Survey on Lifestyle, Nutritional Status and Dietary Pattern among IT Employees

Ramya S [1], Subasshini V [2], Aruna .M[3]

[1] **Student, Department of Home Science – Food Science, Nutrition and Dietetics, Shrimathi Devkunvar Nanalal Bhatt College for women, Chrompet**

[2&3]**Assistant Professor, Department of Home Science – Food Science, Nutrition and DieteticsShrimathi Devkunvar Nanalal Bhatt College for women, Chrompet**

ramyasankar20j@gmail.com

ABSTRACT:

Background: Technological advancement and increase in knowledge has provided man with so many facilities that reduce physical and muscular activities. Most of the urban desk jobs workers adopt sedentary life styles which results in obvious negative health implications. The word "sedentary" is coined from the Latin word "sedere" which means "to sit" hence sedentary behavior is a term used to characterize those behavior that are associated with low energy expenditure. This includes prolonged sitting at work, home, business centers, long screen time, car driving and leisure time. The sedentary lifestyle is bound to have a negative impact over health leading to physiological stress and non-communicable diseases.

Aim and objectives: A survey was carried out to the study the Lifestyle, Nutritional status of IT Employees, working in shifts in an urban set up in Chennai district. The study also evaluated their anthropometric measurements, biochemical parameters, clinical signs, and the dietary pattern of IT employees.

Materials and methods: The study is descriptive in nature and convenience sampling was used. It was carried out among a sample size of 100 subjects in the age group of 20-40 years. A standardized questionnaire was used to collect the data from the respondents. Percentage, Chi-square test and correlation analysis were used to ascertain the findings.

Results: Poor dietary habits and lack of physical activity has led to poor nutritional status among the respondents. It is thus necessary to adopt a healthy lifestyle to prevent various non-communicable diseases.

Conclusion: Encouraging physical activity as a part of the lifestyle contributes to maintenance of ideal body weight and better health status. Keeping stress at bay, limiting screen viewing time and cessation of alcohol and smoking helps to further enhance health and well-being.

INTRODUCTION

Over the last 10 to 15 decades, there is a massive transformation in the nature of human labor jobs like manufacturing, construction, and farming into office desk jobs involving the use of computers. (Johnstone, A et al., 2015). The uninterrupted use of computer for long hours also results inacute pain in the neck, shoulder, back, and wrist.The psychological stress associated with the desk jobs also have adverse effects on overall health contributing to elevated risk of mortality from all causes, including cardiovascular disease and reduces life expectancy. (De Rezende, L. F et al., 2014)The increasing prevalence of overweight can be seen among the people who lead a sedentary lifestyle. India has also one of the highest prevalence of overweight and obesity than the other countries. One of the factors associated with overweight and obesity is food consumption. Several studies determine the relationship of dietary habit and nutritional status. The measured factors were carbohydrate and fat intake, the type of food and nutritional status (WHO2016). Good nutrition plays an important role in the physical, mental and emotional development of human beings.A healthy lifestyle is one which helps people to improve health and wellbeing. Healthy living is a lifelong process. The way to being healthy includes eating a balanced diet, engaging in physical activities, weight and stress management (Anithakumari D et al., 2019) A good lifestyle prevents non communicable diseases such as kidney disease, osteoporosis, obesity, diabetes, Crohn's disease, and sleep disorders. Normal nutritional status is achieved if the nutrient intake needs are met optimally. If these needs are not met, under nutrition or over nutrition can arise. Diets high in sugar, salt, saturated fat, along with unhealthy lifestyle (smoking, alcohol consumption and physical inactivity) have been identified as major risk factors of non- communicable diseases (NCDs). A balanced nourishing diet is essential for people of all age groups. Adequate nutrition intake is essential for adults as they tend to develop multiple and major illnesses during this time.

