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A STUDY TO ASSESS POINT PREVALENCE OF HYPERTENSION AND IT'S RISK FACTORS AMONG SHOPKEEPERS OF SELECTED AREA, BARDOLI, SOUTH GUJARAT

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Abstract: Hypertension is a condition where force of blood against artery walls is consistently too high, forcing heart to work harder. It is defined as blood pressure reading of 130/80mmhg or higher and can be a silent killer as often has no symptoms, though it significantly increases the risk of serious diseases like heart attack, stroke and kidney disease. The main purpose of the study was to identify the prevalence of hypertension and associated risk factors among shopkeepers. A cross-sectional survey research design was adopted for this study. A total of 150 shopkeepers were selected by non-probability convenient sampling method. Sociodemographic data, habits and practice were collected using interview method, Blood pressure was measured using sphygmomanometer and weight was recorded using weighing scale, waist and hip circumference was measured using measuring tape, BMI and waist hip ratio was calculated. Data was collected for a duration of one week. Data were analyzed using descriptive and inferential statistics. Point prevalence of hypertension among the shopkeepers screened was 28.6%. Anthropometric parameters highlighted that 32% of them were overweight (BMI>25.0-29.9 m^2),91.1% of Male shopkeepers had high risk waist hip ratio (1.0 or higher),48.3% of female shopkeepers had moderate risk waist hip ratio (0.81-0.85). With regards to habits, eight percentage of them reported alcohol consumption,24% of them used tobacco,88% of them consumed tea/coffee regularly.74.7% did not indulge in any form of exercise,25.3% of them who exercised they did it regularly. Biniary logistic regression association between hypertension and risk factors, body mass index (BMI) was significant, with adjusted odds ratio (CI 95%,2.36) at P value 0.020(P 0.001 level of significance.) Since 28.6% of shopkeepers were having hypertension.it highlights the need to improve their awareness regarding hypertension and reduce risk factors.

INTRODUCTION

Hospital Hypertension is a serious medical condition and can increase the risk of heart, brain, kidney and other diseases. It is a silent killer and a major cause of premature death worldwide, with an estimated 1.4 billion people having the condition. The burden of hypertension is felt disproportionately in low- and middle-income countries, where two thirds of cases are found, largely due to increased risk factors in those populations in recent decades.[1]

Hypertension is a leading cause of heart attack, stroke, chronic kidney disease, and dementia. It is both preventable and treatable – but without urgent action, millions of people will continue to die prematurely, and countries will face mounting economic losses. From 2011 to 2025, cardiovascular diseases – including hypertension – are projected to cost low- and middle-income countries approximately US$ 3.7 trillion, equivalent to around 2% of their combined GDP.[2]

"Every hour, over 1000 lives are lost to strokes and heart attacks from high blood pressure, and most of these deaths are preventable,"said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. [2]

NEED OF THE STUDY

Uncontrolled high blood pressure claims more than 10 million lives every year, despite being both preventable and treatable. Countries that integrate hypertension care into universal health coverage and primary care are making real progress, but too many low- and middle-income countries are still left behind," said Dr Kelly Henning[3]

Hypertension Screening is necessary because high blood pressure is a silent condition that can cause serious organ damage before symptoms appear. Regular blood pressure monitoring is crucial for everyone aged and older, as it allows for early detection and management to prevent complications like stroke, heart attack, and kidney failure.[4]

The prevalence of hypertension in Gujarat is significant, with the NFHS-5 data showing an average prevalence of 74.7% for both men and women.[5]

RESEARCH METHODOLOGY

A cross-sectional survey design was employed to collect data from shopkeepers between March 19, 2024 to March 22, 2024. Permissions were obtained from the district health officer, Jilla panchayat, Surat. A total of 150 shopkeepers who were willing to participate were recruited using a Non probability convenient sampling technique.

The data collection tool comprised of 10 demographic questions,5 questions related to exercise and Alcohol abuse,10 questions related to tobacco use,3 questions related to use of beverages. Biophysiological measurement of blood pressure, height, weight, BMI, Hip circumference, waist circumference, hip waist ratio was done using manual sphygmomanometer, weigh machine and measuring tape. Self-reported techniques were utilized for collecting sociodemographic data and associated risk factors. and biophysiological measurement was done by the researcher.

Data analysis included calculating the frequency and percentage distributions of sociodemographic data, habits and blood pressure. Mean, median, Range, standard deviation of systolic and diastolic blood pressure, height, weight, BMI, Hip circumference, waist circumference, hip waist ratio was calculated. frequency and percentage distribution of sample according to BMI, Hip waist ratio for man and women also calculated. Association of systolic blood pressure, diastolic blood pressure and associated risk factors with selected demographic variables was calculated. Binary logistic regression for association between presence of hypertension and associated factors was calculated.

