

Original article:

Cross Sectional Study on Dietary and Life Style Pattern among Hypertensives in Rural field Practice area of a Medical College – Hyderabad

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Abstract:

Background: Poor diet (high consumption of sugar, salt, saturated fat, etc) and unhealthy lifestyle (smoking, alcohol consumption and physical inactivity) have been identified as major risk factors of cardiovascular disease and other non-communicable diseases (NCDs). Hypertension is now one of the most common non-communicable diseases globally. It is one of the most leading causes of death due to cardiovascular diseases and stroke. More alarming, conservative estimates indicate that the global burden of hypertension will increase to more than 1.56 billion by 2025. Its prevalence is increasing in countries undergoing economic transition.

Objective: To assess the prevalence of dietary and life style pattern among hypertensives in rural field practice area of Osmania Medical College.

Methods: Data was collected using a pre-tested, structured questionnaire from a total of 250 people.

Results: out of 250 study subjects 136 are males and 114 are females. Prevalence of Hypertension was found to be 72%. Statistical significance was observed between Hypertension and dietary pattern and life style.

Conclusion: There is still need for increase in IEC and BCC activities in terms of awareness regarding risk factors of hypertension, complications and adherence to treatment.

Key words: Prevalence, Information Education Communication, Behaviour Change Communication

Introduction

Majority of the NCDs share common risk factors such as tobacco use, high alcohol consumption, overweight & obesity, inadequate physical activity and inappropriate dietary practices. Combination of the risk factors increases the morbidity and mortality of NCDs. [1] Hypertension (HTN) or high blood pressure (systolic blood pressure ≥ 140 mmHg and diastolic blood pressure ≥ 90 mmHg) is an overwhelming global challenge which ranks third as a cause of disability adjusted life-year [2]. Hypertension causes 7.1 million premature deaths each year worldwide and accounts for 13% of all deaths globally [3]. More alarming, conservative

estimates indicate that the global burden of hypertension will increase to more than 1.56 billion by 2025. As the most important modifiable risk factor for cardiovascular disease and all-cause mortality, high blood pressure was responsible for approximately 7.6 million deaths globally, or 13.5% of all deaths, in 2001.(4) The dietary pattern and lifestyles in India have dramatically changed. Specifically, Indians consume more fat, meat products and salt, less complex carbohydrates, fruits and vegetables, and engage in lower amounts of physical activity.(5) Anchala *et al.* report findings from their meta-analysis of population-based studies on the prevalence, awareness,

treatment and control of hypertension in India. They reported an overall hypertension prevalence of 29.8%, indicating that as many as 378.5 million Indian adults may suffer from hypertension. Overall, the prevalence of hypertension was significantly higher in urban than in rural region. These findings indicate that better strategies for the detection and control of hypertension are urgently needed in India. Anchala *et al.* also reported that age, alcohol consumption, smoking and chewing tobacco, BMI, central obesity, low intakes of dietary fruits and vegetables, high intakes of dietary fat and salt and sedentary activity were significant risk factors for hypertension in India. These risk factors are consistent with findings from etiologic and interventional studies reported extensively worldwide. Lifestyle intervention strategies, such as sodium reduction and weight loss, could aid in the primary prevention of hypertension in this population.(6) The theme for World Health Day (WHD) 2013 is “high blood pressure”.(7)The goal of WHD 2013 is to reduce heart attacks and strokes. Keeping in line with the WHO-Government of India Country Cooperation Strategy, the WHD 2013 events in India are aimed at raising the awareness amongst national policymakers, program managers and other stakeholders on the need to strengthen the Indian health system to make it competent enough to respond to hypertension and related co morbidities(7). Hypertension is a controllable disease and it has been reported that targeted reductions in people with hypertension are expected to produce large reductions in the burden of cardiovascular disease [8]. According to the seventh report of the Joint National Committee (JNC-7) on prevention, detection, evaluation and treatment of high blood pressure, adoption of healthy lifestyles by all individuals is critical for the prevention of high blood pressure.

Accurate estimates of hypertension are therefore necessary to plan effective control measures (7).

Aims and objectives

1. To study the socio-demographic profile of adults in the age group above 20yrs of age.
2. To study the prevalence of dietary pattern and life style among hypertensives.
3. To study the association between Hypertension and dietary pattern and life style.

Material and methods

STUDY DESIGN-Cross-sectional study

INCLUSION CRITERIA: All persons above 20years of age with known hypertension taking treatment or no measurement. Cut-Off point is taken as 140/90mm of Hg.

