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# 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  $25 \text{ kg/m}^2$ . 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 world-wide 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  $\text{BMI} \geq 25$  to  $< 30 \text{ kg/m}^2$  and obesity as  $\text{BMI} \geq 30 \text{ kg/m}^2$ ; 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  $\text{BMI} \geq 25 \text{ kg/m}^2$  is considered to be overweight, and a  $\text{BMI} \geq 30 \text{ kg/m}^2$  is classified as obese, with severe obesity defined as a  $\text{BMI} \geq 40 \text{ kg/m}^2$  [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**

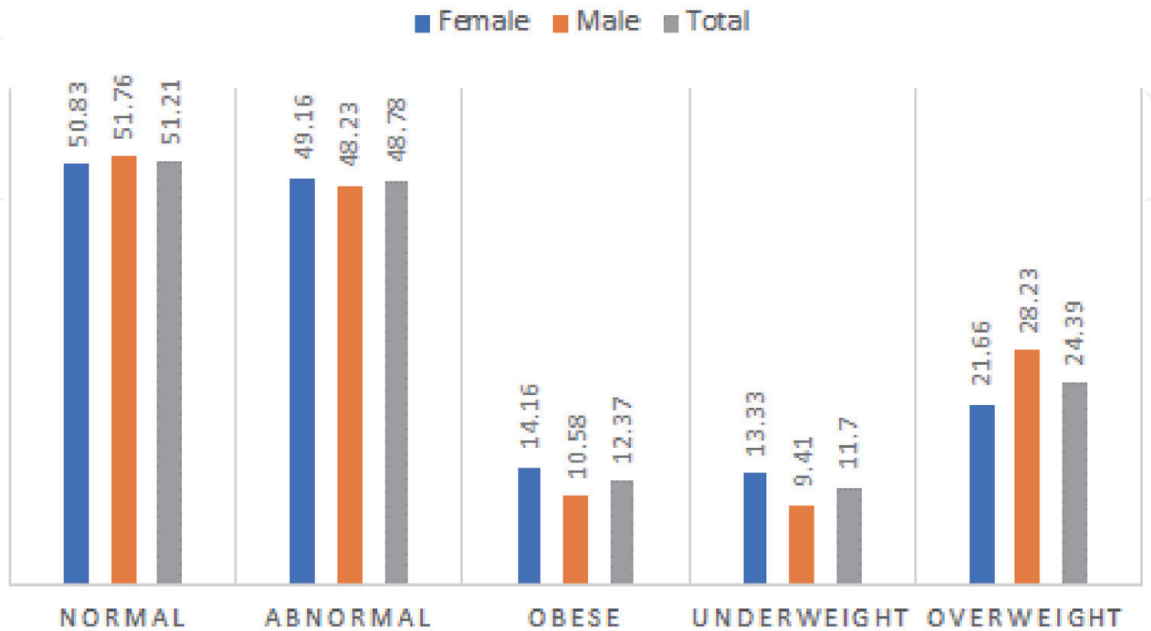
The normal BMI defined by WHO ranges normal as 18.5 to 24.9, whereas a BMI  $\geq 25 \text{ kg/m}^2$  is considered to be overweight, and a BMI  $\geq 30 \text{ kg/m}^2$  is classified as

obese, with severe obesity defined as a BMI  $\geq 40$  kg/m<sup>2</sup> [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%



**Figure 1.**  
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).

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	4	6	4	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	Over weight	Non Veg	No	Yes	5	2	>6	24	Walk	—
6	15–25	Student	167.67	70	28.4	Over weight	Veg	No	3–4	8	2	>6	24	Walk	Hypertension
7	15–25	Student	161.54	75	29.3	Over weight	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	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	160	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	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