OBJECTIVES OF THE STUDY:

- To assess the lifestyle pattern of the selected IT employees.
- To evaluate the anthropometric measurements, biochemical parameters and clinical signs
- To analyze the dietary pattern of IT employees

REVIEW OF LITERATURE

The IT employees most often lead a sedentary life. Hence, they exhibit a negative association with health. There is less time for physical activity. Besides sedentary lifestyle, practices such

as poor dietary choices, intake of more junk foods and less consumption of water makes them encounter many health hazards. **(Anithakumari, D. et al., 2019)**

The changing lifestyle also contributes to sleep disorders. People are sleeping less in modern societies. Getting adequate sleep is essential to prevent health conditions such as obesity and diabetes. Sleeping less than seven and a half hours per day is associated with future risk of heart disease. A combination of reduced sleep and overweight results in elevated blood pressure which is a risk factor for several diseases.It also contributed to a higher incidence of heart disease**.(Sakurako Tanno et al., 2014)**

The study initiated by London School of Economics And International Federation of Commercial, Professional and Technical Employees(FIET) reported that the cumulative effect of odd working hours and stressful work environment led to voice related problems (dry, itchy throat, hoarseness, cracking of voice),eye strain (itchiness, redness, dryness and pain due to poor lighting), and hearing problem (ear pain, ringing in ear).It ultimately highlights the adverse health impactson health (both mental and physical).

Several studies also relateoptimum dietary intakes through good nutrition knowledge. Understanding the strategic positioning of food, knowing suitable health alternatives and portion size control benefits to attain a better nutritional status. Reduction in the saturated fat, sugar and salt intake as a part of nutritional knowledge resulted in weight loss and better health.**(Fiona Geaney et al., 2016)**

Researchers have also analyzed the diet pattern and nutritional status of working employees in India by assessing the anthropometric measurements, BMI, 24 hours diet intake, and food frequency. Certain biological factors like heredity and birth outcome also influenced the weight status of a person. High cereal consumption, low vegetable and fruit intake also influenced the health status of a person.**(Meenakshi Mathur et al., 2016).**

METHODOLOGY

- **Locale of the study:**The study was conducted at a private IT institution named Data Terrain located at Teynampet, Chennai.

- **Selection of the sample:** 100 respondents of which 56 were men and 44 women were selected randomly between the age group 20-40 years. The study was descriptive in nature and convenience sampling method was used to select the respondents.

- **Methods of data collection:** A well-structured interview schedule was framed by using questionnaire as a tool.

- **Socio-economic Information:** Age, gender, salary, nature of family, type of occupation, marital status was collected.

- **Lifestyle pattern:** Type of activity, sleep schedule, alcohol consumption, smoking pattern, exercise time, screen time viewing was ascertained.

- **Anthropometric measurements:** height, weight, BMI, waist hip ratio was evaluated

- **Biochemical parameters:** Hemoglobin, random blood sugarwas obtained through secondary data.

- **Clinical assessment:** Physical examination ofeyes, skin, hair, nails, and mouthwas carried out

- **Blood pressure** was assessed using sphygmomanometer.

- **Dietary pattern:** Food frequency and 24-hour dietrecall were performed

- **Statistical Analysis:** The data obtained was compiled, tabulated and analyzed for mean, standard deviation, correlation methods by using SPSS software.

- **Ethical consideration:** This study entitled "Survey on Lifestyle, Nutritional Status and Dietary Pattern among IT Employees" has been approved by the independent Human Ethical Committee (IHEC) dated: 04/09/2019 (Protocol No. SDNBVC/HSC/IHEC/2019/04), conducted by the department of home science, SDNB Vaishnav college for women, Chrompet, CH-44.

RESULTS AND DISCUSSION

The Demographic details of employees in IT Company

Table-1

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Socio demographic profile		N=100	Percentage	Total
Gender	Male	56	56	100
	Female	44	44	100
Marital status	Married	47	47	100
	Unmarried	53	53	100
Nature of family	Nuclear	66	66	100
	Joint	34	34	100

From table I it is clear that among the 100 samples chosen from the IT company, 44% were female and 56% were male. 53% of the subjects were unmarried and 47% of the employees were married. The nature of family depicts that, 66% belong to nuclear family, because of increased separation from the joint family.34% of individuals live in the joint family .The results indicate that there is increase in the nuclear family as per the growing demands and convenience.

