



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2019; 5(1): 444-447
www.allresearchjournal.com
Received: 17-11-2018
Accepted: 20-12-2018

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Food habit and prevalence of certain age-associated disorders: A possible correlation

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Abstract

Food habit and the quality of late life complement each other. The present investigation comprising a random sample survey of 1192 urban elderly of both sexes in the 60+ age group residing in Darbhanga (north Bihar) was aimed at ascertaining the prevalence among them of gouty arthritis, type-2- diabetes, hypertension and obesity in relation to food habit (vegetarian/non-vegetarian) on the basis of parameters such as serum uric acid, blood sugar (fasting and pp), serum total cholesterol and blood pressure. Results show that 1). About two-third elderly suffer either from one or more than one type of disorders. Almost fifty- percent of them are victim of multiple complexities 2). Non-vegetarians hugely outnumber their vegetarian counterparts in all the disease groups among both sexes. 3). Interestingly the highly prevalent hypertension (41% approx.) and the least prevalent gouty arthritis (19% approx.) are more male oriented as compared to diabetes (34% approx.) and obesity (20% approx.) showing preference for fairer sex. 4.) Intriguingly enough subjects with multiple disorders show the higher co-prevalence of diabetes with hypertension followed by hypertension accompanying gouty arthritis.

Keywords: Food habit, Elderly BMI, Hypertension, Diabetes, Gout, Obesity.

Introduction

The number of adults worldwide aged 60years and older is expected to increase triple by the year 2100. It is increasing from 841 million in 2013 and expected to increase in 2050 and up to 2 billion will reach up to 3 billion in 2100^[1, 2] In this way the most developing countries like Asia, Africa and America are leading into a 'grey world'.

Different workers have studied and evaluated the socioeconomic factors, physical activity level, BMI. Accordingly nutritional knowledge is significantly associated with eating habit of pre-retired and post retired Mauritians (Area)^[3].

Marital status and household composition, physical activity and body mass index (BMI) also do contribution to eating habits of older adults^[4].

As there is a worldwide increase in the number of older adults, so arises the need to identify the factors which influence eating habits and consequently how eating habits may affect quality of life and survival^[5]

these diseases are strongly influenced by individual food choices^[6], as a result of developing eating habits during the life course^[7].

As a variable, social class may affect the types and quantity of foods eaten, cooking methods used for food, nutrient intakes and the perceived meanings of foods^[8] and in turn determine risk of NCDs such as obesity, hypertension, diabetes and cardiovascular diseases^[9].

In addition, the increasing number of women who entered the workforce in the waning decades of the 20th century has prompted many families both to rely on pre-packaged meals, or "frozen dinners," and to start eating in restaurants more often^[10].

Food is the foundation of our lives, and diet is the main way for the body to obtain the required substances for growth and maintenance. Human beings group themselves into different ethnicity, religions, nationalities, and catering cultures. Modern science has proven that an imbalance in nutrition and poor eating habits are important causes of skin aging. Nutrition is closely associated with skin health and is required for all biological processes of skin from youth to aging or disease.

Nutrition levels and eating habits can repair damaged skin and can also cause damage to the skin. In recent years, a number of people have closely linked health-nutrition-eating habits and skin health, besides, clinical research and epidemiology have successfully combined nutrition with tissues and organ health and have confirmed that nutritional levels and eating habits have a certain degree of impact on skin health and aging.

Dietary habits refer to the preference for food or drink, are an important part of the dietary culture and influenced by regional, historical, cultural, product, and other factors. Although the incidence of vitamin, trace elements, and protein deficiencies in developed western countries are very low, imbalanced or incomplete diet can also lead to diseases and aging, thereby affecting skin health. Data from epidemiological and experimental studies suggest an important role of diet and dietary patterns in the pathogenesis of many age-related diseases ^[12].

A high-fat diet is closely related to various diseases such as obesity, diabetes, fatty liver, and skin aging. Raman spectroscopy studies have shown that dietary fat intake is closely related to the body's adipose tissue and the lipid composition of the skin ^[13].