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	3–4	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	PCOS
66	15–25	Student	172	68	23	Normal	Veg	Yes	Yes	8	3	1–2	7	Cardio	None
67	15–25	Corporate	158.49	65	25.9	Over weight	Veg	Yes	Yes	9	3	5–6	8	Walk	None
68	15–25	Corporate	165	58	21.3	Normal	Non Veg	Yes	3–4	8	4	5–6	8	Cardio	Anxiety
69	15–25	Student	158	52	20.8	Normal	Non Veg	Yes	No	7	5	1–2	16	Walk	Hypertension + Sleep + Anxiety + Depression
70	15–25	Student	158.49	58	23.1	Normal	Veg	Yes	Yes	6	4	>6	5	Walk	None
71	15–25	Student	165	50	18.4	Under Weight	Veg	No	3–4	8	5	>6	6	Walk	None
72	15–25	Student	158	56	22.3	Normal	Veg	Yes	Yes	7	1	1–2	5	Walk	Anxiety
73	15–25	Student	149	40	18	Under Weight	Veg	Yes	Yes	7	2	5–6	6	Yoga	Low BP
74	15–25	Student	160	45	17.6	Under Weight	Non Veg	Yes	1–2	8	3	>6	7	Walk	None
75	15–25	Student	164.59	70	25.8	Over weight	Non Veg	No	3–4	5	5	1–2	8	Walk	Hypertension + Sleep + Anxiety
76	15–25	Student	170.68	80	27.5	Over weight	Veg	No	3–4	7	2	1–2	8	Cycle	Hypertension
77	15–25	Corporate	161.54	51	19.5	Normal	Veg	Yes	Yes	7	5	5–6	6	Sports	Asthma
78	15–25	Student	159	53	21	Normal	Veg	Yes	3–4	8	5	5–6	8	Walk	None
79	15–25	Corporate	161.54	55	21.1	Normal	Veg	Yes	Yes	6	2	>6	12	None	PCOS+ Thyroid
80	15–25	Student	173.73	102	33.8	Obese class 1	Veg	Yes	Yes	6	2	5–6	8	Walk + Cardio	Hypertension + Sleep + 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
81	15–25	Corporate	164.59	75	27.7	Over weight	Veg	No	1–2	8	2	5–6	5	Cardio + Cycle	PCOS
82	15–25	Student	168	67	23.7	Normal	Non Veg	Yes	Yes	6	5	5–6	8	Walk	Hypertension + Sleep + Depression + Anxiety
83	15–25	Student	160	80	31.3	Obese class 1	Veg	Yes	Yes	7	2.5	1–2	10	Walk	Hypertension + Anxiety
84	15–25	Student	167.64	40	14.2	Under Weight	Veg	Yes	Yes	8	4	1–2	15	Cardio+ Dance	PCOS + Low BP
85	15–25	Student	170.6	70	24	Normal	Veg	Yes	1–2	7	3.5	1–2	3	Gym	PCOS + Sleep
86	26–35	Corporate	162.56	60	25.3	Normal	Veg	No	Yes	7	3	5–6	4	Walk	None
87	26–35	Student	167.64	90	33.1	Obese Class 1	Non-Veg	No	1–2	9	3	>6	8	Cardio	None
88	26–35	Corporate	170.68	70	24	Normal	Non-Veg	Yes	Yes	7	3	1–2	10	Cardio	PCOS + Thyroid
89	26–35	Corporate	165	78	28.7	Over weight	Non-Veg	Yes	Yes	8	3	5–6	8	None	None
90	26–35	Field Work	173.73	60	19.9	Normal	Veg	No	Yes	7	2.5	5–6	10	Walk + Cardio +Weights	Hormonal
91	26–35	Service	152.4	50	21.5	Normal	Veg	Yes	Yes	5	2	1–2	12	Walk	Low BP
92	26–35	Service	162.56	58	21.9	Normal	Veg	Yes	Yes	6	2.5	5–6	16	Walk	None
93	26–35	Corporate	155.44	78	32.3	Obese Class 1	Veg	Maybe	Yes	5	2	5–6	11	Walk+ Cardio	Hypertension + Sleep + Depression + Anxiety + PCOS
94	26–35	Corporate	158.75	78	31	Obese Class 1	Non-Veg	No	Yes	7	4	5–6	4	Walk	PCOS + Sleep

