------|-----|----------|-------|------|-----------|-------------|-----------|-----------|--------------|----------|-----------------------------|
| 65     | 36–50       | Service    | 165.1       | 67          | 24.6| Normal   | Non-Veg| Yes  | Yes       | 8           | 1         | 5–6       | 16           | Walk     | Diabetes                    |
| 66     | 36–50       | Service    | 165.1       | 68          | 24.9| Normal   | Non-Veg| No   | Yes       | 7           | 1         | 5–6       | 4            | Walk     | Diabetes + High BP            |
| 67     | 36–50       | Corporate  | 165.1       | 65          | 23.9| Normal   | Veg    | No   | No        | 7           | 2         | 5–6       | 4            | Walk     | Sleep                        |
| 68     | 36–50       | Service    | 193.04      | 88          | 23.6| Normal   | Non-Veg| Yes  | Yes       | 8           | 2         | 1–2       | 16           | Walk     | Diabetes + Stress + Depression|
| 69     | 36–50       | Corporate  | 177.8       | 94          | 30  | Obese class 1 | Non-Veg| No   | No        | 7           | 2         | >6        | 8            | Walk + Weights | High BP + Depression |
| 70     | 36–50       | Service    | 157         | 72          | 29.2| Overweight| Non-Veg| No   | Yes       | 5           | 2         | >6        | 8            | Walk     | None                         |
| 71     | 36–50       | Service    | 162.56      | 75          | 28.6| Overweight| Veg    | Yes  | Yes       | 7           | 2         | 1–2       | 16           | Walk     | Sleep + Depression + 80       |
| 72     | 36–50       | Service    | 182.88      | 93          | 27.8| Normal   | Veg    | Yes  | Yes       | 8           | 3         | 5–6       | 12           | Walk + Cardio | None                         |
| 73     | 36–50       | Field Work | 170         | 80          | 27.7| Overweight| Veg    | Yes  | Yes       | 8           | 2         | 1–2       | 12           | Labour   | None                         |
| 74     | 51–70       | Field Work | 165.1       | 70          | 25.7| Overweight| Non-Veg| No   | Yes       | 6           | 1         | None      | 12           | Labour   | None                         |
| 75     | 51–70       | Service    | 176         | 78          | 25.2| Overweight| Non-Veg| No   | Yes       | 7           | 1.5       | 1–2       | 20           | Walk     | High BP                      |
| 76     | 51–70       | Service    | 158         | 65          | 26  | Overweight| Veg    | Yes  | Yes       | 7           | 2         | 1–2       | 8            | Walk     | High BP                      |
| 77     | 51–70       | Corporate  | 160         | 57          | 22.3| Normal   | Veg    | Yes  | Yes       | 6           | 0.5       | 1–2       | 8            | Yoga + Walk | Diabetes                    |
| 78     | 51–70       | Service    | 172.72      | 99          | 33.2| Obese class 1 | Non-Veg| No   | Yes       | 7           | 1.5       | 5–6       | 6            | Walk     | High BP                      |
| 79     | 51–70       | Service    | 177         | 70          | 22.3| Normal   | Non-Veg| No   | Yes       | 7           | 0.5       | 1–2       | 20           | Walk     | None                         |
| 80     | 51–70       | Service    | 175         | 70          | 22.9| Normal   | Veg    | No   | Yes       | 7           | 1         | 5–6       | 20           | Walk     | Diabetes + High BP            |
| Sr. No. | Age (years) | Occupation | Height (cm) | Weight (kg) | BMI | Status | Food | Milk | Breakfast | Sleep (hrs) | Gap (hrs) | Fast Food | Water (cups) | Exercise | Disease |
|-------|-------------|------------|-------------|-------------|-----|--------|------|------|-----------|-------------|-----------|-----------|-------------|----------|---------|
| 81    | 51–70       | Service    | 180.33      | 78          | 24  | Normal | Non-Veg | Yes  | Yes       | 7           | 0.5       | 1–2       | 12          | Walk     | Cholesterol |
| 82    | 51–70       | Corporate  | 180.34      | 70          | 21.5| Normal | Veg    | No   | Yes       | 7           | 5         | 1–2       | 16          | Walk + cardio | High BP |
| 83    | 51–70       | Service    | 172         | 80          | 27  | Over weight | Non-Veg | No   | Yes       | 6           | 1         | 5–6       | 20          | Walk     | Diabetes + High BP + Sleep |
| 84    | 51–70       | Service    | 167.64      | 74          | 26.4| Over weight | Non-Veg | Yes  | Yes       | 7           | 1.5       | 5–6       | 16          | Walk + cardio | None |
| 85    | >70         | Retired    | 172.72      | 78          | 26.1| Over weight | Non-Veg | No   | Yes       | 4           | 3         | None      | 10          | Yoga + Walk | Kidney, Thyroid, High BP |