IV. RESULTS AND DISCUSSION

Demographic Variables

Majority 51.3% (77) shopkeepers were belonging to the age group of 39-59 years.80.7 % (121) shopkeepers were Male ,19.3% (29) were Female. 83.3 % (125) shopkeepers were practicing Hindu religion. 85.3% (128) shopkeepers were married.30.7% (46) shopkeepers had Middle school education. 88% (132) shopkeepers are working in clerical/shop. 36% (54) shopkeepers' monthly income was RS.5000-10,000. 55.4% (83) shopkeepers were vegetarian.76.7 % (115) shopkeepers had no history of hypertension.23.3 % (35) had known history of hypertension.4.4% (6) shopkeepers had hypertension for 5 years duration. 12 % (18) shopkeepers were compliant to medication and 11.3 % (17) were not compliant to medication.93.4 % (140) shopkeepers had family history of hypertension.86% (129) shopkeepers' father had history of hypertension.

Habits of Shopkeepers

Majority 74.7 % (112) shopkeepers were not doing exercise, 65.7% (25) shopkeepers were doing walking, 36.8 % (14) shopkeepers did exercise 5 or more days per week, 68.4% (26) Shopkeepers did exercise 30 minutes, 84.2% (32) Shopkeepers did exercise one time in a day.

Consumption of alcohol

Majority 92% (138) shopkeepers were not consuming alcohol. From those who consumed alcohol 41.6% (5) of them were consuming country liquor,83.3 % (10) of them consumed 1 glass/day, 33.3% (4) shopkeepers consumed alcohol for a duration of 2 years and above. 50% (6) shopkeepers used to consume alcohol daily.

Use of Tobacco

Majority 76 % (114) shopkeepers were not using tobacco. From those who were using tobacco 8.3 % (3) of them were smoking cigarettes. Majority 91.6% (33) shopkeepers used tobacco in chewing form, from that Majority 55.5% (20) shopkeepers were chewing tobacco,8.3% (3) shopkeepers used 1 pack per day of tobacco for inhalation.41.6% (15) shopkeepers used tobacco from 2 years 44.4% (16) shopkeepers used tobacco sometimes.

Use of Beverages

Majority 88% (132) shopkeepers used to drink tea, 43.3% (60) shopkeepers used to drink tea or coffee two times per day, 37.6% (52) shopkeepers used to drink 2 cups of tea or coffee.

Distribution of Shopkeepers according to their Blood pressure reading

N=150

1	**Systolic Blood pressure**	**Frequency**	**Percentage**
Normal	below 120-90	30	20.0
Prehypertensive stage	120-139	77	51.3
Hypertension stage 1	140-159	28	18.7
Hypertension stage 2	≥160	15	10.0
2	**Diastolic Blood pressure**	**Frequency**	**Percentage**
Normal	below 80-60	43	28.7
Prehypertensive stage	80-89	65	43.3
Hypertension stage 1	90-99	31	20.7
Hypertension stage 2	≥100	11	7.3

It is evident from table 1 that, prevalence of hypertension was 28.6% and only 35 shopkeepers were having known history of hypertension.

Table 2: Range, mean, standard deviation and median of metric variables blood pressure and anthropometric measurement

N=150

Time	Range	Mean	Standard deviation	Median
Systolic blood pressure	105-191	130.35	16.68	130
Diastolic Blood Pressure	60-121	82.00	10.40	80
Height (in CM)	137-185	164.54	9.18	165.5
Weight (in KG)	34-107	66.28	13.95	65
BMI	14.7-43.29	24.93	4.65	24.54
Hip circumference	65-160	94.06	12.74	94
Waist circumference	61-137	89.23	12.43	87
Hip-waist ratio	0.73-1.18	0.95	0.07	0.96

It is evident from above table that,Systolic blood pressure ranged between 105-191, with a mean of 130.35, standard deviation 16.68 and median 130.Diastolic blood pressure ranged between 60-121, with a mean of 82, standard deviation 10.40 and median 80.BMI ranged between 14.7-43.29, with a mean of 24.93, standard deviation 4.65 and median 24.54 Waist Hip ratio ranged between 0.73-1.18, with a mean of 0.95, standard deviation 0.07 and median 0.96

Table 2(A): Distribution of shopkeepers according to their BMI(m^2)

N= 150

Weight status	Body Mass Index(m^2)	Frequency	Percentage
Under weight	<18.5	12	8.0
Normal range	18.5-24.9	77	51.3
Overweight	25.0-29.9	48	32.0
Obese- Class I	30.0-34.9	10	6.7
Obese- Class II	35.0-39.9	2	1.3
Obese- Class III	≥40	1	0.7

Table 2(A) highlight the obesity problem among the shopkeepers surveyed.40.67% of them had BMI higher than normal, out of which overweight category was the highest.

