



E-ISSN: 2278-4136  
P-ISSN: 2349-8234  
JPP 2018; SP1: 983-988

**Sucharita Tripathy**

Research Scholar, Department of Food Science and Nutrition, ASPEE College of Home Science and Nutrition, Sardarkrushinagar Dantiwada Agricultural University (SDAU), Sardarkrushinagar, Gujarat, India

**JJ Dhadhuk**

Professor, Department of Food Science and Nutrition, ASPEE College of Home Science and Nutrition, Sardarkrushinagar Dantiwada Agricultural University (SDAU), Sardarkrushinagar, Gujarat, India

**Pragaya Dashora**

Assitant professor, Department of Human Development and Family studies, ASPEE College of Home Science and Nutrition, Sardarkrushinagar Dantiwada Agricultural University (SDAU), Sardarkrushinagar, Gujarat, India

**Shraddha Kapadiya**

Senior Research Assistant, Department of Food Science and Nutrition, ASPEE College of Home Science and Nutrition, Sardarkrushinagar Dantiwada Agricultural University (SDAU), Sardarkrushinagar, Gujarat, India

**Correspondence****Sucharita Tripathy**

Research Scholar, Department of Food Science and Nutrition, ASPEE College of Home Science and Nutrition, Sardarkrushinagar Dantiwada Agricultural University (SDAU), Sardarkrushinagar, Gujarat, India

## Assessment of health and nutritional status of sedentary teaching employees of SDAU, Gujarat

**Sucharita Tripathy, JJ Dhadhuk, Pragaya Dashora and Shraddha Kapadiya**

**Abstract**

Changing food consumption pattern, reduce physical activities, work stresses and more energy intake has given birth to incidence of degenerative diseases with prevalence of over nutrition in adult. The research was carried out to assess the personal, socioeconomic variables and dietary pattern of the teaching employees of the SDAU by collecting the data for assessing the health and nutritional status. Proportional stratified random sampling techniques was used for collecting the sample from the total population and categorized in three groups according to their designation i.e. Assistant professor, Associate professor and Professor. The results regarding to personal information, most of the respondents were male, living in urban areas, between 50-60 years, belonging to general caste, following Hindu religion, married living in nuclear family with 4-6 family members and studied up to PhD. The SES of the respondents were of medium level and they were earning ₹ 5-10 lakhs annually and had annual family income ₹ 10-15 lakhs. According to BMI classification, most of the respondents were in the pre-obese and obese. It may be concluded that the prevalence of overweight and obesity is gradually increased among the teachers of the SDAU. Therefore, a balanced diet with active lifestyle will be useful strategy to maintain the health and optimum body weight among the teachers.

**Keywords:** Health status, obese, BMI, lifestyle, SES

**Introduction**

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 2006) [25]. It is an important element of wellbeing as well as chief component of human capital. Health is also an important determinant of growth and development of mankind. Nutrient intake is the main determinant for health status. Inadequate nutrition is related to several chronic diseases that greatly impact morbidity, mortality and quality of life (Trude *et al.*, 2015) [23]. In spite of vital importance of nutrition in daily diet for healthy life many people more or less ignore it. The major implication of balancing nutrient intakes are to reduce malnutrition and the prevalence of non-communicable disease which helps to cut down the consequently enormous healthcare spreading around the world. Intake of unhealthy diet lowers the life expectancy by decades while a healthy diet improves it. Nutritional status helps to assess consumption and utilization of nutrients present in human body. It is determined by complex interaction of internal (constitutional) and external (environmental) factors. The internal factors are age, sex, nutrition, behaviour, physical activity and diseases; and the external factors are food safety, cultural, social and economic circumstances of the population. An ideal nutritional status occurs when the supply of nutrients conforms to the nutritional requirements or needs. Timely assessment of nutritional status is essential to identify the problems as well as to avoid them.

