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Prevalence of Food Consumption and Diversification Among People having Lifestyle Diseases

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ABSTRACT

Lifestyle diseases are the serious threat among adults. Most of the people in India are suffering from more than one form of diseases mainly type II diabetes mellitus, hypertension, obesity, constipation etc. To combat this, one of the foremost ways is to take proper food at apparent time in adequate amount. For the study, 40 subjects (21 male and 19 female) above 45 years were selected from Pusa block or university campus on the basis of occurrence of lifestyle diseases. Proper schedule was prepared consisting questionnaire related to their general information, food habits, anthropometric details, physiological and biochemical parameters. Information collected through personal interview. Dietary intake of both the subjects was recorded by using 24 h dietary recall method for 2 consecutive days. However, observed value of dietary nutrient (energy, protein, total fat, carbohydrates and sodium) intake were more than the recommended because of overconsumption. Therefore, only good nutrition and healthy lifestyle that is proper balanced diet, physical exercise, adequate sleep, reduced stress, well-adjusted biological clock, avoidance of fast and processed foods etc. will be followed by people regularly which helps to defeat the lifestyle consequences.

INTRODUCTION

Lifestyle diseases are the conditions that takes away people from various physical activity and force towards a sedentary routine pattern which can cause numerous health hazards, ultimately leads to chronic non-communicable diseases and closely life-threatening viable consequences (Tabish et al., 2017). Most important possible factor that leads to non-communicable diseases are unhealthy diet, smoking, alcoholism, disrupted biological clock, lack of physical inactivity, unhealthy choices, poorly physical fitness etc. According to World Health Organization (WHO) the most prevalent lifestyle diseases are obesity, diabetes mellitus (type II diabetes), colon cancer, cardiovascular diseases (Atherosclerosis or Hypertension), mortality, depression, stroke, etc.

According to IDF Atlas (2019), an estimated 463 million adults of aged 20 to 79 years which represent 9.3 per cent of total world's population are suffering from diabetes. Furthermore, 578 million people will reach till 2030 and are projected to reach 700 million next 2045. India is moving to be the second largest number of sufferers in the world (Sanjeevaiah et al., 2019). The population based cross-sectional research study assumed that the incidence of diabetes in Bihar ranges between 4.30 per cent to 10.0 per cent respectively.

Globally, cardiovascular diseases are the foremost cause of death. Moreover, in India also it is becoming a leading cause of mortality. The death rate of cardiovascular diseases (CVD) among western population was around 23 per cent and Indian throughout 52 per cent below 70 years of age (Prabhakaran et al., 2016). The elevated body mass index and excessive waist hip ratio were the causative factor of hypertension in the young adults although it was higher among hypertensive population (Patil et al., 2017). Gupta et al., (2012) study reported that increased prevalence of

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cardiovascular diseases and its health related risk factors were seen in middle class families due to an increased body mass index (BMI), elevated systolic blood pressure and lower intake of HDL (High Density Lipoprotein) cholesterol level. The occurrence of hypertension and its related risk components among urban residents are due to threats accompanied viz. smoking, alcohol consumption, tobacco chewing, high BMI, psychological disturbances respectively.

Another most prevalent lifestyle disease is obesity due to excessive accumulation of fat at that proportion which might have negative consequences on health. Females are more susceptible than males (Ahirwar et al., 2019). Higher incidence of hypertension and diabetes were founded in obese population than overweight (Mandal et al., 2016). However, incidence of abdominal obesity was higher amongst the post-menopausal women than pre-menopausal (Khokhar et al., 2010). Spirituality and psychological well-being were higher in elderly with controllable health problems as compared to serious health problems moreover; it brings to organize programs directly centered to their overall health status (Singh et al., 2021). Better nutrition is always important because it plays a crucial role in various metabolic reactions and another physiological or pathophysiological process which occurs in the body. Keeping in this view, the present investigation was conducted in Pusa block, Bihar state to know the food consumption pattern and food diversity among people suffering from lifestyle diseases.

