Agriculture Association of Textile Chemical and Critical Reviews Journal (2023) 37-41

AATCC Review

23 October 2022: Received
20 January 2023: Revised
25 January 2023: Accepted
15 February 2023: Available Online

http://aatcc.peerjournals.net/

Research Article Open Access

A Study on Nutritional Status and Health Complications among People Suffering from Lifestyle Diseases

Anjali Yadav[1*], Usha Singh[2] and Gitanjali Chaudhary[3]

[1]Department of Food and Nutrition, College of Community Science, Dr. Rajendra Prasad Central Agricultural University Pusa, Bihar, India
[2]Department of Food and Nutrition, College of Community Science, Dr. Rajendra Prasad Central Agricultural University Pusa, Bihar, India
[3]Department of Food and Nutrition, College of Community Science, Dr. Rajendra Prasad Central Agricultural University Pusa, Bihar, India

Abstract

Lifestyle diseases are very common in today's scenario because of people's unhealthy dietary patterns or routine activity which leads to the development of chronic diseases such as diabetes mellitus, heart diseases, obesity, chronic obstructive pulmonary diseases, different types of cancer etc. To assess the nutritional and health status, the experiment was conducted on a total of 40 respondents (21 male and 19 female) above 45 years in Pusa block through personal interviews with the help of a schedule containing a questionnaire related to their general information, occupation, health complications, anthropometric indices, biochemical or physiological details etc. Most of the respondents were government employees (45 %) followed by private (7.50%), unemployed (32.50%) and retired (15%) persons. There were more cases of diabetes mellitus (27.50% male and 17.50% female) followed by heart diseases (7.50% male and 10% female) and obesity (5% male and 7.50% female). The Body Mass Index (BMI) of both males (25.62 kg/m2) and females (26.07 kg/m2) was more than the reference standard. Moreover, 37.50 per cent subjects (15% male and 22.50% female) were found to be anaemic whereas 15 subjects have pre-prandial blood glucose levels between 125-200 mg/dl and 20 subjects have postprandial blood glucose level between 200-300 mg/dl. The systolic (130.77 mm of Hg) and diastolic (87.55 mm of Hg) blood pressure of 9 subjects was also more than the reference standard. Therefore, to cope up with lifestyle consequences and chronic medical health complications, diet modification and healthy routine patterns are necessary to be followed.

Keywords: *Anaemia, Complications, Diabetes, Diseases, Health, Lifestyle, Nutrition*

Introduction

Lifestyle diseases allocate risk factors which are very similar to continuous exposure to three modifiable lifestyle behaviours- physical inactivity, smoking, alcohol and inadequate diet [2]. Non-communicable diseases (NCDs) are quickly increasing in India which causes approximately 5.8 million deaths every year and its primary cause is people's lifestyle patterns and nutrition adaptation [13]. About 68 per cent of working females between 21-52 years of age group were detected to be distressed with lifestyle illness [12].

According to IDF Atlas (2019), an estimated 463 million individuals are suffering from diabetes in the whole world. Worldwide, the prevalence of diabetes varies in rural (3.20% to 7.80%) and urban (10.90% to 14.20%) areas because every third person out of four urban residents belongs to a working age group. According to Global Burden of Disease (2015), approximate cases of cardiovascular disease were about 422.70 million and 17.90 million [11]. Obesity also comes under day-to-day lifestyle diseases due to excess consumption of energy-dense foods, unhealthy dietary patterns, negative nitrogen balance, and improper health care or medical services. In 2016, globally over and above 1.9 billion (39%) adults aged ≥18 years were considered overweight [16]. When a person is free from various physical disabilities/

*CorrespondingAuthor: Anjali Yadav.
E-mail Address: - anjali.ay.7790@gmail.com
DOI:https://doi.org/10.58321/AATCCReview.2023.11.02.37

disorders and mental disruptions, then the gates of souls are open. Good nutrition which ever plays a key role in various metabolic reactions including physiological, pathophysiological and biochemical processes which occurs in our body [17].

Anthropometric indices measure the mean body mass which provides information regarding muscle mass and fat reserves. There is a diversification of anthropometric body measurements which can cover either the entire body or parts of the body. Details of anthropometric indices are height, and weight in addition to BMI (Body Mass Index) through which the health status of people can be identified. According to NIN (2010) normal standard BMI of males and females is 18.5-22.9 kg/m^2. Biochemical and physiological parameters depend on the people's intake, metabolism and excretion of stable elements obtain from food, water including air [10]. Therefore blood pressure, heart rate, serum levels, blood count, stress hormones etc. come under this category. American Heart Association (2020) notified the normal level of systolic and diastolic blood pressure i.e. <120 and <80 mm of Hg.

On the other hand, anaemia is also a leading cause among women, especially at the reproductive and pregnancy stage, it can be diagnosed by haemoglobin level; <11 g/dl haemoglobin level will be considered as anaemic (WHO, 2001). Lifestyle diseases can be overcome by modification in the diet for carbohydrates, sugar, sodium, dietary fibre, PUFA, etc. including physical activity as well as restricted alcohol, smoking, drugs etc. Considering all these points the present investigation has been designed to determine the anthropometric indices, and biochemical and physiological parameters among people having various lifestyle disorders.