Anthropometry is one of the most basic tools for assessing nutritional status, whether the person is subjected to over nutrition or under nutrition. Anthropometric measurements describe body mass, size, shape, and level of fatness. It helps in adequate assessment of the overall adiposity of an individual (Frisard *et al.*, 2005) [6]. Diet plays crucial role to balance nutritional and health status of individual. Good nutrition is an adequate well balanced diet combined with regular physical activity to maintain equilibrium whereas poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development and reduced productivity. Changing food consumption pattern, improper life style, reduce physical activities, work stresses and more energy intake has given birth to incidences of degenerative diseases with prevalence of over nutrition in adult (NFHS, 2007) [12]. Low physical fitness is the main reason for the risk for developing coronary heart disease (Laukkanen *et al.*, 2004) [8], hypertension and type 2 diabetes mellitus (Sawada *et al.*, 2003) [20], as well as mortality from cardiovascular disease (Church *et al.*, 2005) [2].

cancer (Evenson *et al.*, 2003) [4] and all causes of mortality (Blair *et al.*, 1995) [1]. The process of urbanization and associated nutrition transition, societies pass through a span where both under and over nutrition related problems occur simultaneously. Under nutrition mainly impact on infants, children and women of child bearing age and excessive nutrition creating a variety of chronic health conditions in middle aged and older adults. Biological and non-biological factors such as hereditary, age, sex, education, socio economic level, physical activity, eating habits and psychological factors are main cause of obesity (Suleiman *et al.*, 2009) [21]. Further, theory of nutrition transition indicates that obesity and overweight first emerges among rich and urban people before spreading among rural and poor people. Unfortunately, adult and urban population of India is currently experiencing great rise in overweight and obesity. Thus, maintaining healthy body weight and reducing excess body fat is essential to ensure long term health benefits especially when obesity related co-morbidities increases health care costs and results in an economic burden on society. Considering these points present research work was done to know the dietary pattern and anthropometric measures with the following objectives: to study the personal and socioeconomic status, dietary pattern and to assess the anthropometric measurement of the respondents to evaluate nutritional and health status.

### Methodology

The teachers of Sardarkrushinagar Dantiwada Agricultural University (SDAU), Sardarkrushinagar who were willing to participate were selected as the respondent for this research study. The respondents were drawn by the proportional stratified random sampling techniques from the total population and categorized in three groups according to their designation i.e. Assistant professor, Associate professor and Professor. Total 109 respondents were selected and both male and female teachers were taken as research samples.

The research was carried out to assess the personal, socioeconomic variables and dietary pattern of the teaching employees of the SDAU by collecting the data for assessing the health and nutritional status. Data collection was done through questionnaire method. The close ended self-structured questionnaire was developed for collection of personal, socioeconomic status and dietary pattern among the respondents. The questionnaire contained personal information including questions such as age, gender, religion, caste, occupation, marital status, type of family and number of family members. For collecting the socioeconomic status area of living, annual individual income and annual family income like questions were framed. Another part of the study included variables like type of diet, numbers of meal per day and frequency of food consumption pattern. Frequency of food consumption pattern was collected by taking the consumption frequency (i.e. daily, twice a week, once a week, monthly, occasionally or seasonally and never) of different food groups like cereal, pulses, green leafy vegetables, other vegetables, roots and tubers, fruits, milk and milk product, animal foods, fats and oils, Sugar and confectionary, Preserved and processed foods and fast foods. The BMI is widely used for the determination of nutritional status. Nutritional status is determined through BMI cutoffs values as recommended by the World Health Organization (WHO) Expert Consultation (2004) [26].

Data were recorded, validated and stored using the standard Statistical Package for the Social Sciences (SPSS) windows

software, version 17.0. All the data were tested for significance using the ANOVA among means of various parameters. The other descriptive statistical techniques (frequency, percentage and correlation coefficient) were used for analysing the data (Sahu, 2010) [19].

### Results and discussion

The food consumption pattern of sedentary teachers was assessed to determine the nutritional health status of the respondents. Personal information of the respondents covering age, gender, religion, cast, level of literacy, marital status, type of family and number of family members is signified in Table 1.