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	3–4	7	2.5	1–2	10	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 + Depression + 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	Over weight	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	Over weight	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	Break fast	Sleep (hrs)	Gap (hrs)	Fast Food	Water (cups)	Exercise	Disease
1	15–25	Student	157	64	26	Over weight	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	Over weight	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	Over weight	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	Over weight	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.	Age (years)	Occupation	Height (cm)	Weight (kg)	BMI	Status	Food	Milk	Break fast	Sleep (hrs)	Gap (hrs)	Fast Food	Water (cups)	Exercise	Disease
18	15–25	Student	172	71	24	Normal	Non-Veg	Yes	Yes	6	2	5–6	7	Weight	None
19	15–25	Student	175	75	26	Over weight	Non-Veg	Yes	Yes	7	0.5	>6	10	Walk + Cardio + Weights Sports	None
20	15–25	Student	180	65	20.1	Normal	Veg	Yes	Yes	7	1	5–6	15	None	None
21	15–25	Student	182	49	14.8	Under weight	Veg	Yes	Yes	6	2	>6	10	None	None
22	15–25	Student	180.34	70	21.5	Normal	Veg	No	Yes	8	1	1–2	5	Walk	Hypertension + Depression
23	15–25	Student	172	83	28.1	Over weight	Non-Veg	No	Yes	8	2	>6	4	Walk	Hormonal + Stress + Depression + Anxiety
24	15–25	Field Work	181	109	33.3	Obese Class 1	Non-Veg	Yes	Yes	6	4	1–2	20	Walk + Cardio	Hypertension
25	15–25	Student	182.88	85	25.4	Over weight	Non-Veg	No	Yes	9	2	1–2	20	Walk + Cardio + Weights	None
26	15–25	Student	167.64	60	21.3	Normal	Non-Veg	Yes	Yes	10	1	>6	8	Walk + Sports	Asthma
27	15–25	Corporate	172	62	21	Normal	Veg	Yes	Yes	8	3	1–2	6	Weight	None
28	15–25	Student	182.88	65	19.4	Normal	Veg	Yes	Yes	7	3	1–2	5	Weight	None
29	15–25	Student	175	80	26.1	Over weight	Veg	Yes	Yes	7	4	5–6	6	Walk	None
30	15–25	Student	183	100	29.9	Over weight	Non-Veg	Yes	Yes	7	3	5–6	12	None	None
31	15–25	Student	182.88	81	24.2	Normal	Non-Veg	Yes	Yes	8	3	5–6	6	Walk + Sports	None
32	15–25	Student	172.72	50	16.8	Under weight	Veg	Yes	Yes	10	3.5	5–6	8	Walk	None

Sr. No.	Age (years)	Occupation	Height (cm)	Weight (kg)	BMI	Status	Food	Milk	Break fast	Sleep (hrs)	Gap (hrs)	Fast Food	Water (cups)	Exercise	Disease
33	15–25	Field Work	182.88	50	14.9	Under weight	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	Under weight	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 Weights + sports	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	Under weight	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	Over weight	Non-Veg	No	Yes	7	3	>6	10	Walk	Diabetes
48	26–35	Service	170	75	26	Over weight	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	Break fast	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	Break fast	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	Over weight	Non-Veg	No	Yes	5	2	>6	8	Walk	None
71	36–50	Service	162.56	75	28.6	Over weight	Veg	Yes	Yes	7	2	1–2	16	Walk	Sleep + Depression80
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	Over weight	Non-Veg	No	Yes	6	1	None	12	Labour	None
75	51–70	Service	176	78	25.2	Over weight	Non-Veg	No	Yes	7	1.5	1–2	20	Walk	High BP
76	51–70	Service	158	65	26	Over weight	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

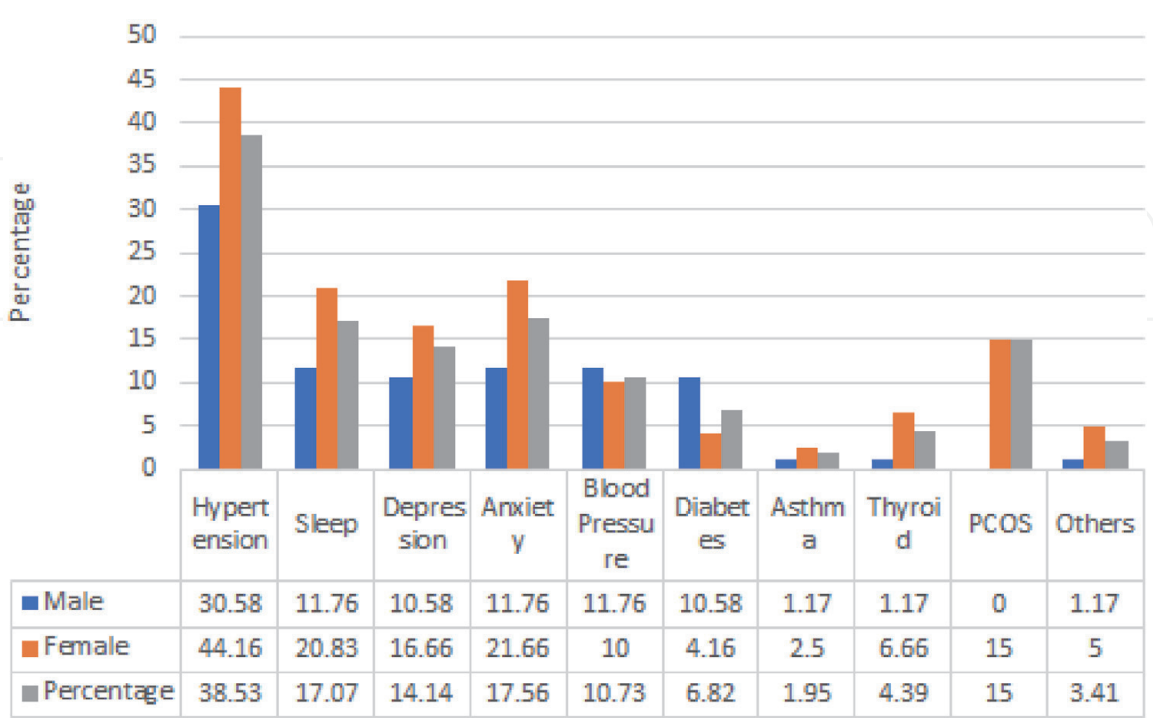
Sr. No.	Age (years)	Occupation	Height (cm)	Weight (kg)	BMI	Status	Food	Milk	Break fast	Sleep (hrs)	Gap (hrs)	Fast Food	Water (cups)	Exercise	Disease
81	51–70	Service	180.33	78	24	Normal	Non-Veg	Yes	Yes	7	0.5	1–2	12	Walk	Cholesterol
82	51–70	Corporate	180.34	70	21.5	Normal	Veg	No	Yes	7	5	1–2	16	Walk + 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).*