METHODOLOGY

The research study was carried out in Samastipur district of Bihar during 2020-2021 in Pusa block or university campus, Dr. RPCAU. One of the aspects of study was to know the food consumption pattern among people suffering from lifestyle diseases. For this purpose, total 40 subjects (21 male and 19 female) above 45 years were selected by simple random sampling method through community survey on the basis of lifestyle diseases such as diabetes mellitus, cardiovascular diseases, obesity etc. To fulfill the desired objectives of present study, schedule for the assessment of nutritional and health status of people was developed. The questions were placed in the schedule regarding information with reference to personal, biochemical, medication, food habitat, blood pressure, anthropometric details (height, weight, BMI) and food consumption pattern. The data of people were collected through personal interview and biochemical information was collected after measured by prescribed instruments.

The information regarding age of selected samples was noted in terms of years. All the respondents were categorized into three age groups i.e. 45 to 50 years, 51 to 55 years and above 55 years. As per the given information by subjects, occupation had been categorized into four forms viz. government, private, retired and unemployed. The eating habits, food frequency, dietary intake etc. of subjects was considered under present investigation. Eating habit varies from person to person moreover; it depends on whether they consumed animal foods or plant foods (non-vegetarian and vegetarian). The frequency of food items among different food groups, consumed by individuals at a definite period of time is an important aspect. Dietary intake of both the subjects was recorded by using 24 h dietary recall method for 2 consecutive days (24 h dietary recall method and 48 h dietary recall method). The daily food intake among subjects was compared with ICMR-RDA (Recommended Dietary Allowances) 2020 of adult men and women**.** The data analysis was done by using Microsoft excel 2010 version and various statistical tools were applied such as mean, standard deviation and percentage.

RESULTS AND DISCUSSION

General information of selected individuals and their socio-economic condition

General information collected from subjects suffering from lifestyle diseases includes name, age, sex, food habits and occupation. Majority of subjects (40%) belongs to the age group of 45 to 50 years followed by 50 to 55 years (22.50%) and above 55 years (37.50%) old. Out of 40 subjects, 21 (52.50%) were male and 19 (47.50%) female respectively. Regarding food habits, majority of them were vegetarian (55%) than non-vegetarian (45%). It was evident that most (45%) of the people suffering from life style diseases were government employee including private (7.50%), unemployed (32.50%) and retired (15%). Li et al., (2017) revealed that diabetes mellitus is related with various occupational health consequences, together with work loss productivity, injury associated with work.

Routine activity performed by subjects

The information given below is related to regular activity performed by selected subjects. The data finding suggested that majority (60%) of subjects have good health status followed by fair (32.50%) and poor (7.50%). Majority (85%) of subjects were physically active always and remaining were not (15%) by the reason of fatigue, occupational cause (workload), aging and increased body weight. Whereas majority of them (75%) were followed specialized diet i.e. low carbohydrate, low fat, low sodium, high dietary fibre and high protein whereas remaining (25%) were not on account of less severe condition. Preparation of nutrition garden is one of the simplest ways of securing access to a healthy diet that holds adequate amount of macro and micronutrients (Kumari et al., 2019). While 19 (47.50%) subjects were not participating in any kind of physical activity since last year followed by 18 (45%) participated 3 to 4 times per week, some (5%) were engaged in 1 to 2 times per week and remaining (2.50%) were participated hardly 1 to 2 times per month. About 75 per cent subjects does not have any difficulty to fall asleep in bed however, rest 25 per cent had complications to fall sleep because of stress and strain, fatigue, etc. One of the cause of lifestyle diseases is genetic but half (50%) of the selected subjects in the study doesn't have history of diseases furthermore, majority (30%) of subjects have a history of diabetes mellitus in their immediate family (mother, father, brother and sister) members and others (20%) had history of overweight or obesity. Majority (95%) of subjects drink sweetened beverages once a month or less and remaining (5%) were like to drink 1 to 2 times a week.

However, all the selected subjects (100%) were stay away from cigarette and tobacco related products. Lower consumption of cigarette smoking is correlated with the possibility of lung cancer,

although consumption of one cigarette per day increases the 40 to 50 per cent chances of cardiovascular diseases (Bras et al., 2018). Though, majority (65%) of subjects were not consuming fast foods, some (25%) consume once a week and remaining (10%) were more than two times per week. More than half of the subjects (60%) considered as overweight or obese due to their bad eating habits, and remaining (40%) were fit and fine. Mostly lifestyle diseases affect person's efficiency of work on account of weakness, overtime working, mentally pressurized, rescheduled sleeping etc. Approximately 47.50 per cent subjects had sometimes felt that due to their ill health condition efficiency of doing their work is being affected subsequently some never felt (22.50%), some felt always (17.50%), often (7.50%) and frequently (5%) thought that lifestyle diseases were related to their working efficiency.

