



A Study To Assess The Prevalence Of Hypertension And Its Risk Factors Among Adults With Different Occupations At Selected Rural And Urban Health Centres In Telangana State, India

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Abstract

Background: Hypertension is a major public health problem in both developed and developing countries like India. Worldwide cardiovascular diseases are responsible for nearly 17 million deaths per every year and 19 million deaths per every year [1]. Hyper tension is responsible for at least 45% of deaths due to heart disease and, and 51% of deaths due to stroke [1]. It was estimated that overall prevalence of hypertension India is 29.8 % and it is lower in rural India compared to urban India (Ragupathianchala, Hira pant, & Oscar H, 2014. Very limited studies conducted to estimate the prevalence of hyper tension among the occupational groups. Therefore, the purpose of this study is to estimate the prevalence of hypertension among the various occupational groups to make appropriate policy measures to prevent occurrence of cardio vascular disease, since hypertension becoming a major public health problem in today's world.

Methodology: This cross-sectional study was conducted at selected community health centres in Telangana state. Total of 290 subjects were selected from the both the health centres. A questionnaire was used for data collection. The descriptive statistics percentages and chi- square test, regression analysis was used to identify the association by using SPSS.

Findings:

This study estimated 34.8 % of overall prevalence, mean systolic blood pressure is (140.39mmhg, mean diastolic blood pressure is 86.72 mm of hg), and 50-59 years of age group 15.5 %. Women has the higher prevalence of hypertension 17.7%. self-employed occupants have higher chance of developing hypertension compared to others (48.5%). Hypertension is higher among the diabetics 23.4%.

Conclusion: Overall, this study determined a high prevalence of hypertension among self-employed. Hypertension was associated with smoking, alcohol consumption, occupation, low physical activity, obesity, and diabetes. Therefore, community-based approaches are essential

Keywords: Hypertension, Occupation, BMI, Physical activity, Smoking, Alcohol

Introduction

Hypertension is a major public health problem in both developed and developing countries like India. Worldwide cardiovascular diseases are responsible for nearly 17 million deaths per every year and 19 million deaths per every year [1]. Hyper tension is

responsible for at least 45% of deaths due to heart disease and, and 51% of deaths due to stroke [1]. Developing countries like India experiencing high burden of hypertension and leading to high mortality due to cardiovascular disease. One study had indicated that overall prevalence of hypertension India is 29.8 % and it is lower in rural India

compared to urban India (Ragupathianchala, Hira pant, & Oscar H, 2014). According to the WHO reports 2014 the blood pressure increased to 21 percent in India (WHO, 2014). Consumption of tobacco use leads to the higher incidence of cardiovascular diseases including hypertension, the smoking also increases the risk of developing Hypertension (RajaRamDhungana, BihungumBista, & SuryaDevkota, 2016). A meta-analysis of randomized clinical trials among subjects initially consuming 3 to 6 drinks per day found that reductions in alcohol intake significantly decreased both systolic and diastolic blood pressure (BP; SBP and DBP, respectively). The key intervention in CVDs is to identify risk factors early and initiate therapy to control them. An important modifiable risk factor for CVDs systemic arterial hypertension (HTN). Hence, Diagnosis of hypertension and appropriate treatment to optimise BP are important public health goals worldwide (ArjunLakshman&AsmaRahim, 2014). The studies also indicated that factors in occupational environment, sedentary lifestyle, and sense of underpayment may increases the risk of developing Hypertension. (ArjunLakshman&AsmaRahim, 2014) .the studies were estimated that risk of developing hypertension varies for different occupations (Man Sup Lim1, Gyu

Kong2, & So Young Kim, 2017). previous study reports found that excessive consumption of alcohol leads higher risk of developing hypertension among men and women, women taking alcohol two times per day has the higher risk for hypertension while men have the protective response for hypertension (Howard D., Nancy R., & Julie E., 2008). There were no studies conducted in southeast region of Telangana state to identify prevalence of hypertension. The awareness levels of the hypertension are comparatively low in men and women but women are well in utilisation of health care services. (Biraj M Karmacharya& James P LoGerfo, 2016). Eating sufficient amount of fruits and vegetables reduces the risk of developing hypertension. The present my study aims to identify the prevalence and its risk factors among different occupational groups at selected community health centres. There were limited studies conducted to estimate the prevalence of hypertension among the various occupational groups and its risk factors in

newly formed Telangana state. so, this study was conducted to estimate the prevalence of hypertension among the various occupational groups to make appropriate policy measures to prevent occurrence of cardio vascular disease, since hypertension becoming a major public health problem in today's world.