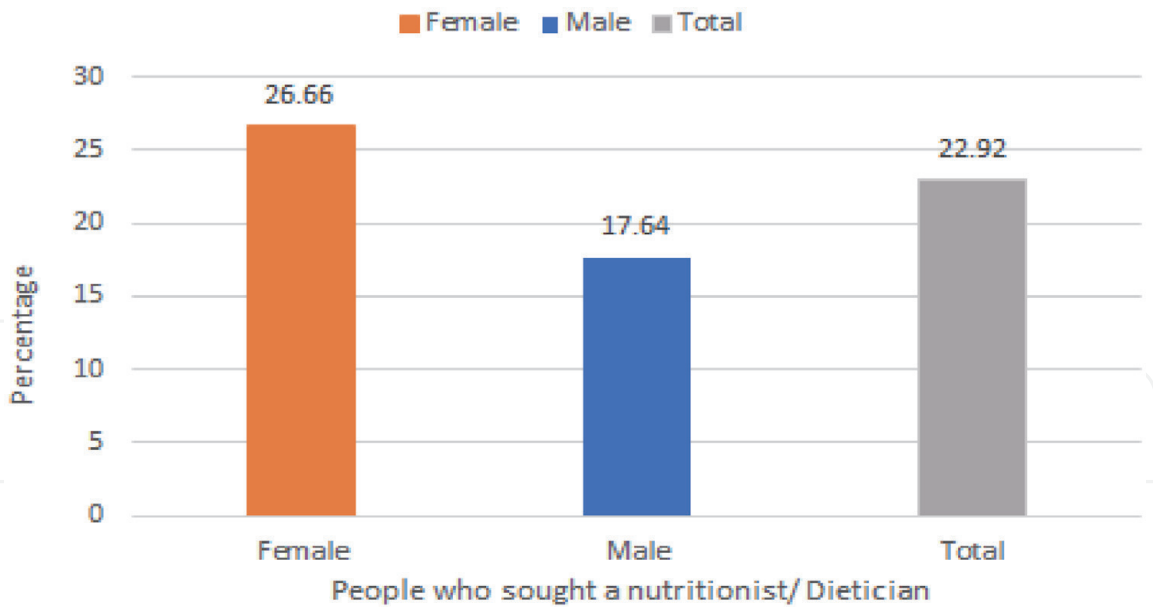
of the entire populous under observation were diabetic, where the men suffered from this metabolic disorder far more than the women. Around 10.58% out of the 85 men in this study were diabetic. 8.51% of the overweight and obese women gained weight due to metabolic and hormonal imbalance of the blood-sugar; 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



**Figure 2.** Graphical representation of women and men, who suffer from mental disorders such as Anxiety, Sleep apnea, Depression and other disorders such as Hypertension, Blood pressure dysregulation, Diabetes, Asthma, Thyroid and others (n = 120 for females and n = 85 for males).



**Figure 3.**  
*Graphical representation of women and men, who sought the help of health and nutrition specialists like dietician or a nutritionist (n = 120 for females and n = 85 for males).*

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/m<sup>2</sup> and obese is 30 kg/m<sup>2</sup> 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 gonadotropic and/or ovarian disorder, but have an excess of central fat 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%).



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 as 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].

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