The total respondents were divided into five age groups i.e. less than 30, 30-40, 40-50, 50-60 and more than 60 years. The data from all the categories described that maximum (42.2 %) of the respondents were from age of less than 30 to 40 years followed by 40.3 per cent of the respondents who were from the age of 50-60 years and few (3.7 %) of the respondents were age of more than 60 years. From them maximum (44.9 %) of the Assistant professors were found to be in the age of 30-40 years where as in Associate professor category maximum (43.8 %) were 40-50 and 50-60 years age, each. Majority (79.2 %) of the Professors belonged to 50-60 years followed by 16.6 and 4.2 per cent of more than 60 years and 40-50 years respectively. No Assistant professor and Associate professor belonged to more than 60 years of age group. Ranasinghe *et al.* (2013) [18] found that majority of the populations belonged to young (18-39 years) category which is more or less similar to current findings. The result indicated that among Assistant professor, Associate professor and Professor Category the male represented 82.6, 100 and 95.8 per cent whereas female represented only 17.4, 0.0 and 4.2 per cent respectively. In all the categories data depicted that male were dominant respondents 96 (88.1 %) as compare to female 13 (11.9 %). Majority (98.2 %) of the respondents were Hindu followed by Muslim (0.9 %) and Jain (0.9 %). The result signified that the general caste of Assistant professor, Associate professor and Professor Categories represents 44.4, 12.5 and 100 per cent whereas OBC represents 13.0, 18.8 and 20.8 per cent respectively. Overall, majority (84.4 %) of the respondent were from general category while 15.6 per cent were in OBC category. According to NNMB survey report (2006) [14], the proportion of Scheduled Caste covered was higher in the States of West Bengal (40.5 %) and Tamil Nadu (28.9 %), while it was low in the States of Gujarat (13.6 %), Kerala (14.4 %) and Madhya Pradesh (15.6 %). The data support the present study. With regards to literacy level, majority (69.7 %) of the respondents had studied up to PhD degree while 30.3 per cent had studied up to post graduate degree. It was found that the entire Professor had PhD degree followed by Associate professor (87.5 %) and Assistant professor (55.6 %). In all the categories, data depicted that majority (98.2 %) of the respondents were married whereas only 1.8 per cent were unmarried. It may be due to the most of teaching staffs' age was more than 30 years. According to family type, majority of the respondents (70.6 %) belonged to nuclear family and only one third (28.4 %) belonged to joint family. The Assistant professor, Associate professor and Professor lived in joint family 34.8, 18.8 and 16.6 per cent respectively. Assistant professor, Associate professor and Professor who stayed in nuclear family were found to be 63.8, 81.3 and 83.3 per cent respectively. Only 1.4 per cent of the Assistant professor observed to stay in extended family system.

### Socio-economic status (SES) of the respondents

Table 2 signifies the area of residence and annual income of the respondents. Half (53.2 %) of the respondents lived in urban area followed by 42.2 and 4.6 per cent in the resettlement colony and rural areas respectively. Maximum (60.6 %) of the respondents had individual annual income of ₹ 5 to 10 lakhs while 22.0 per cent had more than ₹ 15 lakhs and minimum (17.4 %) had ₹ 10 to 15 lakhs. As per annual family income, majority (65.1 %) of the respondents earned ₹ 10 to 15 lakhs followed by 23.9 per cent who earned more than ₹ 15 lakhs and only 11.0 per cent earned less than ₹ 10 lakhs. Among the Professor category, majority (83.3 %) had their annual income more than ₹ 15 lakhs and 16.7 per cent had ₹ 10 to 15 lakhs. The same trend was found for the annual family income in the same category. In the Associate professor category, majority (62.5 %) had their annual income ₹ 10 to 15 lakhs, 25.0 per cent having more than ₹ 15 lakhs and 12.5 per cent had ₹ 5 to 10 lakhs. In Assistant professor Category, maximum (92.8 %) had annual income of ₹ 5 to 10 lakhs whereas minimum 7.2 per cent having ₹ 10 to 15 lakhs and the same trend was observed in annual family income. Majority (85.5 %) of the Assistant professors' annual family income was observed to be ₹ 10 to 15 lakhs and minimum (14.5 %) earned less than ₹ 10 lakhs. Household income which has been shown to be communicate with general measures of health (MaCIntyre *et al.*, 2003) [9] and for obesity (Zhang and Wang, 2004) [27]. So this result is also helpful for the assessment of health status of the respondents.

### Dietary survey of the respondents

Dietary survey is an essential part of any study to assess the nutritional status of individuals or groups. It provides essential information regarding nutrient intake with regard to quantity and quality source of nutrients, food habits and attitudes. General pattern of dietary habits included information on the types of diet, meal pattern and food frequency pattern (daily or occasional).

