

A study of prevalence and associated factors of hypertension in community

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Abstract

Background: One in three adults is having raised blood pressure worldwide, condition that responsible for around half of all deaths from stroke and heart disease and it's a growing public health problem. **Aims and Objectives:** To study Prevalence and associated factors of Hypertension in Community. **Methodology:** This was a community based cross-sectional study was conducted in June 2015 to June 2016 in Rural field practice area. All adults were recruited using multi-stage random sampling technique. Data were collected by face-to-face interview technique after verbal informed consent. The statistical analysis done by Chi-Square test calculated by SPSS 19 version software. **Result:** The overall prevalence of Hypertension was 57.17 % was significantly higher in Old age (Chi-square test for trend =171.5, df=1, P< 0.0001) was significantly higher in males i.e. 66.54% as compared to 44.11% in females ($\chi^2=24.40$, df=1, P<0.0001). The Proportion of Hypertension was more in who Smoke (71.14 % and 28.86%, p<0.001), High Salt intake (89.41% and 10.5%, p<0.0001). Obesity (BMI >30) (91.95% and 8.05%, p<0.05), H/o Diabetes (69.92% and 30.08%; p<0.0001). No High Fiber in Diet (62.09% and 37.91% p<0.05). Use of Tobacco (66.78% and 33.22%; p<0.001). Hypertension was significantly high in the individuals who has High alcohol intake than Moderate or No alcohol i.e. 87.10 % and 41.78 % and 46.30 % respectively. ($\chi^2=83.68$, df=2, p< 0.0001). **Conclusion:** It can be concluded from our study that common associated factors were Old age, Male, Smoking, High Salt intake, Obesity (BMI >30), H/o Diabetes, No High Fiber in Diet, Use of Tobacco, High alcohol intake etc.

Key Word: Hypertension, High Salt intake, Diabetes, High Fiber Diet, Alcohol intake.

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INTRODUCTION

One in three adults is having raised blood pressure worldwide, a condition that responsible for around half of all deaths from stroke and heart disease and it's a growing public health problem.¹ Studies show that for every known person with hypertension there are two persons with either undiagnosed hypertension or pre hypertension.² Globally, the prevalence of hypertension among adults is 40%, with the highest prevalence (46%)

in Africa, and the lowest prevalence (35%) in America.³ Hypertension is estimated to cause 7.5 million deaths, around 12.8% of the total annual deaths.⁴ It is a major risk factor for coronary heart disease, ischaemic and hemorrhagic stroke.⁵ Global health statistics report 2013 says that in India, 23.1% men and 22.6% women over 25 years suffer from hypertension.⁶ Raised blood pressure is estimated to cause 7.5 million (12.8% of all causes of death) deaths per year. Hypertension (HTN) doubles the risk of cardiovascular diseases such as coronary heart diseases (CHD), congestive heart failure (CHF), stroke, renal failure, and peripheral arterial diseases. Prevalence of hypertension varies among nations and sub-populations within a nation though generally lower among high-income populations^{7,8,9}. Mass migration from rural to urban areas and lifestyle changes associated with "civilization" may explain the apparently rising prevalence of hypertension in urban populations. Hypertension rapidly increased from 3% in rural areas to 30% in some urban settings. In some populations, hypertension prevalence rates were higher in women than

in men while the opposite was true in others. Both lower-income as well as -higher income groups are at increased risk of developing hypertension¹⁰.

MATERIAL AND METHODS

This was a community based cross-sectional study was conducted in June 2015 to June 2016 in Rural field practice area. All adults were recruited using multi-stage random sampling technique. Data were collected by face-to-face interview technique after verbal informed consent. Additionally, weight, height and Blood Pressure (BP) of participants were measured with the standard procedures. Hypertension was defined as having Systolic BP \geq 140 mm of Hg or Diastolic BP \geq 90mm of Hg or reported use of regular anti-hypertensive medications prescribed by professionals for hypertension. Data were collected by Clinicians, Undergraduate students, and interns. All the associated factors like Age, Sex, Family history of hypertension, Salt intake: dietary Salt intake was computed from foods and beverages consumed during the 24 hours prior to interview. A salt intake more than 6 gms/day was termed as high salt intake. Fruit consumption Type of Diet, Fibers in Diet: A Diet more than 15 gms of Fibers were termed as high fiber diet¹⁴, Alcohol intake : was assessed as no intake, Moderated \leq 90 ml daily and High \geq 90 ml daily, Smoking, Tobacco use, co-morbid conditions like Diabetes, Obesity (BMI $>$ 30) etc. was retrieved. The statistical analysis done by Chi-Square test calculated by SPSS 19 version software.

RESULT

Table 1: Distribution of the patients as per the age

Age	Hypertension (No.) (%)	Normal (No.) (%)	Total
\leq 35	4 4.40	87 95.60	91 (100.00)
35-45	21 40.38	31 59.62	52(100.00)
45-55	30 56.60	23 43.40	53(100.00)
55-65	80 61.54	50 38.46	130(100.00)
\geq 65	144 89.44	17 10.56	161(100.00)
Total	279 (57.17)	209 (42.83)	488(100.00)

(Chi-square test for trend =171.5, df=1, P< 0.0001)

The overall prevalence of Hypertension was 57.17 % was significantly higher in Old age (Chi-square test for trend =171.5, df=1, P< 0.0001)

Table 2: Distribution of the Patients as per the Sex

Sex	Hypertension No. %	Normal No. %	Total
Male	189 (66.54)	95 (33.45)	284 (100)
Female	90 (44.11)	114 (55.88)	204 (100)
Total	279(57.17)	209(42.83)	488(100.00)

($\chi^2=24.40$, df=1, P<0.0001)

The prevalence of hypertension was significantly higher in males i.e. 66.54% as compared to 44.11% in females ($\chi^2=24.40$, df=1, P<0.0001).