A number of themes and sub-themes concerning food, eating and a happy life in old age were extracted from the transcripts. This paper focuses on two major themes, the ^[14] *quantity of food* required to have a happy old age and the ^[15] *quality of the food* to have a happy old age. We provide a discussion of early life experiences of the participants whose attitudes to food and eating have been shaped by the historical periods they have lived through. Their descriptions of their experiences as children and younger adults, have shaped their cultural and societal values and their views of how food and eating impact on their lives in old age. The participants came from both rural and urban environments which also impacted on the way they understand the role of food in their lives.

However, the participants suggested that eating this "good food" should be moderated: "Meat is delicious but should be eaten less." They believe that to eat too much meat will be bad for their health. Other studies of dietary practices of Chinese older adults have noted the competing values concerning the consumption of meat: there is a preference to eat meat but participants understand that too much meat, particularly fatty meats can cause health problems ^[16, 17].

This study was undertaken with a view to access the possibility and correlation between food habit and certain age-associated disorders of 60+ age population of different wards of Darbhanga Municipal were selected randomly.

The objective of present work is to observe and analyze the prevailing scenario in the distribution pattern of common aged associated disorders (hypertension, diabetes, obesity and gout) in relation to certain possible correlation, among 60+ elderly chosen municipal wards of Darbhanga District of North Bihar. The present study is related with a view to

assess possible correlation food habit and prevalence of certain age-associated disorders.

Aims and Objective

The proposed work was undertaken to understand the prevailing scenario in the pattern of certain common age-associated disorders in relation to covariation of food habit. The parameters were taken such as to reflect and related the etiology and epidemiology of hypertension, diabetes, gouty arthritis.

Method

The data were collected randomly pertaining to food habit (vegetarian/non vegetarian), BMI, Blood sugar, Serum uric acid, Total serum Cholesterol. A total 1192 sample of urban elderly in the 60+ age group residing within different of Municipal wards Darbhanga (North Bihar) were taken to find out the different food habits. Samples were examined as follows.

- 1) Questionnaire and clinical examined report
- 2) Computation of BMI.
- 3) Determination of Blood Pressure.
- 4) Estimation of cholesterol by Enzymatic Method
- 5) Blood Sugar by GOD/POD method.
- 6) Estimation of serum uric acid by Uricase Method

Results

Table 1: In view of possible correlation of food habit with disease prevalence the subject falling in the various disease categories were grouped under (vegetarian & non-vegetarian)

Category	Veg%	Non-veg%
Hypertension	16.93	83.07
Diabetes	10.09	89.2
Obesity	6.38	93.42
Gouty Arthritis	6.60	93.40

Food habit and prevalence certain disorders are complementary to each other. In general, non-vegetarian dishes were more closely related to prevalence of all four disorders present in population was hypertensive diabetes and obesity with a percentage of 83,90 and 93 respectively, whereas the food habits (93.40%) were observed to be predominant factor for gouty arthritis. On the other hand vegetarian food habit in relation to hypertension diabetes obesity and gouty arthritis in the range of 17, 10, 6 and 7% respectively.

Table 2: Gender Variations among Vegetarian and Non-Vegetarian 60+ Urban elderly (%population) under different disease

Category	Male(n=418)		Female(381)	
	Veg	Non-Veg	Veg	Non-Veg
Hypertension	14.89	85.11	19.71	80.29
Diabetes	7.89	92.11	12.03	87.97
Obesity	4.05	95.95	6.94	93.06
Gouty Arthritis	3.47	96.53	12.04	87.06