Materials AND METHOD

The present study estimated the prevalence of hypertension among the different occupational groups for this cross -sectional study design was adopted for collecting information about different variables and for making comparisons at one time among the people who share similar characteristics. This community based study was conducted at selected Rural health centre Patancheru, Medak district and Urban health centre Hafeezpet, Rangareddy district. These both the health centres 10 sub centres and which provides primary health services like (Outpatient medical treatment, Medical follow-ups after discharge from hospital, Immunisation, Health screening and education, Diagnostic and pharmaceutical services, and family planning services.) This both health centres cover the population of 30000. This is a community-based study conducted in two districts (Medak, and Rangareddy) of newly formed Telangana state. The population of this study includes people who are residing under the jurisdiction of selected urban and rural health centres and those who are coming to health centres for treatment except vulnerable groups like pregnant women and children. Sample size was calculated for a single sample of the estimated population using the specified absolute precision formula ($N = z^2pq/d^2$). For estimating sample size, the prevalence of hypertension was taken is 29.1 percent according to Anchala study, with 5% allowed error and the obtained sample size for this study is 290 population. ($N = z^2pq/d^2$) $p=29.1$, $Z=1.96$, $q=100-29.1=70.9$.

Results

Table -1 demonstrate the socio demographic characteristics of the study populations. About 290 subjects were participated in this study. The mean age of the study population is 47.84years. most the population (31%) are between the age group of 50-59years, followed by 22 percent are belongs to 40-49 years. Majority of the population are belonging to rural area 52.1 percent. In urban area majority of participants are women 100 (57.8%). Out of 290

participants almost all the people were married 97 percent.

Among the occupational groups majority of them are housewife it includes both urban and rural too 38.8 percent followed by self-employed groups 33.9 percent. All most all the participants were illiterate 72.1percent next higher secondary groups 15.9 percent. 43.4 percent of study subjects had diabetes it includes both urban and rural out of which women shares higher percentage 46.8 percent. 71 percent of the people having habit of consuming alcohol and 60.7 percent of the people has the habit of tobacco chewing Most of the women 45.7 percent was addicted to tobacco chewing while men only 17.1 percent has this habit. hypertension as it may be due psychological stress (chi square, P value 25.53, .000 indicating that there is significant positive association exist between occupation and hypertension.

The table -2 demonstrate the distribution of hypertension between various risk factors. The study estimated the overall prevalence of hypertension is 34.8%. The individuals who are in between the age group of 50-59 years are having higher risk of developing and hypertension 15.5 percent followed by 12.4 percent of hypertension among mid age 40-49 years' groups P values is less than .05 so it indicates that significant association exist between age and hypertension. We can see that hypertension is decreased as the age increase 60-69 (5%) among both the men and women it may be attributed to less number of participants between this age groups. The prevalence of hypertension is higher among the illiterate people 25.5 percent.

Among the occupational groups self-employed people has the higher chance of developing

The multivariate regression analysis in table-3 shown that among the occupational group's self-employed persons has 1.23(CI 95 % 1.23-12.51) times higher chance of developing hypertension compared to other occupations. The risk developing hypertension in alcoholic is 1.713 times higher among the alcoholic persons compared to non-alcoholics.