Lifestyle of the IT Employees

In the current study, all the respondents belonged to the sedentary category. Their sitting time negatively affected their health, leading to musculoskeletal complaints, weight gain and obesity (Terry Boyle et al., 2011).

Questions	Lifestyle pattern	N= 100	Percentage	Total
Recreational activity	Cycling	6	6	100
	Swimming	11	11	100
	Shopping	38	38	100
	Dancing	6	6	100
	Walking	23	23	100
	Playing	10	10	100
	Jogging	6	6	100
Sleeping pattern	8hours	27	27	100
	Less than 8 hours	51	51	100
	More than 8 hours	10	10	100
	Inadequate sleep	12	12	100
Exercise pattern	Exercising	17	17	100
	Not exercising	83	83	100
Smoking pattern	Yes	2	2	100
	No	98	98	100
Alcohol consumption	Yes	9	9	100

	No	91	91	100
Screen time	1-5 hours	4	4	100
	5-10 hours	46	46	100
	10-15 hours	49	49	100
	More than 15 hours	1	1	100

Recreational activity: Table II represents the recreational activities followed by the subjects. 6% of individuals prefer cycling, 11% of employees opt for swimming, 38% of them go for shopping in weekends, 6% involve in dancing and 23% go for walks as a recreational activity. Also, 10% engage themselves in playing sports and 6% involve in jogging according to their interest.

Active recreational activity levels are extremely low in India. More than 90% of individuals in urban areas reported not performing any type of recreational physical activity (Yener Aksoy et al.,2017)

Sleeping pattern: 51% workers slept less than 8 hours and 27% sample slept for 8 hours. 12% of the employees had improper sleeping pattern and 10% slept for more than 8 hours in a day. This shows that majority of the employees slept less than normal sleeping hours.

Exercise pattern: 83% of subjects did not have a regular exercise schedule due to their improper lifestyle. On the other hand, 17% of the subjects regularly exercise.

Regular physical activity can improve muscle strength and boost endurance. Exercise delivers oxygen and nutrient to tissues and helps cardiovascular system work more efficiently. And when heart and lung health improve, there is more energy to tackle daily chores. Not getting enough physical activity can lead to heart disease even for people who have no other risk factors. It can also increase the likelihood of developing other heart disease risk factors, including obesity, high blood pressure, high blood cholesterol, and type 2diabetes(WHO2016).

Smoking pattern: It is found that only 2% were smokers and 98% did not have the habit of smoking. According to the World Health Organization (WHO2016), India is home to 12 per cent of the world's smokers. Many researchers suggest that men have the highest habit of smoking due to stress around the age group 20-30 yearsand they are otherwise called as stress

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smokers. This study shows decrease in smoking habit among IT employees signifying the awareness about harmful health effects caused by smoking.

Alcohol consumption: It is clear that 9% of subjects have the habit of consuming alcohol occasionally and 91% of individuals were non-alcoholic in their lifestyle.

Screen time viewing pattern: It is observed that 49% of workers viewed television and mobiles for 10-15 hours apart from their scheduled working hours. 46% of subjects consumed up to 5- 10 hours, 4% were using less than 5 hours and 1% of IT employees were addicted to the screens always.

Sitting and watching television and other electronic gadgets more than the working hours are associated with increased risk of obesity, cancer, type 2 diabetes and mortality from cardiovascular disease. Long term screen viewing may lead to many eye problems and brain dysfunction later (Colin, D. et al., 2014).

Table- III

Anthropometric measurements

Anthropometric measurements	N=100	Mean	±Standard deviation
Height(cm)	100	160.75	15.866
Weight(kg)	100	70.02	16.253
Body mass index (bmi)	100	26.15	4.590
Waist hip ratio (WHR)	100	0.92	0.77

Table III shows that, the mean height was 160.75 cm ± 15.866. The mean weight was found to be70.02 kg ± 16.253. It revealed that many IT employees were overweight and obese. The increase in weight has been linked to effects of age, marital status, education, household income, urban residence and immigrant status (Margot Shields et al., 2018).