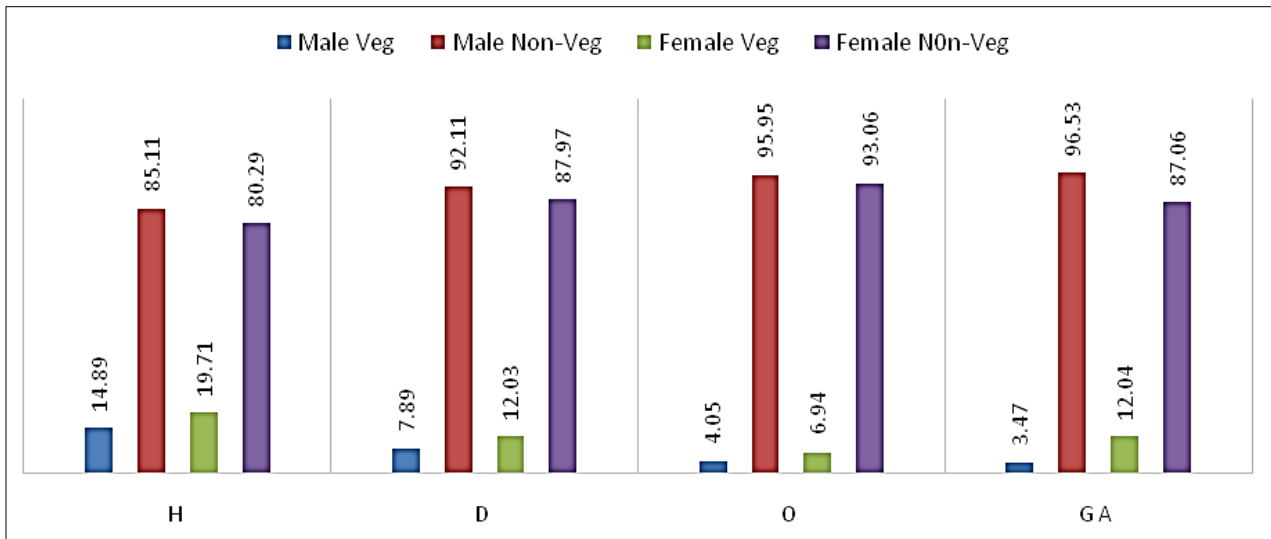


Fig 1: Gender Variations among Vegetarian and Non-Vegetarian 60+ Urban elderly (%population) under different disease

The pattern of prevalence of disorders among the non-vegetarian male and female remained similar in the both 85.11% male and 19.71% female were found hypertensive contrary to 14.8% male and 19.71% female. Under vegetarian category 92.11% male and 87.97% female with non-vegetarian food habit suffered from diabetes in contrasts to 7.89% male and 12.03% female under vegetarian condition as far as obesity is concerned the non-vegetarian food habit (95.95% male and 93.06% female) seemed a predominant factor on contrary to vegetarian food habit (4.05% male and 6.94% female) on the other hand male and female suffering from gouty arthritis were 95.53% and 87.96% under non-vegetarian condition and 3.47% and 12.04% under vegetarian condition respectively.

Table 3: Co-prevalence (%population) of senile disorders among 60+ urban elderly

S. N.	Category	% Population
1.	H+D	45.14
2.	H+GA	17.20
3.	D+O	10.90
4.	GA+D+H	5.62
5.	O+D+H	5.62
6.	O+GA	5.45
7.	D+GA	5.45
8.	H+O	2.72
9.	O+D+GA	2.72
10.	O+H+GA	1.87

Note:- H= Hypertension, D= Diabetes, GA= Gouty Arthritis, O= Obesity.