The risk of development of hypertension is significantly associated between smoking and hypertension multivariate regression results indicating that risk of developing hypertension 15.09 times higher (CI 95% 6.48-34.74, P value,.000)

compared to non -smokers. The prevalence of hypertension is higher among the urban community 44.6% compared to rural area 34.8%. (p value.000). The risk of developing hypertension is higher in participants despite they are having normal Body mass index 17.6 percent this may be people may be developing hypertension due to other risk factors

Discussion

This study was aimed to estimate the prevalence of hypertension and its risk factors especially in different occupational groups. The overall prevalence estimated by this study is 34.8 percent. One of the systematic review study revealed the overall prevalence of the hypertension in India was 29.8 percent in India. (Ragupathianchala, Hira pant, & Oscar H, 2014) it is lesser than the our study results so it clearly indicating that burden of hypertension is increasing in the country one more study conducted in Nepal estimated similar results 32.5 percent (RajaRamDhungana, BihungumBista, &SuryaDevkota, 2016) one study conducted among the bus drivers in northern Kerala estimated prevalence of hypertension 41.3 percent (ArjunLakshman&AasmaRahim, 2014)its higher than this study findings so hypertension is becoming a major public health problem leading to development of cardio vascular diseases. We observed that the risk of developing hypertension is higher among 50-59 years' age groups

15.5 percent Many other studies indicated the elevation of hypertension as age increase. (T.S.Satyamoorthy, 2009) one study estimated the hypertension in same age groups was 88.46 percent (ArjunLakshman&AasmaRahim, 2014) it is very high compared to our study results it is wise to say that hypertension levels are higher in older adults. Our study findings show that hypertension is higher among uneducated people. Several other studies estimated that people who do not have at least formal education are more risk of developing hypertension (Biraj M Karmacharya& James P LoGerfo, 2016) this is may be due to un healthy dietary habits. Our study findings showing that prevalence of hypertension is higher in urban area 44.6 percent than rural area 34.8 percent, one study conducted to estimate prevalence of hypertension in rural community found that prevalence of hypertension equal both in urban and rural, other study conducted

by the ICMR to estimate the prevalence of hypertension found overall prevalence of hypertension higher in urban 30.7 percent than rural area 26.2 percent (A Bhansali¹ & M Deepa³, 2015). Our study estimated that risk of development of hypertension higher in self-employed occupational 48.5 percent compared to other groups, one study revealed that there is significant association between hypertension and not working (Juliet Rumball-Smith & Jay S Kaufman, 2014), one study indicated that prevalence of hypertension higher in unemployed occupations due to lack of job and higher demand for basic needs leads to stress. (Robert M Brackbill, & Susan P Ackermann, 1994). We observed that risk of developing hypertension is higher among alcoholic consumer's 30 percent regression analysis shown positive association. previous study reports found that excessive consumption of alcohol leads higher risk of developing hypertension among men and women, women taking alcohol two times per day has the higher risk for hypertension while men have the protective response for hypertension (Howard D., Nancy R., & Julie E., 2008). We have found that 32.4 percent is higher chance of developing hypertension due smoking and many studies reported smoking is a major risk factor for hypertension. (A Bhansali¹ & M Deepa³, 2015), (Sushil K., Vartika Saxena, & Kandpal, 2010). Interestingly our study findings the hypertension is higher despite of normal Body mass index. Many studies reported BMI is a major risk factor for the hypertension. (Man Sup Lim¹, Gyu Kong², & So Young Kim, 2017).

Conclusion

The present cross-sectional study was conducted at selected health centres. The overall prevalence estimated by this study is 34.8 percent, those who are all falling under the 50-60 years of age are having higher risk of developing hypertension. This study observed that despite of normal BMI people having elevated blood pressure. The consumption of alcohol and tobacco chewing are significantly associated with hypertension. Those who are having hypertension also having other diseases like diabetes. Among the occupational groups self-employed groups more prone for hypertension. From this study, we can assume that hypertension becoming major problem. Overall; this study determined a high prevalence of hypertension in the study population. Hypertension was associated with smoking, alcohol consumption,

occupation, low physical activity, obesity, and diabetes. Therefore, community-based approaches are essential public health problem as its burden is increasing every year. The information of this study will may be useful for changing their unhealthy habits of the individuals, this study may be useful for conducting future studies. This study did not address the dietary patterns. This study was conducted only two selected community health centres.