Table 2.
Compilation of all the information collected by Males in the study (n = 85).
of the entire populous under observation were diabetic, where the men suffered from this metabolic disorder far more than the women. Around 10.58% out of the 85 men in this study were diabetic. 8.51% of the overweight and obese women gained weight due to metabolic and hormonal imbalance of the blood-sugar; whereas 8.57% of the overweight/obese men gained weight due to the very same reason. One of the major reasons for weight gain in women of the age range of 15 to 50 was due to PCOS and Hyperthyroidism. Around 15% of the women involved in this study were suffering from PCOS and around 19.14% females who were either overweight or obese had this syndrome as a contributing factor for the weight gain. People who abnormally put on a lot of weight or by lineage, have a high chance of developing polycystic ovaries and that inherently causes hormonal disbalance, fat accumulation, hair loss, facial hair growth and weight gain amongst other things. Women above the age of 50 showed a hike in weight either due to diabetes or menopause. Although there is no proof that menopause is the sole reason for weight gain. These women gained weight despite sleeping properly, eating well, having a proper gap between supper and bedtime, and exercising; thus, further research is required to understand the weight gain in elderly women.

Amongst the overweight/obese women, around 48.93% of the females did not suffer from any sort of major health problems, and still gained weights due to amalgam of reasons, like lesser sleep time, less water intake, lesser gap time between the last meal and bedtime, no exercises. On the other hand, 57.14% of the obese or overweight men who did not have any major health issues, were following a very healthy lifestyle in all aspects. The extra weight could be muscle mass or heavier bones rather than fat accumulation, a factor which is not transparent with a BMI reading.

**Figure 2** shows that 16.66% of the women and 10.58% of the men suffered from Depression and 21.66% of women and 11.76% of the men were plagued by anxiety. Lack of sound sleep of at least 7 hours was observed mainly in the youth (15–35) with a 24.39% and 34.14% overall. Although, 17.07% of the study populous
complained of suffering from Sleep Apnea. Amongst all the subjects 43.95% of the individuals suffering from mental disorders of anxiety and depression showed irregular BMI. The study was conducted in the city, while few subjects hailed from the underprivileged part of the city who earned their keep by manual labour, most of them belonged to the upper middle-class part of the society. Despite this from Figure 3 we can see that only 22.92% of these people sought the professional guidance of a dietician or nutritionist, out of which 26.66% were women and 17.64% were men.

From Tables 1 and 2, another interesting fact is pointed out was 80% of the labourers involved in this study were either in the normal or underweight BMI range despite having a high carbohydrate diet. The working class consume high energy dense food, a lot of vegetables all freshly prepared. On the other hand, 62.5% of the homemakers were overweight and obese despite following all the healthy habits considered to maintain a healthy BMI.

4. Discussion

The prevalence of obesity has vigorously increased in the past three decades speculating the composition of current diet, decreasing levels of physical activities, changes in energy intake versus the expenditure to be the cause. Tackling this problem has to be the main priority as the rate of obesity refuses to settle down. Therefore, conducting field physical examination surveys that provide robust measurements as well as routine surveys which collect self-reported heights and weights is necessary. A combination of both these methods shall reveal a better periodic assessment of self-report bias and strengthen surveillance over the general public. Member States of WHO in 2013 made a resolution of stopping the rise in obesity by 2025, although noble this target is overambitious considering no countries showed downwards trend in the past 3 decades [5].

In this survey as mentioned earlier, BMI index has been used as the determining factor to understand overall wellbeing of an individual. Body mass index (BMI) is the ratio between body weight and the square of body height, and is commonly used to assess bodily mass in epidemiological studies [7]. This entire survey was
conducted to understand the rise in obesity, especially in the youth and thus was conducted in colleges primarily to observe the physical activities of students as well as their eating habits. Overweight is defined by a BMI equal to or higher than 25 kg/m2 and obese is 30 kg/m2 or higher [7, 18].

Due to the socio-economic strata, it is observed that the minority and low-income individuals are disproportionately affected by obesity as the cheapest and accessible food is high in fats and sugar. Due to rapid changes in socioeconomic status and demographic in a developing country like India, the adoption of an energy- and fat-rich diet and a sedentary lifestyle has become the norm [1]. In the study itself, it was observed that the youth especially the college going students, indulged in junk food possibly for two reasons, as they are not earning, they prefer cheaper food on a daily basis, also due to ‘Westernization’ of lifestyles [4]. People who have more financial resources combat these circumstances more easily and, consequently, are more physically active and less obese than those with fewer resources [9].

From these results, it’s evident that the rise in mental disorders like depression, anxiety and hypertension is quite prevalent. Mood disorders and anxiety, and weight gain are closely related and recognized as common conditions among adolescents and young adults [19]. The weight gain after diagnosing depression, lower HRQOL and anxiety is just as common as developing depression and other mental issues due to obesity [20–22]. There is a common factor between obesity and depression, i.e., the lower availability of rewarding dopamine D2 receptors. This leads them towards emotional eating as means of feeling better in response to negative emotions, which intake is proven as one behavioural mechanism between depression and subsequent development of obesity [20]. The brain treats high palatable foods that are energy-dense, especially high sugar and fat food as rewards. People under stress usually are attracted towards sugar and fat concentrated food to cope with negative emotions or confusing internal states of hunger and satiety with physiological changes associated with emotions, also called as the ‘comfort food hypothesis’ [6, 23]. Obstructive sleep apnea (OSA) accompanied with elevated blood pressure is extremely common in patients with obesity, due to fat deposition around the upper respiratory airways, chest wall, and truncal fat, which leads to a decrease in the functional residual capacity [3, 6]. Mechanistically, partial sleep modulates with hormones leading to increased serum ghrelin and reduced serum leptin, both of which result in elevated appetite [23].