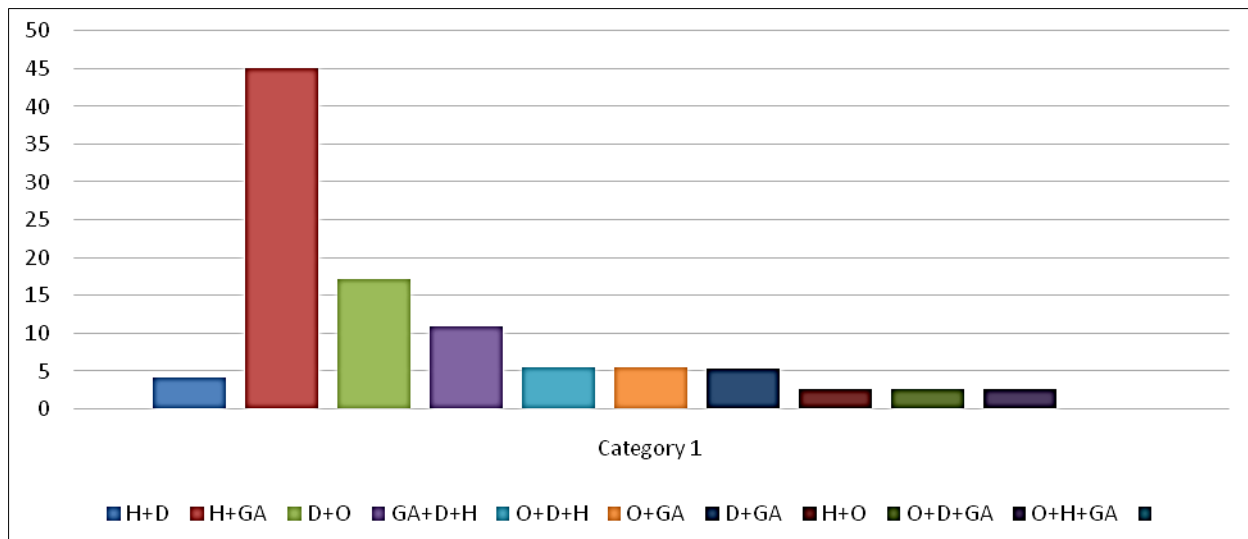


Fig 3: Co-prevalence (% population) of senile disorders among 60+ urban elderly.

Interestingly enough, all four senile disorders showed conspicuous co-prevalence. Variable patterns of incidence of two or more age-associated disorders were observed. Quite pertinently co-prevalence of hypertension with diabetes was markedly maximal as high as 45.14%. The present study showed interesting co-prevalence of four major age associated disorders among elderly. Our findings reflected that subject with two or more disorders

outnumbered those with only one type of problem. Further, the coexistence of two ailments were appeared to be on a much higher scale around 72% as compared to co-prevalence of disease totaling around 27% only. Hypertension and diabetes prevalence (42.14%) followed by hypertension and gouty arthritis with 17%. The percent population of coexistence of diabetes and obesity was also noticed to be about 11%. Other co-prevalence of referred

age-associated disorders of relatively lesser significance were also noticed. Two disorders of relatively namely gouty arthritis with diabetes and hypertension as well as obesity with diabetes and hypertension depicted near similar co-prevalence (5.62%).

5.45 % of total population collectively suffered from obesity and gouty arthritis. Co-prevalence of diabetes with gouty arthritis were found to be identical (2.72%). Minimal co-prevalence (1.87%) was recorded for the disease combination of “obesity + hypertension + gouty arthritis”.

Discussion

Table 1-2, fig. -2 elucidate disease incidence in relation to gender and food habit of subject. Non-vegetarians in both sexes seemed more prone to all the four disease categories. In take of high fat diet comprising saturated fat by non-vegetarians could be thought to be associated with increasing index of hypertension, diabetes, obesity, and gouty arthritis. At the same time relatively less consumption of fresh vegetable and fruits rich in protective / anti-oxidant ingredients might have some role behind raised disease proneness. Beyond doubt, greater preference for high calorie diet in the form of meat, fish, egg, etc. Non-vegetarian diet in post-retiral life with lowered physical activity may be thought favoring obesity, seemingly the most potent risk factor of hypertension, diabetes, obesity, and gouty arthritis. Table no. 3 and fig. 3 bring to focus the remarkable pattern of disease co-prevalence among the elderly. Higher percentage of hypertension and diabetes (45.14%), hypertension and gouty arthritis (17.2%) were observed. Other categories of disease co-prevalence viz. GA+D+H, O+D+H, O+GA, D+GA, H+O, O+D+GA and O+H+GA appeared less prominent.

Conclusion

Non-vegetarians are more prone to hypertension, diabetes, obesity, and gouty arthritis than their vegetarian counterparts in both sexes. Non-vegetarian usually consumes high fat diet and eat less fresh vegetable and fruits and thus may lack in the protective factors contributes by these foods. High fat food, comprising saturated fat, is commonly associated with increasing index of obesity, hypertension, gouty arthritis, and diabetes.

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