### General dietary pattern

The type of diet was categorized in four types i.e. Vegetarian, Lacto-vegetarian, Lacto-ovo-vegetarian and Non-vegetarian. Table 3 represents the types of diet and consumption of the number of meal per day of the respondents. Half (50.5 %) of the respondents followed Lacto-vegetarian diet whereas 35.8 and 13.7 per cent followed Lacto-ovo-vegetarian diet and Non-vegetarian diet respectively. None of the respondents was found in the pure vegetarian category. Under Assistant professor category, 44.9, 36.2 and 18.9 per cent of respondents followed Lacto-vegetarian, Lacto-ovo-vegetarian and Non-vegetarian diet respectively. The same trend was observed in other two categories. Troph and Krawinkel (2009) [22] revealed that majority of the subjects consuming vegetarian diet had a significantly higher body weight, fat free mass, body fat and body mass index than the omnivores which supports the current results. So the type of diet may be a part for assessing the nutritional and health status of the populations. Majority (71.6 %) of the respondents used to take three meals/day followed by 17.4 and 11.0 per cent who were consuming only two meals and more than three meals/day respectively. Most of the respondents i.e. Assistant professor (68.1 %), Associate professor (87.5 %) and Professor (78.0 %) took 3 meals per day. In Assistant professor and Professor, 26.1 and 4.2 per cent were taking only two meals per day. The consumption of more than three meals per day among the Assistant professor, Associate

professor and Professor was observed to be 5.8, 12.5 and 25.0 per cent respectively.

### Food frequency pattern

Food frequency pattern is the most commonly used dietary tool in assessing the nutritional status. It is more feasible to administer in large populations and also able to capture habitual dietary intake. Observation of food frequency patterns for different food categories of the respondents is presented in Table 4. The Indian meal pattern is affected by the kinds of foods available in this particular area. Cereals and millets constituted the most important category of foodstuff as they form the staple food of a large majority of the population throughout the world. Rice, wheat, barley, millet, corn and finger millet are used as staples foods where they are the major crops for those particular regions. Here the result shows that 100 per cent of the respondents consumed cereals and millets daily. Pulses and legumes are rich sources in proteins (about 19 to 24 %) and also good sources of many B-vitamins and minerals. Half (50.5 %) of the respondents consumed pulses daily whereas 28.4, 14.7, 3.7 and 2.7 per cent of the population consumed pulses twice a week, once a week, monthly and occasionally respectively. The current result was supported by Garg and Vermani (2014) [7] who observed that intake of cereals was higher where intake of pulses was satisfactory in both sexes. Table 4 portrays that 73.4 per cent of the respondents consumed green leafy vegetables daily while 28.4 per cent consumed twice a week, 1.8 per cent consumed once a week and 0.9 per cent consumed monthly.

Green leafy vegetables are very rich in carotene and are good sources of calcium, riboflavin, iron, folic acid, vitamin C and dietary fiber (NIN, 2011) [13]. Same trend was seen for the other vegetables like green leafy vegetables. The consumption patterns of other vegetables i.e. daily, twice a week, once a week and monthly were adopted by 85.4, 11.9, 1.8 and 0.9 per cent of the respondents respectively. This category includes a large number of vegetables and they are also good source of vitamins, minerals and fibers. The consumption pattern of roots and tubers is specified in Table 4.13. It is shown that 89.9 per cent of the respondents consumed daily whereas 5.5 and 2.8 per cent consumed twice a week and once a week respectively. The high consumption of onion, garlic and potatoes were observed among the respondents.

The consumption pattern of fruits mostly depends on the seasons and availability in the area. It was found that 53.2 per cent of total respondents consumed fruits daily according to the availability of fruits in that particular time, 16.5 per cent consumed twice a week and 11.0 per cent consumed once a week. Some (5.5 %) of the respondents consumed fruits monthly while 13.8 per cent of the respondents consumed some specific seasonally available fruits. Fruits are good source of glucose, fructose, vitamin C and  $\beta$ -carotene and also contain good amount of moisture which helps to prevent dehydration. Fruits are the good source of vitamins, minerals, pigments, antioxidants etc. Donaldson (2004) [3] revealed that 30 to 40 per cent of all cancers can be prevented by life style and dietary measures alone. The high consumption of the fruits was observed during the study it might be due to sufficient income, adequate knowledge regarding the advantageous effects of fruits and availability of different fruits in both urban and rural areas.