The mean BMI among the selected IT employees was found to be 26.15 ± 4.590. As a majority of the employees were overweight and obese their risk factors for non-communicable diseases such as cardio vascular disease, diabetes, thyroid, cancer was high. In India, more than 1.9 billion adults, 18 years and older, are overweight. Overweight and obesity increases the chance of having symptoms of metabolic syndrome and other health problems. These problems and pattern of lifestyle is also interlinked to social factors like

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occupation and eating habits. This study suggests that desk job workers are more prone to weight gain as they do not burn their calories in their day-to-day routine. Poor lifestyle and dietary habits also increase the risk of obesity and this may lead to many non-communicable diseases.

Waist hip ratio (WHR) leads to a higher risk of obesity and metabolic disorders. Obesity traits have an etiological role in the majority of the leading global causes of death.(Seidell, J.C. et al., 2010) High waist hip ratio can increase the risk of obesity. Sex differences exist in the effects of obesity traits on risk of type 2 diabetes. The mean waist hip ratio among the selected IT employees was found to be 0.92±0 .77. Increase in the waist hip ratio is linked to several diseases.

TABLE IV

Biochemical assessment

Biochemical assessment	N=100	Mean	±standard deviation
Hemoglobin(g/dl)	100	12.418	1.59756
Random blood sugar level(mg/dl)	100	98.51	9.638978

From the table IV,it shows that the mean hemoglobin was 12.418 ±1.59756 and most of the women were found to be anemic due to their poor diet and lifestyle choices.The mean of the random blood sugar level was 98.51 ± 9.638978. Secondary data from the employees were collected.

Table V

Blood pressure

Blood pressure	N=100	Mean	±Standard deviation
Blood pressure(mmHg)	100	119.25	13.169

From the table V it is clear that the mean blood pressure of the employees was found to be 119.25 ±13.169. Among the employees, improper sleep pattern and being overweight have elevated blood pressure levels. It also increases the incidence of heart disease and stress.

FIGURE-I

Clinical assessment:
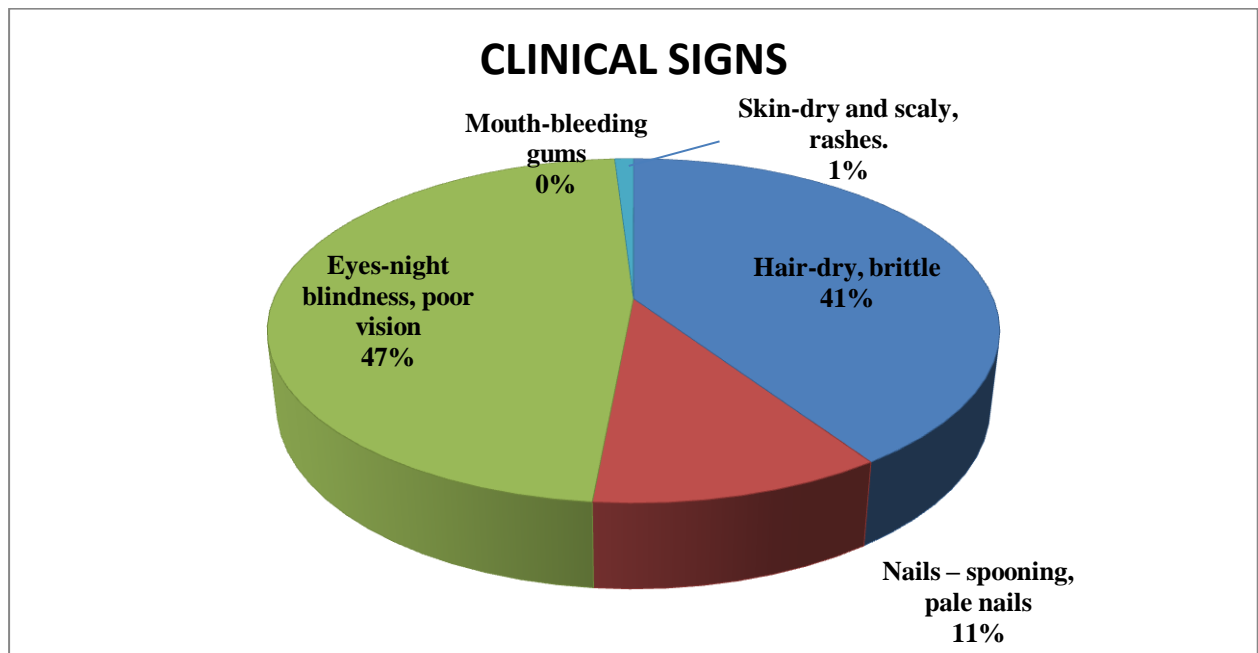
The physical examination of hair, nails, and skin showed that 41% suffered from dry and brittle hair, 11% had spooning and pale nails and 1% suffered from dry skin. Majority of the employees showed good signs during physical examination. 48% of the employees suffered from visual problems like short sightedness. Almost all of them had healthy gums and good oral health.