Table 3: Distribution of the Patients as per the Associated Factors

Associate d Factors	Hypertension		Normal		χ^2 , p Value
	No.	(%)	No.	(%)	
1. Smoking					
No	104	42.98	138	57.02	$\chi^2=42.97$, p<0.001.
Yes	175	71.14	71	28.86	
2) High Salt intake					
No	70	27.56	184	72.44	$\chi^2= 201.7$, p<0.0001
Yes	211	89.41	25	10.59	
3). Obesity (BMI >30)					
Yes	217	91.95	19	8.05	$\chi^2=7.51$, p<0.05
No	219	53.55	190	46.45	
4). H/o Diabetes					
No	105	43.75	135	56.25	$\chi^2= 48.96$, p<0.0001
Yes	172	69.92	74	30.08	
5) High Fiber					
Yes	91	50.00	91	50.00	$\chi^2= 7.85$, p<0.05
No	190	62.09	116	37.91	
6)Use of Tobacco					
No	77	44.25	97	55.75	$\chi^2=12.29$, p<0.001
Yes	205	66.78	102	33.22	

The Proportion of Hypertension was more in who Smoke than who not smoke (71.14 % and 28.86%, p<0.001), High Salt intake (89.41% and 10.5%, p<0.0001). Obesity (BMI >30) (91.95% and 8.05%, p<0.05), H/o Diabetes(69.92% and 30.08%; p<0.0001). No High Fiberin Diet (62.09% and 37.91%p<0.05). Use of Tobacco (66.78% and 33.22%; p<0.001).

Table 4: Distribution of the Patients as per the Alcohol intake

Alcohol intake	Hypertensive	Normal	Total
No	50 (46.30)	58(53.70)	108(100.00)
Moderate	94 (41.78)	131(58.22)	225(100.00)
High	135(87.10)	20(12.90)	155(100.00)
Total	279(57.17)	209(42.83)	488(100.00)

($\chi^2=88.36$, df=2, p< 0.0001)

From above table, it is clear that Prevalence of Hypertension was significantly high in the individuals who has High alcohol intake than Moderate or No alcohol i.e. 87.10% and 41.78% and 46.30% respectively. ($\chi^2=83.68$, df=2, p< 0.0001).

DISCUSSION

Regional studies in India, documents that the prevalence of hypertension ranges from 20-40% among urban adults and 12-17% among rural adults and the number of hypertensives is projected to increase from 118 million in 2000 to 214 million in 2025.¹¹ In South India, the prevalence of hypertension was reported to be 27.6% among adults in Pondicherry.¹² In our studies the prevalence was 57.17 % was significantly higher in Old age (Chi-square test for trend =171.5, df=1, P< 0.0001) this some what higher than these studies it may be due to difference in the population and also the prevalence was raising as the age increases and highest was in age \geq 65;

almost 89.44 % population was hypertensive this can be explained as age increases atherosclerosis is hastened and almost all individuals become hypertensive after age of 65. But similar to Pramila J. Paul *et al*¹³ they found The prevalence of hypertension was observed to be 20.5%, 52.5%, 68.3%, 91.7%, and 73.3% among those aged 35-45 years, 46-55 years, 56-65 years, 66-75 years, and >75 years, respectively, thus showing a significant increasing trend in prevalence with age (χ^2 for trend, p value <0.01). The prevalence of hypertension was significantly higher in males i.e. 66.54% as compared to 44.11% in females ($\chi^2=24.40$, $df=1$, $P<0.0001$). This can be explained role of hormone and also the associated risk factors like smoking, alcohol and addictions are more common in males than females. These studies similar to Pramila J. Paul *et al*¹³ they found the prevalence of hypertension was significantly higher among males (63.3%) than females (46.5%). The Proportion of Hypertension was more in who Smoke than who not smoke (71.14 % and 28.86%, $p<0.001$), High Salt intake (89.41% and 10.5%, $p<0.0001$), Obesity (BMI >30) (91.95% and 8.05%, $p<0.05$), H/o Diabetes (69.92% and 30.08%; $p<0.0001$). No High Fiber in Diet (62.09% and 37.91% $p<0.05$). Use of Tobacco (66.78% and 33.22%; $p<0.001$). These findings are similar to Akilew Awoke *et al*¹⁴ A total of 679 participants were included in their study. About one in –five participants (21.0%) were aged 65 years or older. Obesity among all participants was 5.6%. Hundred ninety two (28.3%) were hypertensive of whom more than a third (37.0%) did not know they had hypertension. self reported diabetes (AOR = 4.15, 95%CI; 1.77-9.72), age \geq 55 years (AOR=3.33, 95%CI; 1.88-5.90) and high salt intake and low high fiber diet were factors associated with hypertension. Prevalence of Hypertension was significantly high in the individuals who has High alcohol intake than Moderate or No alcohol i.e. 87.10 % and 41.78 % and 46.30 % respectively. ($\chi^2=83.68$, $df=2$, $p<0.0001$). This was similar to Manimunda SP, Kannan L^{15,16} The prevalence of hypertension varies with alcoholic status among males. In the present study, hypertension was significantly higher among those who consumed alcohol (69.6%) than non-consumers (54.2%) This may be due the fact that alcohol in moderate amount is associated with lowering of Blood pressure but as the dose is increases it actually increases the cardiovascular risk and increases BP by various ways.

CONCLUSION

It can be concluded from our study that common associated factors were Old age, Male, Smoking, High Salt intake, Obesity (BMI >30), H/o Diabetes, No High Fiber in Diet, Use of Tobacco, High alcohol intake etc.

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