Majority (92.7 %) of the total respondents consumed milk and milk products daily and few (5.5, 0.9 and 0.9 %) of the respondents consumed milk and milk product twice a week, once a week and monthly respectively. Milk is almost a

complete food with high biological values and is also rich in calcium and phosphorous. The high consumption of milk was detected in this study; it may be due to the high milk production show in this area. According to the NDDB (2015-16) <sup>[10]</sup> report, 12262000 tones milk production was found in Gujarat state i.e. the 3<sup>rd</sup> highest milk production state in India. But the current result was contradicted the study conducted by Garg and Vermani (2014) <sup>[7]</sup>. They found that, consumption of milk and milk products in North Indian adults was less than the recommended amount.

The consumption pattern of fats and oils is showed in the Table 4.13. All (100 %) of the respondents consumed fats and oil daily. As fats and oils were used as a cooking medium in day to day life. Fats and oils serve mainly as source of energy and essential fatty acids, along with fat soluble vitamins like A, D, E and K. Groundnut oil, soybean oil, sunflower oil and mustard oil were commonly used among the respondents for the cooking purpose and some limited respondents also used cotton seed oil and safflower oil. None of the respondents used *dalda* or *pamoline* oil. Ghee was consumed daily by most of the respondents.

The consumption pattern of sugar and confectionary indicated that, 96.3, 0.9 and 2.8 per cent of the respondents were consuming daily, twice a week and once a week respectively. Sugar and confectionaries are the carbohydrate rich foods used mainly as sweetener in foods and provide instant source of energy. The sugar consumption was high. It might be due to the traditional food habits of Indian. The data from the India sugar trade industry (2013) show that India is the second largest (after Brazil) producer and the largest consumer of sugar in the world (USDA, 2014) <sup>[24]</sup>.

In case of the food frequency pattern of animal product, 23.9, 4.6, 6.4 and 9.2 per cent of the respondents consumed animal product twice a week, once a week, monthly and occasionally respectively. But half (55.0 %) of the respondents never consumed any type of animal product whereas, only (0.9 %) of the respondents consumed animal product daily. Mainly egg and chicken were consumed among the respondents and majority of the respondents did not consume prawn. The animal product consumption was seen to be low due to the unavailability of meat and fish in local markets and maximum people were lacto-vegetarian in nature.

The preserved and processed foods consumption pattern of the total respondents is depicted in Table 4.13. The preserved and processed foods were consumed daily (33.9 %), twice a week (15.6 %), Once a week (21.2 %), monthly (11.0 %), occasionally (16.5 %) and never (1.8 %) by the total respondents. Respondents consumed preserved foods like pickles, jam and jellies and frozen foods according to their individual choice and availability.

The consumption pattern of fast foods indicated that 13.8, 25.6, 27.5, 13.8, 16.5 and 2.8 per cent of the total respondents consumed fast food daily, twice a week, once a week, monthly, occasionally and never respectively. Popularly consumed fast foods were cookies, *samosa*, *khari* and *panipuri*. The results were distributed in all the patterns of consuming fast foods; it might be due to the preference, availability and awareness regarding the fast food items.

It may be concluded that the frequency pattern of the respondents was good and they covered all the food groups as their day to day life. The kinds and amount of food eaten are affected by the money that can be spent for food stated by Omidvar and Begum (2014) <sup>[16]</sup> which is the root cause of the current result. According to NNMB report (2012) <sup>[15]</sup>, the consumption of cereals and millets, pulses, fats and oils and milk and milk product was observed to be high in the States of Gujarat while comparing with other states of India. The results supported the current findings.

### Anthropometric measurements

Anthropometric measurement is a one of the major indicators to assess the health and nutritional status of the population. The nutritional status of human being can be quickly assessed by anthropometric measurements on large population. There are many variables to assess the anthropometric measurements. Body Mass Index (BMI) is most widely used to estimate the prevalence of obesity or underweight within a population. Table 5 represents distribution of the respondents according to their BMI classification. The results showed that, 39.4 per cent of the respondents were in the pre-obese (25.0-29.9 kg/m<sup>2</sup>) whereas 28.4, 25.7, 3.7 and 2.8 per cent of the respondents were overweight (23.0- 24.9 kg/m<sup>2</sup>), normal (18.5-22.9 kg/m<sup>2</sup>), underweight (<18.5 kg/m<sup>2</sup>) and obese (≥30.0 kg/m<sup>2</sup>) respectively according to the BMI classification. Maximum (45.9 %) of the respondents of Professor and minimum 31.3 per cent of Associate professor were belonged to pre-obese and obese. In Assistant professor, maximum (42.0 %) of the respondents were categorized in pre-obese followed by normal (27.5 %), overweight (23.3 %), underweight (5.8 %) and obese (1.4 %). Paeratakul *et al.* (2002) <sup>[17]</sup> found that high income and educational level are responsible for higher BMI range. Fernald (2007) <sup>[5]</sup> also found that greater educational attainment was significantly associated with higher BMI and a greater prevalence of overweight and obesity in men and women. Neuman *et al.* (2013) <sup>[11]</sup> found that mean BMI in less-developed countries was generally higher in urban areas and individual and household level SES measures were also independently and positively associated with BMI. These above literature was supports the recent results.