Methodology

The present investigation was carried out in the Pusa block of Samastipur district in Bihar in the year 2020-2021. The primary data were collected randomly by the way of a community survey among 40 people (21 male and 19 female) of both the category aged above 45 years following their medical and health complications. The selected subjects were classified into three categories according to their age group which were recorded in terms of years i.e. 45-50 years, 50-55 years and above 55 years respectively. Occupation plays important role in health management so, as per data gathered by respondents it was categorized as into government, private, retired or unemployed. To attain the desired objective of the present investigation, an interview schedule was developed specifically under different circumstances. Data were collected by simple random techniques through the personal interview which consists of a questionnaire about their general information, health complications, anthropometric indices (height, weight and BMI), biochemical parameters (haemoglobin, blood sugar level and blood pressure) etc. [8]. Moreover, data regarding physiological and biochemical parameters were collected by using specific instruments and was compared with parameters given by various health organizations viz. Indian Council of Medical Research (2020), National Institute of Nutrition (2010), World Health Organization (2004) and American Heart Association (2020). The data were compiled and results were drawn using various statistical tools likewise- as frequency, percentage, mean and standard deviation.

Results And Discussion

Data regarding the health complications among selected subjects are presented in Table 1. The majority of subjects were found to be suffering from type II diabetes mellitus (male 27.50% and female 17.50%). Higher prevalence of diabetes mellitus among urban residents as compared to rural ones because of their sedentary lifestyle pattern [4]. A total of 7 (male 7.50% and 10.00%) subjects were found to be suffering from cardiovascular diseases (hypertension, hypotension, and atherosclerosis). However, 5 subjects (male 5.00% and female 7.50%) had been suffering from obesity in which the number of females higher than men respectively. On the other hand, many subjects had more than one medical complication. The percentage of respondents having both diabetes as well as obesity was 5.00% among male and 5.00% among female followed by 3 subjects (5.00% male and 2.50% female) who suffered from diabetes and CVD while, 3 subjects (male 2.50% and female 5.00%) had all three medical complications (diabetes, CVDs as well as Obesity). Socio-economic status, age, residential status and so on are the factors which affect elderly in relation to their health condition [14].

Assessment of nutritional and health status of subjects by anthropometric indicators

The data on anthropometric indices of respondents having lifestyle problems have been presented in Table 2. The mean score for the height of the total

Table 1: Health complications among selected subjects

Complications	Male (n=21)	Female (n=19)	Total subjects (N=40)
Diabetes Mellitus	11 (27.50)	7 (17.50)	18
CVD	3 (7.50)	4 (10.00)	7
Obesity	2 (5.00)	3 (7.50)	5
Diabetes+Obesity	2 (5.00)	2 (5.00)	4
Diabetes+CVD	2 (5.00)	1 (2.50)	3
Diabetes+CVD+Obesity	1 (2.50)	2 (5.00)	3

Figures in parenthesis indicate the percentage

Table 2: Mean anthropometric details of the selected subjects

Parameters	Male (n=21)	Reference standard	Female (n=19)	Reference standard	Total (N=40)
Height (cm)	174.61±11.4	177 [a]	156.84±6.0	162 [b]	162.05±11.76
Weight (kg)	76.28±10.67	65 [b]	64.89±7.96	55 [b]	70.64±10.67
BMI(kg/m²)	25.62±5.53	18.5-22.9 [a]	26.07±3.72	18.5-22.9 [a]	25.62±4.48

Values are Mean±SD [a] NIN (2010) [b] ICMR (2020)

Table 3: Distribution of BMI of selected subjects

Presumptive Diagnosis (kg/m²)	Total (N=40)	Male (n=21)	Female (n=19)
Underweight (≤ 18.5)	-	-	-
Mild underweight (17.0-18.5)	1 (2.50)	1 (2.50)	-
Normal (18.5-24.99)	17 (42.50)	9 (22.50)	8 (20.00)
Overweight (25.00-29.99)	17 (42.50)	8 (20.00)	9 (22.50)
Obese (>30)	5 (12.50)	2 (5.00))	3 (7.50)

Figures in parenthesis indicate the percentage

subjects (40) was 162.05±11.76 cm. Individually, the mean height of males and females was 174.61±11.74 cm and 156.84±6.0 cm respectively which was less than their respective standard heights.

The average weight of the total subjects in the present investigation was 70.64±10.67 kg. However; the mean score of the weight of males as well as females was 76.28±10.67 kg and 64.89±7.96 kg respectively. Therefore, the average weight of both subjects was higher than their respective standards. The increased body weight during middle-aged is associated with an increased chance of ill health [1].

The mean score of BMI of total subjects was 25.62±4.48 kg/m² respectively. The BMI of the male was 25.62±5.53 kg/m² as compared to 26.07±3.72 kg/m² for the female. Therefore, it was concluded that the mean score value of the weight and BMI of selected subjects in the present investigation was higher.

