



Prevalence of Diabetes and Hypertension Among Overweight and Normal Women: A Comparative Study

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ABSTRACT

The present study was aimed to estimate the Prevalence of diabetes and hypertension among overweight and normal women from Thiruvananthapuram District. In the present study descriptive comparative research design is used. The samples were 628 women between 30-60 years of age, who were selected by multistage sampling technique from

Alanthara ward. Data was collected for duration of one month. The data were tabulated using descriptive and inferential statistics. From the present study it was found that diabetes and hypertension was more prevalent in overweight women. The findings of the study revealed that, 38.9% of overweight women were diabetic, (91.3%) and (8.7%) were hypertensive. The present study revealed that there was significant association between age and diabetes ($P<0.000$), age and hypertension ($P<0.01$), dietary pattern and diabetes ($P<0.000$) and also there is significant association between occupation and hypertension ($P<0.001$).

KEYWORDS : Prevalence, Overweight women, Normal women, Diabetes, Hypertension

Introduction

Overweight and obesity is an abnormal increase in the proportion of fat cells in our body. Weight gain during adult hood which is characterized by hypertrophy of adipocyte and it is a process by which there is increased accommodation of lipid storage in adipocyte. In richer countries and in some developing countries, obesity is a common health problem of adults. The connection between obesity, overweight and premature death from diabetes, hypertension and CHD is well established. The basic cause of overweight is over nutrition; a diet containing more energy than needed may lead to prolonged post prandial hyperlipidemia and to deposition of triglycerides in adipose tissue resulting in overweight and obesity¹.

Khalid et al (2009), conducted a cross sectional study on the prevalence of diabetes among patients attending primary health care clinic in Saudi Nationals. 6024 subjects were taken as sample. Patients were interviewed with structured questionnaires to determine the presence of diabetes by questioning for history of disease. The study revealed that diabetes was present in 1792 (30%) patients. The prevalence of diabetes was 34.1% in males and 27.6% in females, the prevalence of obesity was higher in females (87.7%) as compared to males (83.1%).¹⁶

The prevalence of hypertension in India is increasing in an alarming rate. Recently estimated that the prevalence of hypertension in India is over 61 million and is expected to cross 100 million by 2030. In some industrialized countries, upto 25% of adults have diastolic pressure about 90 mmHg. Prevalence in the developing countries seems to be similar to that in European countries is 10-20% among adults⁵.

Norman et.al (1960), conducted a study to see the prevalence and control of hypertension in older individuals, and women. The National Health and Nutrition Examination Survey (NHANES) data has provided important epidemiologic information on the prevalence and control of hypertension in the United States between 1960 and 2008. Overall, the prevalence is higher in older individuals, non-Hispanic blacks & women. One possible explanation for the increased prevalence of hypertension reported in the latest survey data is that, over the last decade, there has been a marked increase in obesity and average body mass index. It is estimated, for example, that one-half of the relative increased prevalence of hypertension may be due to an increased weight of the average individual. A higher prevalence of hypertension has also been found in other industrialized societies. The age and sex adjusted prevalence of hypertension (defined as 140/90 mmHg or higher) were 28 and 44 percent in North American and European countries, respectively.¹⁵

Developing countries are now witnessing an increase in overweight, obesity and obesity related morbidity. Urbanization and economic

development has resulted into a nutritional transition characterized by a shift to a higher caloric content of diet and/or to the reduction of physical activity, and whose consequences are changes in the body composition of the individuals. About 1.2 billion people in the world are overweight and at least 300 million of them are obese. The World Health Organization (WHO) projects that by 2015, worldwide, approximately 2.3 billion adults will be overweight and more than 700 million will be obese¹.

Karol lee et.al (2007), conducted a population based study of relationship between obesity, hypertension and diabetes, and health related quality of life among the elderly in Spanish. The study covered 3567 participants, representative of Spanish institutionalised population aged 60 years and above. Data were gathered from home based interviews and from the measurement of blood pressure and other anthropometric variables. The study findings revealed that the patients with obesity, hypertension, or a combination of these factors are in general, associated with a worse health related quality of life, in both the physical and mental scales, than those without these factors; though statistical significance ($p<0.05$) was only attained for some relationships .Obesity in women (-2.9 to -6.7 points according to the scale) were the factors most closely and significantly associated with diminished health related quality of life (-10.2 to -17.7 points according to the scale).¹⁴

Obesity increases the risk of diabetes; the risk is dependent on the fat deposition of human body. It is the obesity in which there is a central deposition of fat that associated with diabetes as well as cardiac diseases. Obesity is more common in women than in men; it has a tendency to increase with age. The medical consequences reported that the obesity is associated with hypertension, myocardial infarction and diabetes mellitus³.

Materials and Methods:

The researcher adopted quantitative research approach and comparative descriptive design for the study. The study population was all the women in Thiruvananthapuram District. The sample was all the women between the age group of 30 to 60 years , screened for calculating the prevalence of diabetes and hypertension among overweight and normal women. In this study 628 women were selected.