**Table 1:** Distribution of the respondents according to their personal information

Personal Information	Assistant professor (n=69)		Associate professor (n=16)		Professor (n=24)		Total (n=109)	
	f	%	f	%	f	%	f	%
<b>Age (Years)</b>								
<30	13	18.9	00	00.0	00	00.0	13	11.9
30-40	31	44.9	02	12.4	00	00.0	33	30.3
40-50	07	10.1	07	43.8	01	04.2	15	13.8
50-60	18	26.1	07	43.8	19	79.2	44	40.3
>60	00	00.0	00	00.0	04	16.6	04	03.7
<b>Gender</b>								
Male	57	82.6	16	100	23	95.8	96	88.1
Female	12	17.4	00	00	01	04.2	13	11.9
<b>Religion</b>								
Hindu	67	97.2	16	100	24	100	107	98.2
Muslim	01	01.4	00	00.0	00	00.0	01	00.9

Jain	01	01.4	00	00.0	00	00.0	01	00.9
<b>Cast</b>								
General	60	87.0	13	81.3	19	79.2	92	84.4
OBC	09	13.0	03	18.7	05	20.8	17	15.6
<b>Level of literacy</b>								
Post graduate	31	44.4	02	12.5	00	00.0	33	30.3
PhD	38	55.6	14	87.5	24	100	76	69.7
<b>Marital status</b>								
Married	67	97.1	16	100	24	100	107	98.2
Unmarried	02	02.9	00	00.0	00	00.0	02	01.8
<b>Type of Family</b>								
Joint	24	34.8	03	18.8	04	16.7	31	28.4
Nuclear	44	63.8	13	81.3	20	83.3	77	70.6
Extended	01	01.4	00	00.0	0	00.0	01	00.9
<b>Number of family members</b>								
<4	36	52.3	07	43.7	07	29.2	50	45.9
4-6	29	42.0	08	50.0	17	70.8	54	49.5
6-8	01	01.4	00	00.0	00	00.0	01	00.9
>8	03	04.3	01	06.3	00	00.0	04	03.7

**Table 2:** Distribution of respondents according to their Socio-economic status

Area of residence	Assistant professor (n=69)		Associate professor (n=16)		Professor (n=24)		Total (n=109)	
	<i>f</i>	%	<i>f</i>	%	<i>F</i>	%	<i>f</i>	%
Urban	30	43.5	14	87.5	14	58.3	58	53.2
Rural	05	07.2	00	00.0	00	00.0	05	04.6
Resettlement colony	34	49.3	02	12.5	10	41.7	46	42.2
<b>Individual income (Lakhs)</b>								
5-10	64	92.8	02	12.5	00	00.0	66	60.6
10-15	05	07.2	10	62.5	04	16.7	19	17.4
>15	00	00.0	04	25.0	20	83.3	24	22.0
<b>Family income (Lakhs)</b>								
<10	10	14.5	00	00.0	00	00.0	09	11.0
10-15	59	85.5	10	72.5	04	16.7	71	65.1
>15	00	00.0	06	37.5	20	83.3	26	23.9

**Table 3:** Distribution of the respondents according to their types of diet

Dietary pattern	Assistant professor (n=69)		Associate professor (n=16)		Professor (n=24)		Total (n=109)	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
<b>Type of diet</b>								
Lacto-vegetarian	31	44.9	11	68.7	13	50.5	55	50.5
Lacto-ovo-vegetarian	25	36.2	04	25.0	10	41.6	39	35.8
Non-vegetarian	13	18.9	01	06.3	01	04.2	15	13.7
<b>Meals/day</b>								
2	18	26.1	00	00.0	01	04.2	19	17.4
3	47	68.1	14	87.5	17	70.8	78	71.6
>3	04	05.8	02	12.5	06	25.0	12	11.0