References

1. A Bhansali¹, V., & M Deepa³, R. (2015). Prevalence of and risk factors for hypertension in urban and rural India: the ICMR-INDIAB study. *Journal of Human Hypertension*, 30-40.
2. ArjunLakshman, N., & AsmaRahim, V. (2014). Prevalence and Risk Factors of Hypertension among Male Occupational Bus Drivers in North Kerala, South India: A Cross-Sectional Stud. (C.M.d.S.Figueroa and S.Glisic, Ed.) Hindawi Publishing Corporation, 9 pages. Retrieved from [tp://dx.doi.org](http://dx.doi.org)
3. Biraj M Karmacharya, R., & James P LoGerfo, K. (2016). Awareness, treatment and control of hypertension findings from the Dhulikhel Heart Study.
4. FurcyPaultre, J., & Lori Mosca. (2005). THE ASSOCIATION BETWEEN EDUCATIONAL LEVEL AND. *Women's Health Issues*, 80-88.
5. Gupta R, K. G., Mahanta TG, M. A., & D. G. (2012). Association of educational, occupational and socioeconomic status with cardiovascular risk factors in Asian Indians: a cross-sectional study.
6. Howard D., S., Nancy R., C., & Julie E., B. (2008, February). Alcohol Consumption and the Risk of Hypertension in Women and Men. *Journal of American association*.
7. Juliet Rumball-Smith, A., & Jay S Kaufman. (2014). Working and hypertension: gaps in employment not associated with increased risk in 13 European countries, a retrospective cohort study. *BMC*.
8. Man Sup Lim¹, B., Gyu Kong², S., & So Young Kim, J.-H. (2017). Leisure sedentary time is differentially associated with hypertension,

diabetes mellitus, and hyper lipidemia depending on occupation. BMC Public Health.

9. Ragupathianchala, N., Hira pant, H., & Oscar H, F. (2014, Apr 30). Hypertension in India: a systematic review and meta-analysis of prevalence, awareness, and control of hypertension. *Journal of Hypertension*.
10. RajaRamDhungana, A., BihungumBista, S., &SuryaDevkota. (2016, 24April). Prevalence and Associated Factors of Hypertension: A Community-Based Cross-sectional Study in Municipalities of Kathmandu, Nepal. (RobertoPontremoli, Ed.) *International Journal of Hypertension*, 10 pages. Retrieved from <http://dx.doi.org>
11. Rau*, N. (2014, November.). Occupation – One of the Main Causative Factors. *Journal of the association of physicians of India*.
12. Robert M Brackbill, P., & Susan P Ackermann. (1994). Self reported hypertension among unemployed people in the United States. *Centres for Disease Control and Prevention*,
13. Sushil K., B., Vartika Saxena, S., &Kandpal, W. (2010). The prevalence of hypertension and hypertension risk factors in A prospective door-to-door study. *Journal of Cardiovascular Disease Research*.
14. T.S.Satyamoorthy, L. (2009). AN EPIDEMIOLOGICAL STUDY OF HYPERTENSION IN A RURAL HOUSEHOLD COMMUNITY. *Sri Ramachandra Journal of Medicine*, Vol. II,
15. WHO. (2014). *Noncommunicable Diseases Country Profiles 2014*. Geneva 27, Switzerland: WHO Library Cataloguing-in-Publication. Retrieved from www.who.int
16. Youssef MK Farag1, B., Sai Ram Keithi-Reddy, V., & Alan F Almeida3, A. (2014). Burden and predictors of hypertension in India: results of SEEK (Screening and Early Evaluation of Kidney Disease) study. *BMC Nephrology*. Retrieved from <http://www.biomedcentral.com>