About 37.50 per cent of subjects were not avoiding travelling outside like business tour, holiday tour, and general outings due to their necessities followed by very little (35%), little (12.50%), highly (10%) and remaining (5%) avoids a lot. Although some (47.50%) subjects had sometimes felt tiredness or fatigue in past three months because of weakness, improper diet, stress and strain followed by often (17.50%), never (15%), always (12.50%) and felt frequently (7.50%) in past three months. Therefore, more than half (65%) of the subjects were taking drugs or medication other than caffeine, nicotine such as pain-killers, sleeping tablets, anti-depressants, anti-anxiety drugs (e.g. valium), hallucinogens and barbiturates everyday prescribed by doctor including once or twice (20%) a week and remaining (15%) never take medication because they ever thought it necessary.

Food consumption pattern

Table 1 showed the food consumption pattern among people. Cereals are used as a staple food in most of the population diet in the form of chapatti, poori, paratha, rice, poha, upma etc. Wheat, rice and maize are the three major crops grown by farmers in Bihar. Moreover, out of 40 subjects; majority (82.50%) of were consuming cereals and their related products thrice a day followed by once or twice a day (12.50%) and alternatively (5%). Pulses are the good sources of protein; they provide 20-25 per cent protein and double in amount compared to cereals but pulses are expensive and people with low-economic group cannot afford it. As well, red gram and lentil pulse were mostly consumed by subjects whereas, black or green gram rarely. However, most of them (72.50%) were consumed once or twice a day followed by alternatively (15%), thrice (7.50%) and once a week (5%). Mishra et al., (2019) reported that consumption of millets based recipes in regular diets of peoples declines the blood sugar level or improves bowel movement but also increase the food value chain of millets.

Milk and milk products are consumed by subjects in the form of buttermilk, tea, paneer, coffee, curd, cheese, whey etc. It was recorded that 55 per cent of subjects was like to consume once or twice a day followed by alternatively (27.50%) and (17.50%) weekly. Roots and tubers provide more calorie content in the diet. Onion and garlic were consumed daily and potatoes rarely. From the data it was observed that 37.50 per cent subjects consumed weekly in addition with once or twice a day (32.50%), alternatively (20%) and thrice (10%).

Green leafy vegetables known for its protective function though it consists of all yellow, green and orange colored vegetables. Seasonal vegetables were mostly preferred by respondents due to easy availability and accessibility. Majority (67.50%) of subjects consumed vegetables thrice a day in the form of salad, mixed vegetable raita etc. including once or twice a day (27.50%) and (5%) alternatively. Other vegetables includes brinjal, pumpkin, ladies finger, pointed gourd, etc. were less consumed by subjects because of its high cost and availability issues. From Table 2 it was observed that some subjects were consumed alternatively (52.50%) and weekly (47.50%).

Fruits include all categories of orange and yellow colored fruits. Apple, papaya, and kiwi were mostly consumed by respondents. Out of 40 subjects half of the (50%) subjects consumed fruits at least once or twice a day while most of them like to eat at morning and evening time also but some were like to eat after dinner. Around 32.50 per cent subjects eat alternatively and weekly (17.50%) because of high cost and limited availability. Non-communicable diseases can be prevented by eating 400 g or 5 portions of fruits and vegetables daily (WHO, 2020).