**Table 4:** Distribution of the respondents according to their food frequency pattern

Food categories	Daily <i>f</i> (%)	Twice a Week <i>f</i> (%)	Once a Week <i>f</i> (%)	Monthly <i>f</i> (%)	Occasionally or seasonal <i>f</i> (%)	Never <i>f</i> (%)
Cereals and millets	109 (100)	00.0	00.0	00.0	00.0	00.0
Pulses and legumes	55 (50.5)	31 (28.4)	16 (14.7)	04 (03.7)	03 (02.7)	00.0
Green leafy vegetables	80 (73.4)	26 (23.9)	02 (01.8)	01 (00.9)	00.0	00.0
Other vegetables	93 (85.4)	13 (11.9)	02 (01.8)	01 (00.9)	00.0	00.0
Roots and tubers	98 (89.9)	06 (05.5)	03 (02.8)	00.0	00.0	02 (01.8)
Fruits	58 (53.2)	18 (16.5)	12 (11.0)	06 (05.5)	15 (13.8)	00.0
Milk and milk products	101 (92.7)	06 (05.5)	01 (0.9)	01 (00.9)	00.0	00.0
Fats and oils	109 (100)	00.0	00.0	00.0	00.0	00.0
Sugar and confectionary	105 (96.3)	01 (00.9)	03 (02.8)	00.0	00.0	00.0
Animal foods	01 (00.9)	26 (23.9)	05 (04.6)	7 (06.4)	10 (09.2)	60 (55.0)
Preserved and processed foods	37 (33.9)	17 (15.6)	23 (21.2)	12 (11.0)	18 (16.5)	02 (01.8)
Fast foods	15 (13.8)	28 (25.6)	30 (27.5)	15 (13.8)	18 (16.5)	03 (02.8)

Figures in the parenthesis indicates the percentage

**Table 5:** Distribution of the respondents according to their BMI classification (for Asian population)

BMI (kg/m <sup>2</sup> ) scale	Assistant professor (n=69)		Associate professor (n=16)		Professor (n=24)		Total (n=109)	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Underweight (<18.5)	04	05.8	00	00.0	00	00.0	04	03.7
Normal (18.5-22.9)	19	27.5	04	25.0	05	20.8	28	25.7
Overweight (23.0-24.9)	16	23.3	07	43.7	08	33.3	31	28.4
Pre-obese (25.0-29.9)	29	42.0	04	25.0	10	41.7	43	39.4
Obese (≥30.0)	01	01.4	01	06.3	01	04.2	03	02.8

## Conclusion

The teachers were healthy and free from the major health problems. Advances in designation and age negatively affected the health status of the respondents. The Professor and Associate professor were found to be more overweight as compared to Assistant professor. The food consumption pattern and socio economic status was found to be almost similar between the Associate professor and Assistant professor. Professors were more vulnerable to undergo many non communicable diseases as compared to others. Overall the food consumption patterns of the teachers were good.