Dietary pattern

Table VI

Dietary pattern	N=100	Percentage	Total
Vegetarian	3	3	100
Non vegetarian	95	95	100
Ova vegetarian	2	2	100

From the table VI it shows that, the 95% of the employees were non- vegetarians.3% were vegetarians and 2% were ova vegetarians.

Table VII

Eating pattern of the IT employees

Eating pattern	N=100	Percentage	Total
Regular	29	29	100
Irregular	71	71	100

The above table VII depicts that 71% had irregular eating pattern and 29% adopted a regular eating pattern. Practices such as eating high calorie diet, increased caffeine intake, consumption of more junk foods and less consumption of water contributed to poor eating pattern.

Table VIII

Skipping meals of the IT employees

Skipping meals	N=100	Percentage	Total
Yes	72	72	100
No	28	28	100

From the table VIII, it is observed that 72% of the employees were skipping their meals regularly and only 28% were not skipping their meals.

Table- IX

Type of food	N=100	Percentage	Total
Home food	7	7	100
Restaurant	60	60	100
Canteen	33	33	100

From table IX it is understood that only 7% of the subjects consume homemade food. 60% of the employees have their food in the restaurant often and 33% consume food in the canteen. Thus, a majority of the subjects rely on outside food that has a deleterious effect on their health on the long run.

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The study shows that high consumption of food in the restaurants and canteens may not guarantee hygienic and nutritious food. Studies suggest that frequently eating meals away from home leads to poor nutrition and it is not a good practice. As a result, individuals step into many lifestyle diseases such as obesity, diabetes, gastric disturbances and ulcers (Danielle Suarez et al.,2014).

Table –X

Consumption of tea and coffee

Tea/coffee	N=100	Percent	Total
Once in a day	1	1	100
Twice in a day	17	17	100
Thrice in a day	38	38	100
More than thrice	44	44	100

Table X represents the amount of consumption of tea or coffee per day by the employees. 44% of the subjects, drink tea or coffee more than 3 times per day. 38% consumed thrice a day and 17% of samples twice a day. Only 1% of the population consumed limited amounts of tea/coffee.