Sugar and jaggery were consumed seldomly by subjects, incorporated in tea, coffee, halwa, sweets etc. Most of the respondents like to eat jaggery after dinner because of better digestion. About 65 per cent subjects consumed alternatively followed by weekly (25%) and once or twice a day (10%). Regarding fats and oils, mustard oil was mostly preferred and refined oil rarely for

Table 1. Percentage distribution of food consumption pattern among subjects suffering from lifestyle diseases

Food Groups	Daily		Alternate	Weekly	Total
	Once/Twice	Thrice			
Cereals and Millets (g)	12.50	82.50	5.00	-	40
Pulses and legumes (g)	72.50	7.50	15.00	5.00	40
Milk & milk products (ml)	55.00	-	27.50	17.50	40
Roots and tubers (g)	32.50	10.00	20.00	37.50	40
Green leafy Vegetables (g)	27.50	67.50	25.00	-	40
Other vegetables (g)	-	-	52.50	47.50	40
Fruits (g)	50.00	-	32.50	17.50	40
Sugars and Jaggery (g)	10.00	-	65.00	25.00	40
Fats and oils (g)	62.50	-	12.50	25.00	40
Meat, fish, poultry and their products (g)	-	-	17.50	27.50	18

Figures in parenthesis indicates percentage

Table 2. Mean daily nutrient intake by the selected subjects

Nutrient	Male (n=21)		% Intake*	Female (n=19)		% Intake*
	RDA	Observed value		RDA	Observed value	
Energy (Kcal)	2110	2459.31±720.15	116.55	1660	1719±508.37	103.55
Protein (g)	54.0	79.06±19.64	137.14	45.70	56.92±15.81	124.55
Carbohydrate	130	312.30±92.34	240.23	130	218.25 ±38.70	167.88
Total fat (g)	25	50.69±16.73	202.76	20	43.86±18.87	219.30
Sodium (mg)	2000	2590.09±133.88	129.50	2000	2394.79±139.2	119.70

There is no RDA for energy. The EAR (Estimated Average Requirement) is equivalent to the (EER) Estimated Energy Requirement
Values are (Mean±SD)
*Percent intake has been taken with reference to RDA of sedentary workers (ICMR 2020)

cooking Majority (62.50%) of subjects consumed fat and oils once or twice a day in addition to weekly (25%) and alternatively (12.50%).

In case of meat, fish and poultry, it was observed that fish was mostly consumed by subjects as compared to other flesh foods. Second preference goes to egg after fish but CVDs (cardiovascular diseases) subjects eat only white part of egg because yolk contains higher amount of cholesterol. Therefore, majority (27.50%) of subjects was consuming fish, poultry, and chicken weekly followed by alternatively (17.50%).

Mean daily dietary nutrient intake

The mean daily dietary nutrient intake of respondents has been presented in Table 2 which was calculated by using Indian Food Composition Table, 2017 after collecting data from respondents (24 hour dietary recall method for 2 consecutive days). The observed energy intake of both the subjects was comparatively higher than recommended i.e. 2459.31 and 1719 kcal. From Table 2 the per cent intake of energy in male and female was 16.55 and 3.55 per cent. However, observed value of protein intake by male (79.06 g) and female (56.92 g) was also higher than recommended; per cent intake of both i.e. 37.14 male and 24.55 per cent female found higher than recommended. The observed value of carbohydrates among male (312.30 g) and female (218.25 g) subjects were just double in amount as compared to RDA because of higher intake of cereals and their related products whereas per cent intake of male (140.23%) and female (67.88%) was also more.

The average daily intake of total fat by both male and female was 50.69 g and 43.86 g furthermore, per cent intake of male (102.76%) and female (119.30%) that means they were taken more amount of fat. Consumption of fat ought to be less than 30 per cent of total energy intake which aid to prevent gain in body weight (WHO, 2020). The observed sodium intake was higher than recommended in both the category of subjects i.e. 2590.09 mg and 2394.79 mg respectively. In terms of per cent intake, the value of both male and female was more i.e. 29.50 per cent and 19.70 per cent. Salt can be consumed greater than 5 g per day (WHO, 2020).

CONCLUSION

Based on the findings, it was concluded that prevalence of lifestyle diseases were common among people those who are employed due to their bad eating habits and sedentary routine pattern. Most of the respondents selected for investigation were employed and sedentary workers. The nutrient intakes were higher than recommended due to overconsumption of food intake by the subjects because of easy accessibility, availability and unawareness that lead to toxicity of nutrients. While Better nutrition is always important because it plays a crucial role in various metabolic reactions and another physiological or pathophysiological process which occurs in the body. Therefore, it was recommended to eat balanced diet which contains all the required nutrients for healthy life.

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