## Reference

- Blair SN, Kohl HW, Barlow CE. Changes in physical fitness and all-cause mortality: a prospective study of healthy and unhealthy men. *Journal of American Medicine Association*. 1995; 273:1093-8.
- Church TS, La Monte MJ, Barlow CE. Cardiorespiratory fitness and body mass index as predictors of cardiovascular disease mortality among men with diabetes. *Arch International Medicine*, 2005; 165:2114-20.
- Donaldson M. Nutrition and cancer: a review of the evidence for an anti- cancer diet. *Nutrition Journal*. 2004; 3(19):1-40.
- Evenson KR, Stevens J, Cai J. The effect of cardio respiratory fitness and obesity on cancer mortality in women and men. *Med Science Sports Exercise*, 2003; 35(2):270-277.
- Fernald L. Socio-economic status and body mass index in low-income Mexican adults. *Social Science Medicine*, 2007; 64(10):2030-2042.
- Frisard MI, Greenway FL, Delany JP. Comparison of methods to assess body composition changes during a period of weight loss. *Obesity Research*, 2005; 13(5):845-54.
- Garg M, Varmani SG. Nutritional health status of north Indian adults. *International Journal of Food and Nutritional Sciences*. 2014; 3(3):118-121.
- Laukkanen J, Kurl S, Salonen R. The predictive value of cardio respiratory fitness for cardiovascular events in men with various risk profiles: a prospective population-based cohort study. *Eurian Heart Journal*. 2004; 25:1428-1437.
- MacIntyre S, McKay L, Der G, Hiscock R. Socio-economic position and health: what you observe depends on how you measure it. *Journal of Public Health Medicine*. 2007; 25:288-294.
- NDDDB. National Dairy Development Board, 2015-16. Available at <http://nddb.coop/information/stats/milkprodstate> assessed on 28<sup>th</sup> March, 2017.
- Neuman M, Kawachi I, Gortmaker S, Subramanian SV. Urban-rural differences in BMI in low- and middle-income countries: the role of socioeconomic status. *American Journal of Clinical Nutrition*. 2013; 97(2):428-36.
- NFHS. National Family Health Survey (NFHS-3) 2005-06. International Institute for Population Sciences and Macro International. Deonar, Mumbai, 2007; 1:425.
- NIN. Dietary guidelines for Indians a manual. 2<sup>nd</sup> ed. National institute of nutrition, Hyderabad, India, 2011, 32-37.
- NNMB. National Nutrition Monitoring Bureau. Diet and nutrition status of population and prevalence of hypertension among adults in rural areas. National Institute Of Nutrition, Indian Council of Medical Research, Hyderabad, 2006; 24:1-166.
- NNMB. National Nutrition Monitoring Bureau. Diet and nutritional status of rural population, prevalence of hypertension and diabetes among adults and infant and young child feeding practices. National Institute of Nutrition, Indian Council of Medical Research Hyderabad, India, 2012, 11-13.
- Omidvar S, Begum K. Dietary pattern, food habits and preferences among adolescent and adult student girls from an urban area, South India. *Indian Journal of Fundamental and Applied Life Sciences*. 2014; 4(2):465-473.
- Paeratakul S, White MA, Williamson DA, Ryan DH, Bray GA. Sex, Race/Ethnicity, Socioeconomic Status, and BMI in Relation to Self-Perception of Overweight. *Obesity Research*, 2002; 10(5):345-50.
- Ranasinghe C, Gamage P, Katulanda P, Andraweera N, Thilakarathne S, Tharanga P. Relationship between Body mass index (BMI) and body fat percentage, estimated by bioelectrical impedance, in a group of Sri Lankan adults: a cross sectional study. *BMC Public Health*, 2013; 13:797.
- Sahu PK. *Agriculture and Applied Statistics-I*, Kalyani Publication, New Delhi, 2010, 40-361.
- Sawada SS, Muto T, Tanaka H. Cardiorespiratory fitness and cancer mortality in Japanese men: a prospective study. *Medical Science of Sports Exercise*, 2003; 35(9):1546-1550.
- Suleiman AA, Alboqai AK, Yasein N, El-Qudah JM, Bataineh MF, Obeidat BA. Prevalence of and Factors Associated with Overweight and Obesity among Jordan University Students. *Journal of Biological Sciences*. 2009; 9(7):738-745.
- Troph YLD, Krawinkel M. Body composition and nutrient intake of Buddhist vegetarians. *Asian Pacific Journal of Clinical Nutrition*. 2009; 18(2):265-271.
- Trude AC, Kharmats A, Jock B, Liu D *et al*. Patterns of food consumption are associated with obesity, self-reported diabetes and cardiovascular disease in five American Indian communities. *Ecology of Food Nutrition*, 2015; 54:437-454.
- USDA. (United States Department of Agriculture) Foreign Agricultural Service Report, 2014. Available at: <http://www.fas.usda.gov/regions/south-and-central-asia/india> assessed on 29<sup>th</sup> March, 2017.
- WHO. World Health Organization, 2006. Available at: [http://www.who.int/governance/eb/who\\_constitution\\_en.pdf](http://www.who.int/governance/eb/who_constitution_en.pdf) assessed on 15th January 2017.
- World Health Organization expert consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *The Lancet*, 2004, c157-163.
- Zhang Q, Wang Y. Socio economic inequality of obesity in the United States: do gender, age, and ethnicity matter. *Social Science and Medicine*, 2004; 58(6):1171-1180.