EXCLUSION CRITERIA: All persons below 20years of age and those who are not willing to participate are excluded.

STUDY SAMPLE: Calculated by taking prevalence as 30% according to the study by Anchala et al by formula $4pq/L^2$, and relative error taken as 20% so sample size is 250.

STUDY SETTING: rural field practice area of Osmania medical College –Hyderabad.

DATA COLLECTION: Through house to house survey and Predesigned, Pretested Structured Questionnaire, after taking informed consent.

STUDY DURATION: Two Months.

STUDY VARIABLES: Socio-Demographic profile and Risk Factors of Hypertension.

This is a community based cross-sectional study done for a period of two months from august 2016 to September 2016.This study was planned in the rural field practice area of Osmania Medical College- Hyderabad .House to house survey was done. Rural area was selected because prevalence of hypertension is on the rise in rural South India. Door to door survey was done and houses were selected by using simple random sampling by lottery method .Informed consent was obtained

from each of the subject .A thorough clinical exam was performed, and data was collected through predesigned pretested questionnaire and blood pressure was recorded using Omron sphygmomanometer .Three readings were taken with a gap of 5 min and average reading was recorded. All people above 20 years of age in the house were examined and data collected.

Definitions [6]

- Current daily smokers were defined as those who were currently smoking cigarettes, bidis or hookah daily.
- Current daily smokeless tobacco users were defined as those who were currently using chewable tobacco products, ghutka, naswar, khaini or zarda paan daily.
- Current alcohol drinkers were defined as those who reported to consuming alcohol within the past one year.
- One standard drink was equivalent to consuming one standard bottle of regular

beer (285 ml), one single measure of spirits (30 ml) or one medium size glass of wine (120 ml).

- Physical inactivity was defined as less than 10 minutes of activity at a stretch, during leisure, work or transport.
- Body mass index (BMI) was calculated by dividing the weight (in kilograms) by square of height (in meters). Overweight was defined as BMI < 25kg/m² and < 30 kg/m² Obesity was defined as BMI ≥ 30 kg/m²
- Hypertension was defined as BP ≥ 140/≥ 90 mm of Hg or currently on antihypertensive drugs.

Statistical Analysis: Data entry was done using Microsoft Excel 2007 and analysis done by epi info version 17. Chi-square test was applied to find out any significant associations with p value <0.05 considered as significant.

Results:

Table 1: Socio-Demographic profile:

AGE	NUMBER	PERCENTAGE (%)
20-30	32	12.8
30-40	48	19.2
40-50	74	29.6
50-60	56	22.4
>60	40	16
SEX		
Males	136	54.4
Females	114	45.6
RELIGION		
Hindu	188	75.2
Muslim	42	16.8
Christian	20	8
EDUCATION		
Literate	110	44

Illiterate	140	56
OCCUPATION		
Professional & semi professional	20	8
Clerical, shop owner, farmer	45	18
Skilled, semi-skilled	60	24
Unskilled	70	28
Unemployed	55	22
SOCIOECONOMIC STATUS		
APL	67	26.8
BPL	183	73.2
Total	250	100

Table 2: prevalence of dietary patterns

Dietary habits	YES (%)	NO (%)	TOTAL (%)
High salt	170 (68)	80 (32)	250 (100)
Fried food	110 (44)	140 (56)	250 (100)
Non veg	196 (78.4)	54 (21.6)	250 (100)

Table 3: prevalence of lifestyle factors

Life style habits	Yes (%)	No (%)	Total (%)
Tobacco consumption	144 (57.6)	106 (42.4)	250 (100)
Alcohol consumption	180 (72)	70 (28)	250 (100)
Sedentary habits	94 (37.6)	156 (62.4)	250 (100)
Overweight & obese	74 (29.6)	176 (70.4)	250 (100)

Table 4: Distribution of study subjects according to family history of hypertension

Family H/O HTN	Number	Percentage (%)
Yes	118	47.2
No	132	52.8

Table 5: Distribution according to hypertensives and normotensives

Condition	Number	Percentage (%)
Hypertensives	180	72
Normotensives	70	28
Total	250	100

Table 6: Association between dietary pattern and hypertension

Diet	Hypertension	No hypertension	Total
Non veg	148	48	196
Veg	32	22	54
Total	180	70	250

$\chi^2 = 4.7692$; $p = 0.028$

Table 7: Association between dietary pattern and hypertension

Salt intake	Hypertension	No hypertension	Total
High	135	35	170
Low	45	35	80
Total	180	70	250

$\chi^2 = 13.35$; $p = 0.000$

Table 8: Association between life style and hypertension

Smoking	Hypertension	No hypertension	Total
Yes	94	50	144
No	86	20	106
Total	180	70	250

$\chi^2 = 6.846$; $p = 0.008$

$p < 0.05$ is consider significant.