From this survey, many girls were seen suffering from PCOS, which now has been declared as a rising epidemic among young girls. Usually children, before hitting puberty do not have gonadotrophic and/or ovarian disorder, but have an excess of central that triggers an adaptive mode of accelerated growth and adaptive mode of subfertility (PCOS) [14]. PCOS shows clinical features of insulin resistance (IR), hyperandrogenism. The presence of IR appears as impaired insulin-mediated suppression of lipolysis and lipid oxidation, resulting in increased serum free fatty acids, which is associated with obesity [24, 25].

Weight gain after achieving menopause is a very common occurrence, although studies conducted on these aspects are quite contradictory. Women have been shown to gain weight the most between the ages of 25–34, rather than postmenopausal. Menopause does influence the body composition due to ageing but not any distinct increase in weight gain [16] From this survey, we do observe that women are extremely health conscious in their 30s and on the other hand men especially take major steps of looking after their health in comparison to the women in their 50s. From the study we can also deduce that both men and women prefer to walk for at least half an hour (Females - 59.16% and Males- 45.88%) over exercising in the gyms (Females- 8.33% and Males - 15.29%).

Psychology and Pathophysiological Outcomes of Eating
One interesting observation noticed in this survey study was that men and women doing labour work in the field, by default follow a high carbohydrate diet and stay healthy. The labourers do not have the privilege of consuming four whole meals a day, due to shortage of time and workload. Therefore, they were seen consuming high carbohydrate foods like rice, beets, potatoes etc. twice a day to endure the entire day’s labour. The high carbohydrate food acts as a fuel for their sane functioning. The key is naturally occurring high carbohydrates to keep them full, provide energy, improve insulin function and heavy labour to create calorie deficit. Another interesting hypothesis is that the dramatic decrease in smoking could also likely be a cause of global increase in BMI. Smoking impairs appetite as well as causes chronic obstructive pulmonary disease, which itself results in a lower body mass [8].

5. Conclusion

In Summary, the prevalence of obesity is greater in women than men which increases with age. Overweight and obesity rates have increased considerably during the past 35 years to the extent that more than one-third of the world’s population is now classified as overweight or obese [1]. Though a mammoth task, it’s imperative that obesity epidemic is reversed through prevention. Countries need to get involved and effectively intervene against major determinants such as excessive caloric intake, physical inactivity, active promotion of food consumption by industry and stopping the gradual weight gain in children [5, 9]. These interventions could help resolve the increase in BMI associated with mood disorders especially in females [19]. According to WHO measures to prevent obesity by individual’s choice of healthy foods and regular physical activity are the easiest, most accessible and affordable ones [4]. At the same time sleep also should be incorporated into management plans for obesity [26].

This study has few limitations which provide a scope for further investigation. BMI was considered as a classification source of the populous under scrutiny which is a rather poor indicator of percent of body fat and deposition [1, 8]. There is a known subset of the obese population devoid, of cardiometabolic complications such as diabetes mellitus, IR, and cardiovascular disease who show normal BMI yet have excess visceral adiposity, and are known as metabolically healthy obese (MHO) which is particularly observed in Asian men [6]. Also, in this survey we observed men leading a rather healthy life in all aspects yet having a higher BMI, as BMI doesn’t differentiate between muscle or fat mass. Also in this study, we have considered mental health disorders such as depression, anxiety, sleep apnea along with lifestyle habits. As the survey was done to understand the all-round behaviour of the public to maintain a healthy lifestyle, we could not delve further into eating disorders such anorexia and bulimia, which has a wide scope of understanding the increase in the rate of obesity especially amongst the youth [17].

Apart from the country taking rigorous surveys and collaborating with the industries to balance the socio-economic situation to steadily bring down the growth curve of obesity, individuals too can lead and maintain a healthy life and BMI. Grains should be consumed in a minimally refined, high-fibre form, and intakes of refined starches and sugars should be minimized. Non hydrogenated dietary fats must be consumed. Vegetables and fruits must be eating in abundance while red meat should be considerably reduced. Daily exercise of any sort is always recommended [27].
Acknowledgements

This work is supported by Thakur College of Science & Commerce, Mumbai-400101 and Jain University School of Sciences Centre of postgraduate studies, Bangalore- 560011 for allowing me to conduct my research in their premises. I am thankful to the Dr. Shirley Agwuocha and Dr. Salamun DE for the encouragement and support.

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