Distribution of BMI of selected subjects

The nutritional profile and health status of the selected subjects was evaluated by calculating their body mass index (BMI) from their average height and weight. According to BMI classification (Table 3), the majority (42.50%) of the subjects were having normal BMI which percentage of males (22.50%) was higher than females (20.00%) whereas, 42.50 per cent subjects were considered overweight (male 20.00% and female 22.50%). The total percentage of obese subjects in the study was 12.50 (male 5.00% and female 7.50%) followed by 2.50 per cent subjects (only 2.50% male) under the mild underweight category. The obesity and being underweight both are related to an increased chance of mortality [5].

Biochemical and Physiological Parameters

The mean haemoglobin level of respondents suffering from lifestyle diseases has been presented in Table 4.

Table 4. Haemoglobin level of selected respondents

Type of Anaemia	Haemoglobin level (g/dl)	Male (n=21)	Value Mean±SD	Female (n=19)	Value Mean±SD	Total subjects (N=40)	Value Mean±SD
Non-anaemic	≥11	14(35.00)	12.70±1.13	11 (27.50)	12.38±0.80	25 (62.50)	12.51±0.97
Anaemic	<11	6 (15.00)	9.41±0.93	9 (22.50)	9.98±0.86	15 (37.50)	9.72±0.92
Mild Condition	10-10.9	4 (10.00)	10.6±0.40	5 (12.50)	10.07±0.15	9 (22.50)	10.33±0.39
Moderate Condition	7-9.9	4 (10.00)	9.40±0.78	3 (17.50)	8.75±0.91	7 (17.50)	9.02±0.86

Source: World Health Organization (2001)
Values are Mean±SD
Figures in parenthesis indicate the percentage

Table 5: The blood sugar level of selected subjects

Blood sugar level (mg/dl)	Male (n=21)	Female (n=19)	Total (N=40)
100-125	09 (22.50)	04 (10.00)	13
125-200	10 (25.00)	05 (12.50)	15
Postprandial (mg/dl)			
180-200	09 (22.50)	06 (15.00)	14
200-225	11 (27.50)	05 (12.50)	16
225-300	03 (7.50)	01 (2.50)	04

Figures in parenthesis indicate the percentage

The mean haemoglobin level of the total 25 subjects was 12.51±0.97 g/dl which shows the state of non-anaemic subjects in the present study. The frequency of males (14) was more than females (11). A total 15 subjects (male 15.00% and female 22.50%) were anaemic and their mean score was 9.72±0.92 g/dl. The level of anaemia in females was slightly more as compared to males (9.98±0.86 g/dl for females and 9.41±0.93 g/dl for males) respectively. On the other hand, 9 subjects (10% male and 12.50% females) were found mildly anaemic. The mean score of males and female was 10.6±0.40 g/dl and 10.07±0.15 g/dl respectively, whereas the remaining 7 subjects (10% male and 17.50% female) were moderately anaemic (9.02±0.86 g/dl). The mean score of such male and female subjects is 9.40±0.78 g/dl and 8.75±0.91 g/dl respectively.

Data regarding the blood sugar level of subjects are presented in Table 5. The majority of subjects (male 25% and female 12.50%) had their fasting blood glucose level between 125-200 g/dl whereas 13 subjects (male 22.50% and female 10%) had blood sugar levels between 100-125 g/dl respectively. In the case of postprandial blood glucose level, the majority of subjects (male 27.50% and female 12.50%) had sugar levels between 200-225 g/dl followed by 22.50 per cent males and 15 per cent females between 180-200 g/dl while, 7.50 per cent male and 2.50 per cent female had their blood glucose level between 225-300 g/dl respectively. Improved standard of living has modified the lifestyle of people leading to health and nutritional transitions thus inviting the spectrum of lifestyle disorders [9].

The mean score of systolic and diastolic blood pressure among the subjects has been presented in Table 6. It has been observed that 9 subjects had high blood pressure. The mean score of systolic Blood Pressure was 130.77±14.85 mm Hg and diastolic was 87.55±7.14 mm Hg which indicates that the observed value was higher than the normal range respectively.

Table 6: lood Pressure of the respondents having lifestyle diseases

Blood Pressure (mm Hg)	Mean±SD
Systolic	130.77±14.85
Diastolic	87.55±7.14

Values are Mean±SD
Normal range 120/80 mm Hg (WHO, 2002)

Conclusion

Lifestyle diseases are threats in today's scenario and

cause chronic illness among people if left untreated/ unmanaged. Based on the findings, it was concluded that government employees are more sufferers than others. The most common lifestyle style disease is diabetes mellitus than other chronic illnesses. On the other hand, both category of subjects have their BMI, haemoglobin, blood glucose level and blood pressure higher as compared to a reference standard. Therefore, to minimize these life-threatening causes, people need to be made aware and conscious of their illness as well as to modify their diet, increase the habit of physical activity and avoid smoking and alcohol consumption strictly.

Acknowledgement

The authors are very thankful to the Department of Food and Nutrition, DRPCAU, Pusa for providing laboratory facility and their valuable support for smooth conduct of research work.

Conflict Of Interest

None

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