The present study was conducted at Ghanpur which is a rural field practice area of Osmania Medical College –Hyderabad. A total of 250 people in the age group above 20 years were studied out of whom 54.4% were males and 45.6% were females. Maximum numbers of them were in the age group 40 to 50 years and lowest below 30years. Majority of the people are Hindus 75.2%, followed by Muslims 16.8% and Christians 8%. Illiterates are 56% and literates 44%. Occupation wise 28 % of them are unskilled. About socio-economic status 73.2% belong to below poverty line. Prevalence of hypertension in the present study is 72%. Regarding family history of hypertension 47.2% said they have a family history of hypertension. Among the dietary patterns high salt intake is seen in 68%, fried food 44%, non veg 78.4%. Whereas life style the prevalence is tobacco consumption in

any form is 57.6%, alcohol consumption is 72%, sedentary habits 37.6%. Over weight and obese 29.6%. In the present study it is observed that there is an association between dietary patterns like eating non veg, high salt intake and hypertension which is strongly significant($p < 0.05$) as shown in the above tables. Similarly it was found to be significant with smoking and hypertension which says that increase in smoking habits will lead to the condition of hypertension..

Discussion

In the present study, majority of patients are in the age group of 40-50yrs-(29.6%). Among the total Study population of 250,136 (54.4%) are males and 114(45.6%) are females. But in a study conducted in Italy 78% were males and 22% were females’. (9). the disparity between males and females in our

study may be due to males going for work during day time and investigation was done.

Occupationwise 28% of the total population is unskilled followed by 24% are skilled a study done by **Justin Zaman et al (10)** in rural Andhra 6.7% of males are manually skilled and 52.2% of females are unskilled. The difference is because of the difference in study settings (Urban and Rural), among the study subjects 75.2% are Hindus, Muslims 16.8%, 8% are Christians. Out of the total study subjects 56% are illiterates, 44% are literates. which is similar to a study done by **Sowmya Deb et al (11)** 45% of the population was illiterate. In this study 73.2 % of subjects belong to below poverty line. In this study the prevalence of hypertension is 72% in the total population. It is more when compared to studies done in **Tirupati (12)** (20.93%), **Kumbkarni et al (13)** (16%), **Kutty et al (14)** (17.8%), **Yajnik.C. (9)** (14%) **Gupta .R .et al (15)** (36.4% in males and 37.7% in females), **Lanas et al (16)** (39.7% in males and 21.8% in females), this may be because of the evolving trend of hypertension as an epidemic even in rural, In the total study subjects 47.2% have a family history of hypertension. This shows the non modifiable risk factor like genetic predisposition is positive in more than half of the population.

The high prevalence of overweight and obesity (29.6%) recorded in this study compares well with the

Reported 31.3 and 16.3% prevalence of overweight and obesity, respectively, among female traders in Ibadan, Nigeria (Balogun and Owoaje, 2007) (17). This could be related to the high prevalence of unhealthy eating habits and sedentary lifestyle among the participants in this study. A study by Bhargava et al. (2002)(18) had reported negative association between physical activity and body weight.

While the 72% prevalence of hypertension observed among the participants in this study is higher than the 13.16% prevalence of hypertension reported by Asekun-Olarinmoye et al. (2013)(19) in a rural adult population of Osun State, Nigeria, it compares well with the 31.0% prevalence of hypertension reported by Ogah et al. (2013)(19) in rural and urban populations of Abia State, Nigeria, and less than half of the 68.9% prevalence of hypertension reported by Ordinioha and Brisibe (2013) (20) among an elderly population of traditional chiefs in an urban population in south - south Nigeria.

The findings in these studies not only highlight the high burden of hypertension across the populations in Nigeria, but also corroborate the documented pattern of rise in the prevalence of hypertension with age, and preponderance of its prevalence in urban compared to rural populations in several studies across the globe. To put it succinctly, there is high burden of hypertension and it has become a big challenge to public health in Nigeria, with its pre-valence in rural and semi-urban populations across the country approaching the estimated national prevalence of 42.8% in 2008(21) (World Health Organization (WHO), 2011c)(22).