FIGURE-II

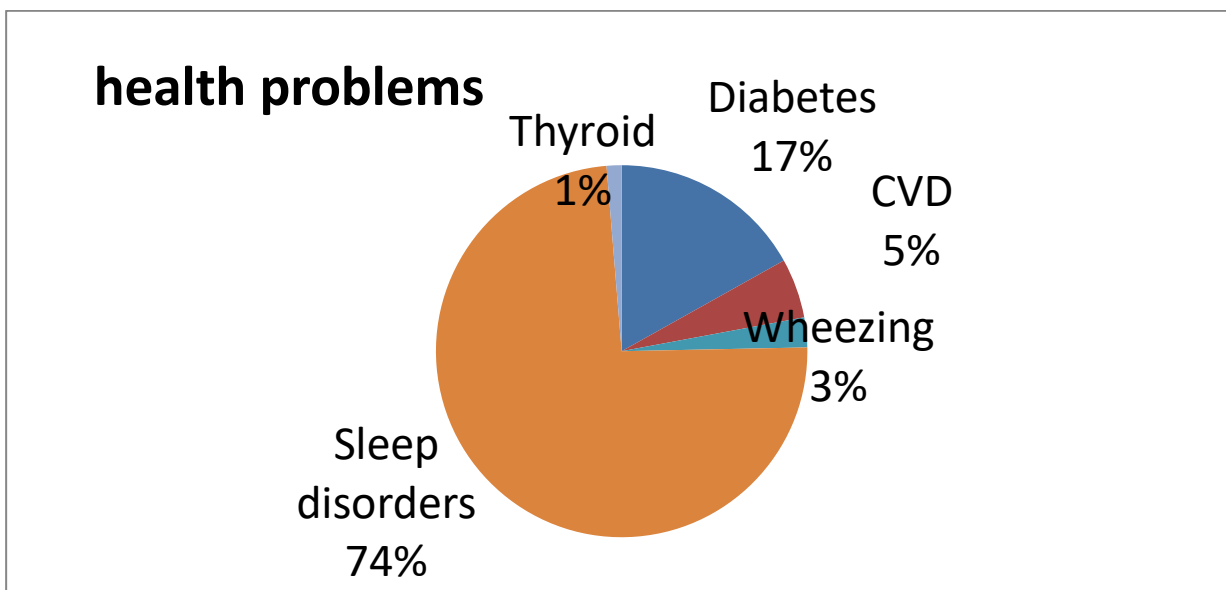**HEALTH PROBLEM AMONG THE IT EMPLOYEES**

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Figure II shows that 13% of the subjects were suffering from diabetes, 4% suffer from cardiovascular diseases, 2% from wheezing and 1% have thyroid problems. A majority of the employees, about 57% suffer from sleeping disorders.

The growing rate of disease prevalence and associated burden of many chronic diet related diseases is affecting the population, their health and the sustainability of health care system worldwide. Obesity and obesity related diseases including CVD, stroke and diabetes have been linked to absenteeism and productivity loss in the work place generating substantial costs for societies and employers. **(Sarah Fitzgerald et al; 2016).**

Table- XI

Food frequency of IT employees

Items	Daily	Weekly	Weekly twice	Rarely	Never
Cereals and cereals products	100	-	-	-	-

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Millets	-	3	2	25	70
Pulse and legumes	97	2	-	1	-
Roots and tubers	6	74	16	3	1
Green leafy vegetable	1	3	10	43	43
Other vegetable	-	34	41	23	2
Fruits	-	10	23	43	24
Milk and milk products	8	31	15	46	-
Animal foods	-	5	94	1	-
Sugar	1	-	-	-	-

Table XI determines the frequency of consumption of various food groups among working employees. It was noted that all participants belonging to the study consumed foods from cereal group more than the Recommended Dietary Allowances (RDA). The results suggested that higher intake of cereals lowered the quality and quantity of other foods.

It was found that pulses were consumed by 97% of the respondents in their diet daily or at least on alternate days according to their choice. The leafy vegetables were not consumed daily or weekly among most of therespondents. 6% of the respondents consumed potato in the form of chips and fries regularly.

The adequacy of the other vegetables was also less among them.The consumption of fats and oils were ranging high. 10% of the subjects consume fruits twice a day, 23% thrice a day. However 24% of the employees never consume fruits. Poor consumption of fruits and

vegetables reduce the vitamins, minerals and fiber content in the diet. If fruit consumption isnot in the recommended amount, it can result in nutrient deficiency and poor health. The adequacy of meat, poultry products among 94% of the subjects were found satisfactory. Animal products were taken weekly thrice. The milk products consumption was found to be more than adequate without any difference in both the genders.

The percentage of intake of milk/day among working employees seems to be higher. Milk contains carbohydrates, protein and various essential vitamins and minerals. Milk is considered to be complete food as it contains all the essential amino acid (proteins) (Vijayeta priyadarshini et al., 2016). The consumption of sugar was observed to be very high among all respondents. The results indicated that majority of the respondents consumed more amounts of cereals, sugars, fats, and less amounts of fruits and vegetables.