Data was collected using demographic proforma and clinical data. Demographic variable such as age, education, occupation, income, dietary pattern, and history of previous illness, duration of illness, exercise and medications were collected by house to house survey. Clinical data such as height, weight, BMI, waist-hip ratio, blood pressure and random blood sugar level was measured by using inch tape and calibrated instruments. Blood pressure and random blood sugar measured and compared with JNC Gold Standard.

After getting approval from institutional research committee and institutional ethical committee of Sree Gokulam Medical College and Research Foundation the data collection was started. The permission obtained to collect data from Nellanad Panchayath President and Ward counsellor. The data collection was started from 07-02 2013 to 07-03-2013. The informed consent was obtained from each subject after explaining the purpose of the study and collected the demographic variables and the clinical data. Data was analysed by both descriptive and inferential statistics on the basis of the objectives under the study. Master data sheet would be prepared by the investigator to analyse the data. The data were analysed in terms of descriptive statistics and the findings were associated with usage of Chi-Square test.

Results:

Age wise distribution of samples shows that 39% of subjects were in the age group 51-60 years, 31.1% of subjects belonged to the age group of 41-50 years and only 29.9% of subjects belonged to the age group of 30-40 years. 25.8% had secondary school education. (15%) were illiterate. Few subjects (4.8%) had professional degree. Regarding occupation of subject's majority (45.7%) of subjects were unskilled worker. Only (10.2%) subjects were professionals. Regarding monthly income majority (72.6%) of subjects has monthly income between 7000-9999. Only few (1.0%) subjects were belonged to the income of < 20,000.

According to dietary pattern majority (64.3%) of the subjects are taking non vegetarian diet whereas 35.7% are vegetarians. Based on the previous history of illness more than half (68%) of the subjects were not have any previous history of illness. 19.1% of subjects had history of diabetes. 9.6% of subjects had history of hypertension. Few (3.3%) of subjects had both hypertension and diabetes.

According to duration of illness, 14% of subjects had duration of illness less than 1year. 11.1% had duration within 1-5years. Based on the habit of doing exercise majority (96.7%) of subjects were not performing any exercises. 3% of subjects were performing aerobic exercises. Few (0.3%) of the subjects were performing anaerobic exercises. According to body mass index majority (73.2%) of the subjects had normal weight. 23.1% had overweight.

Table 1: Comparison between prevalence of diabetes and hypertension among overweight and normal women

(n=157)

Variables	Overweight women (n=157) Frequency (f)	Percentage (%)	Normal women (n=471) Frequency	Percentage
Diabetes	61	38.9%	76	16.1%
Hypertensive	43	27.4%	41	8.7%

The prevalence of diabetes and hypertension between overweight and normal women showed that Diabetes in overweight women was more prevalent (38.9%) compared with the normal women (16.1%). P value was 0.000, statistically significant (P < 0.01).Hypertension in overweight women was more prevalent (27.4%) compared with the normal women (8.7) P value was 0.000, it was statistically significant (P < 0.01).

Association of diabetes and hypertension with selected demographic variables revealed that there was significant association between age and diabetes (P<0.000). There was significant association between dietary pattern and diabetes, (p<0.000). There was significant association between age and hypertension (P<0.01). There was significant association between occupation and hypertension (P<0.001).

Discussion:

From the present study it was found that diabetes and hypertension was more prevalent in overweight women.The findings of the study reveals that majority (83.9%) of subjects were non diabetic, (16.1%)

of subjects were diabetic, (91.3%) of subjects were non hypertensive and few (8.7%) of subjects were hypertensive.

The result of present study was consistent with the result of another study conducted by Lyala Alhasa and Ailsa Mc Kay in 2011,in Arab States of the Gulf region. The reported prevalence of overweight was 25–50%. Prevalence appeared higher in women and to hold a non-linear association with age, prevalence of hyperglycaemia were 10-20%, prevalence of hypertension appeared to be high and increasing.

The present study reveals that there was significant association between age and diabetes ($\chi^2=20.45, P<0.000$), age and hypertension ($\chi^2 =11.02, P<0.01$).The result of present study was supported by another population-based study conducted by Banegas R J, covered 3567 participants, representative of the Spanish non-institutionalized population aged 60 years and above. Patients with obesity, hypertension, and diabetes, or a combination of these factors were more in and problems increases by advancing age²³. The present study reveals that there was significant association between dietary pattern and diabetes ($\chi^2 = 6.74, P< 0.01$).

The result of present study was supported by a study conducted jointly by the All India Institute of Medical Sciences and Max Hospital shows the incidence of hypertension, obesity and heart disease is increasing at an alarming rate, especially in the young urban population. Sedentary lifestyle combined with an increase in the consumption of fatty food (non vegetarian) leads to cases of obesity, diabetes and hypertension.

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