Conclusion

This study demonstrated high prevalence of unhealthy eating habits and lifestyle; together with high prevalence of overweight, obesity and hypertension among study population. Health education and other interventions to promote healthy eating habits and lifestyle, especially among high risk groups are suggested.

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References:

1. Cardiovascular disease risk factors: New areas for research. WHO, Technical Report Series, no. 841, 1994. Available at: <http://apps.who.int/iris/handle/10665/37644>.
2. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J: Global burden of hypertension: analysis of worldwide data. *Lancet* 2005, 365 (9455):217–223.
3. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr: Jones DW, Materson BJ, Oparil S, Wright JT Jr, et al: Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension* 2003, 42(6):1206–1252.
4. World Health Organization. Global Health Repository. Available from: http://www.who.int/gho/ncd/risk_factors/blood_pressure_prevalence_text/en/index.html.
5. Available from: <http://www.who.int/world-health-day/en/>.
6. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL, Jones DW, Materson BJ, Oparil S, Wright JT. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA*. 2003; 289:2560-2572. [PubMed]
7. Padmavati S. Prevention of heart disease in India in the 21st century: need for a concerted effort. *Indian Heart J*. 2002; 54:99-102.[PubMed]
8. Rodgers A, Lawes C, MacMahon S. Reducing the global burden of blood pressure-related cardiovascular disease. *J Hypertens Suppl*. 2000; 18:S3-S6.[PubMed]
9. Yajnik CS. The lifecycle effects of nutrition and body size on adult adiposity, diabetes and cardiovascular disease. *Newer horizons in type 2 Diabetes* 2003. Micro labs limited, Bangalore.p175
10. Alberti KG, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications. Part I: Provisional report of a WHO consultation. *Diabet Med* 1998; 15:539-53.
11. Soumya Deb and Aprajita Das Gupta. A study on risk factors of cardiovascular diseases in an Urban Health Centre of Kolkata. *Indian journal of community medicine*. 2008 October; 33(4):271-275.
12. Subramanyam G, Latheef SA. Epidemiological study of coronary heart disease and coronary risk factors in the urban population of Tirupati. *Indian Heart Journal* 2002; 54(5) :535-36.
13. Kumbkarni S, Mohan B, Aslam N, Midha KK, Sood NK, Wander GS. Prevalence of risk factors of coronary artery disease in a healthy urban population of Punjab. *Indian Heart Journal* 2002; 54(5):587-89.
14. Bhuri Panyo K, Mahananda N, Leowaltana W, Kangkagate C, Chaithriaphan S, Krittayapeng R, et al. A five year prospective study of conventional risk factors of coronary artery disease in Shinawatra Employees: a preliminary prevalence survey of 3,615 employees. *J Med Assoc Thai* 2000; 83(2):98-05
15. Rajeev; Gupta, Soneil; Gupta, Vijay P.; Prakash, Hari. Prevalence and determinants of hypertension in the urban population of Jaipur in western India. Department of Medicine.
16. Lanas F, Delsolar J, Maldonado M, Guerrero MA, Espinoza F. Prevalence of risk factors to cardiovascular disease in group of Chilean employees. *Rev Med Chil* 2003; 131(2): 129-34
17. Balogun MO, Owoaje ET (2007). Work condition and health problems of female traders in Ibadan, Nigeria. *Afr. J. Med. Med. Sci.* 36(1):57-63.
18. Bhargava A, Guthrie JF (2002). Unhealthy eating habits, physical exercise and macronutrient intakes as predictor of anthropometric indicators in the Women's Health Trial Feasibility Study in Minority Population. *Br. J. Nutr.* 88 (6):719-28.

19. Ogah OS, Madukwe OO, Chukwuonye I, Onyeonoro UU, Ukegbu AU, Akhimien MO, Onwubere BJ, Okpechi IG (2013). Prevalence and determinants of hypertension in Abia State, Nigeria: results from the Abia State Non- Communicable Diseases and Cardiovascular Risk Factors Survey. *Ethn. Dis.* 23(2):161-7.
20. Ordinioha B, Brisibe S (2013). Prevalence of hypertension and its modifiable risk factors amongst traditional chiefs of an oil – bearing community in south – south Nigeria. *Sah. Med. J.* 16(1):24.27.
21. Aghaji MN (2008). Hypertension and risk factors among traders in Enugu, Nigeria. *J. Coll. Med.* 13(2):111-115.
22. WHO (2011c). Non-communicable Diseases, Country Profiles 2011. World Health Organization, Geneva, Switzerland.