Table-XII

24 hours diet recall

24 hours diet recall	N=100	Mean	±Std deviation
Energy	100	3617.28	150.79
Protein	100	63.18	6.520
Fat	100	38.05	4.433

The table XII shows the calorific value of 24 hours diet recall among the 100 samples. The average mean of energy in the diet was 3617.28 ± 150.79.

The recommended protein according to RDA given by the NIN is 1gram/kg body weight. The current study finds the average mean of the protein to be 63.18 ± 6.520 and fat 38.05± 4.433. It clearly signifies high fat consumption by the employees. Poor dietary habit, which is low in fiber and high in fat, can lead to weight gain. The purpose of this study was to determine the relationship of dietary habit to nutritional status.

Nutritional status identifies the apparent risk for developing non-communicable diseases. Studies have demonstrated that type of foods and their quantity of consumption affect body composition. The results therefore brought about important information regarding the food

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behavior and nutritional status of the IT employees and prevalence of central obesity.
It also indicates the risk for developing various diseases (Archana Prabhat et al., 2012).

Table XIII

Karl Pearson's Correlation between BMI and waist hip ratio

Correlation	BMI	Waist hip ratio
BMI Pearson correlation Sig.(1- tailed) N	1 100	0.30 .383 100
Waist hip ratio Pearson correlation Sig.(1- tailed) N	.030 .383 100	1 100

Karl Pearson's correlation is used to compare the relationships between two pairs of variables. It is a unit free measure of relationship between two variables and take values from -1 to +1. **(Kothari C. R, 2019).**

From the above table, it is clear that there was significant (p>0.05) positive correlation between Body mass index and waist hip ratio.Owing to the fact that sedentary lifestyle, poor dietary habits and prolonged sitting hours led to excess weight accumulation around the hip. This has contributed to a significant increase in the BMI. The above correlation analysis states that the chosen IT population is under risk for various lifestyle diseases in the future. This would be the right stage to correct their dietary behaviors and lifestyle which will influence their health and wellbeing.

Table XIV

Correlation between age and skipping meals

Correlation	Skip meals		Total	Chi square valve	P value
	1		2		

Age	1.00	48	30	18	4.132[a]	.042
	2.00	52	42	10		
Total		72	100	28		

The above table shows that there is a significant (p>0.05) positive association between age and skipping meals among the selected respondents. Early adulthood is a unique developmental phase with multiple transitions and independence. The current research suggests that young adults engage in poor eating behaviors that forms the basis of the study. They skip meal regularly especially the breakfast. This reduces the quality of nutrients in their diet. Skipping meals regularly results in degeneration of brain function and affect their work performance. It can also be a risk factor for the onset of various non-communicable diseases in the future.

Summary and conclusion

This research gives us an elaborate understanding on the various lifestyle and dietary choices of IT employees that are related to adverse health effects. It implies that there is a positive association between sedentary lifestyle, dietary pattern and nutritional status towards health. The study shows the consequences that the employees would face due to their sedentary behavior and poor dietary habits. It has resulted in nutritional deficiencies, increase in body mass index, waist hip ratio, elevated blood pressure, abnormalities in the biochemical and clinical conditions like grey hair, poor vision, and pale nails. All these factors indicate deteriorating health. Women considerably suffer from anemia. All these health implications, put together can lead to many non-communicable diseases in the future.

It is thus necessary to adopt a healthy lifestyle to prevent various diseases. Healthy eating practices such as consuming a balanced diet rich in phytochemicals and antioxidants, limiting the consumption of junk foods and establishing a regular meal pattern helps in the improvement of overall health. Increasing physical activity in their lifestyle contributes to maintenance of ideal body weight.

Future study:

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Similar studies can be conducted by selecting a larger population from many districts.

- The study on nutritional status among IT employees can be assessed with biochemical parameters to provide a clear picture of the health status.
- Nutrition intervention education program me can be given and it can be used to assess the pre- and post-knowledge among the IT employees.
- Nutrition counseling can be done for the needy

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