Table 1: Socio demographic variables of study participants

Variables	Male n (%)	Female-n (%)	TotalN=290(%)
Age group			
20-29	10 (8.5)	11(6.4)	21(7.2)
30-39	15 (12.8)	40 (23.1)	55(19.0)
40-49	31(26.5)	34 (19.7)	65(22.4)
50-59	39(33.3)	52(30.1)	91(31.4)
60-69	13 (11.1)	24 (13.9)	37(12.8)
70-100	09 (7.7)	12(6.9)	21(7.2)
Residence			
Urban	78(33.3)	73(57.8)	151(47.9)
Rural	39(66.7)	100(42.2)	139(52.1)
Marital			
Single	5(4.3)	3(1.7)	8(2.8)
Married	112(95.7)	170(98.3)	282(97.2)

Occupation			
Employed	14(12.1)	22(12.7)	36(12.5)
Self employed	70(60.3)	28(16.2)	98(33.9)
House wife	0	112(64.7)	122(38.8)
Peasant	32(27.6)	11(6.4)	43(14.9)
Education			
Primary	7(6.0)	9(5.2)	16(5.5)
Illiterate	72(61.5)	137(79.2)	209(72.1)
Higher secondary	27(23.1)	19(11.0)	46(15.9)
Graduate	11(9.4)	8(4.6)	19(6.6)
Comorbidity			
Diabetes	45(38.5)	81(46.8)	126 (43.4)
Not sure	72(61.5)	92(53.2)	164 (56.6)
Alcohol consumption			
Yes	92(78.6)	114(65.9)	206(71.0)
No	25(21.4)	59(34.1)	84(29.0)
Tobacco consumption			
Yes	97(82.9)	79(45.7)	176(60.7)
No	20(17.1)	94(54.3)	114(39.3)
Known hypertensives			
Yes	44(15.2)	88(30.3)	117 (40.3)
No	73(25.2)	85(29.3)	173(59.3)

Table-2 Distribution of hypertension among various risk factors

Variable	Elevate blood pressure N=290		Chi square, P value
	Yes	No	
Age group			59.25, .000
20-29	2(0.7)	19(6.6)	
30-39	3(1.0)	52(17.9)	
40-49	36(12.4)	29(10.0)	
50-59	45(15.5)	46(15.9)	

60-69	15(5.2)	22(7.6)	
70-100	0(0)	21(7.2)	
Gender			
Male	49(16.9)	68(23.4)	24.56, .000
Female	52(17.9)	121(41.7)	
Education			
Primary	0	0	25.43, .000
Illiterate	74 (25.5)	135(46.6)	
Higher secondary	26 (9.0)	20(6.9)	
Graduation	1 (0.3)	18(4.7)	
Occupation			
employed	13(12.9)	23(12,2)	25.53, .000
self employed	49(48.5)	50(65.4)	
housewife	20(19.8)	92(48.7)	
peasant	19(18.8)	24(12.7)	
Residence			
Urban	62(44.6)	112(74.2)	20.56,.000
Rural	39(34.8)	77(55.4)	
ALCOHOL			
YES	87(30.0)	119(41.0)	17.18
NO	14(4.8)	70(24.1)	
SMOKING			
YES	94(32.4)	82(28.3)	68.10, .000
NO	7(2.4)	107(36.9)	
BMIGROUP			
18.50-22.99	51(17.6)	141(48.6)	48.43, .000
23.00-24.99	28(9.7)	30(10.3)	
25.00-30.00	22(7.6)	18(6.2)	
Physical activity			
Mild	38(37.6)	98(40.6)	4.80, 0.090
Moderate	63(62.6)	97(51.3)	
Active	0	4(2.1)	
Comorbidity			

Diabetes	68(23.4%)	58(20.0)	5.60, .040
Not sure	33(11.4)	133(45.12)	

TABLE-3 MULTI VARIATE ANALYSIS FOR HYPERTENSION

VARIABLES	Category	β	P value	AOR	95 % CI FOR AOR	
					LOWER	UPEER
SMOKING	yes	2.709	.000	15.09	6.48	34.74
	no			Reference		
ALCOHOL	yes	.538	0.01	1.713	.822	3.568
	no			Reference		
OCCUPATION	Employed	-	.002	.714	288	1.770
	self-employed	.337	.005	.467	1.236	12.513
	housewife		.05	.275	.127	.594
	peasant	.212	.00	0	0	0
		-				
		1.292				
		0				