Table 2(B): Distribution of Female Shopkeepers according to their W/H ratio

N= 29

Health risk	Adult Women classification	Frequency	Percentage
Low risk	Less than 0.80	11	37.9
Moderate risk	0.81 to 0.85	14	48.3
High risk	0.86 or higher	4	13.8

It is evident from table 2(B),48.3% of Female shopkeepers had W/H ratio 0.81-0.85 placing them in Moderate risk category.

Table 2 (C): Distribution of Male Shopkeepers according to their W/H ratio

N= 121

Health risk	Adult Men classification	Frequency	Percentage
Low risk	Less than 0.95	5	4.1
Moderate risk	0.96 to 1.0	7	5.8
High risk	1.0 or higher	109	90.1

Table indicates that 90.1% of Male Shopkeepers were having W/H ratio 1.0 or higher, placing them into category of high risk.

Table 3(A): Association of systolic blood pressure and associated risk factors with selected demographic variables

N= 150

Sl. No	Demographic variables	Systolic blood pressure		Total	χ^2 test
		≤Median (≤130)	>Median (>130)		
5.	**Education**				χ^2=14.101, df=6, p=0.029*
	Professional degree	17	5	22	
	Graduate	0	4	4	
	Intermediate/diploma	9	4	13	
	High school	14	16	30	
	Middle school	33	13	46	
	Primary school	21	11	32	
	No formal education	2	1	3	
13.	**Habit of Smoking**				χ^2=5.635, df=1, p=0.018*
	Yes	29	7	36	
	No	67	47	114	

NS- Not Significant, *- Significant at 0.05 level

The association between systolic blood pressure and associated risk factors with their socio demographic variables among shopkeepers, Education (χ^2=14.101, df=6, p=0.029*), Habit of smoking (χ^2=5.635, df=1, p=0.018*). Above finding shows that there was a significant association of Education and Habit of smoking with their selected demographic variables. Other variables such as age, gender, religion, marital status, occupation, types of diet, family income per month, history of hypertension, family history of hypertension, habit of exercise, alcohol consumption, use of beverages, Hip waist ratio are not associated with their selected demographic variables.

Table 3 (B): Association of diastolic blood pressure with selected demographic variables

Diastolic blood pressure and associated risk factors did not have significant association with demographic variables such as age, gender, religion, marital status, Education, occupation, types of diet, family income per month, history of hypertension, family history of hypertension, habit of exercise, alcohol consumption, smoking, use of beverages, Hip waist ratio.

Table 4: Strength of association between presence of hypertension and associated factors (Binary logistic regression)

N= 150

Variables	Systolic Blood pressure		Crude odds ratio (95% of CI)	p value	Adjusted odds ratio (95% of CI)
	Above normal	Normal			
BMI			2.62 (1.32-5.21)	0.020*	2.36 (1.15-4.87)
Normal	65	24			
Abnormal	31	30			

Overall regression- p=0.001 (Significant at 0.001 level), Exp (B)= 0.563

Above finding shows that there was significant association between systolic blood pressure and body mass index with adjusted odd ratio (CI 95%) 2.36 at (p=0.001). there was no significant association between systolic blood pressure and other associated risk factors.

Association of sociodemographic data and blood pressure

In this study Majority 51.3% (77) shopkeepers were belonging to the age group 39-59 years ,30% (45) were belongs to age 18-38 years and 18.7% (28) were belongs to the age greater than 59 years. 18.7% (28) had systolic blood pressure between 140-159mmhg hypertension stage 1, 10% (15) had systolic blood pressure ≥160 mmhg hypertension stage 2. finding shows that total 43 shopkeepers systolic blood pressure was under hypertension stage 1 & 2. 20.7% (31) had diastolic blood pressure between 90-99mmhg hypertension stage 1, 7.3% (11) had diastolic blood pressure ≥100 mmhg hypertension stage 2. finding shows that 42 shopkeepers diastolic blood pressure was under hypertension stage 1 & 2. And majority 51.3% (77) subjects were belongs to 39-59 years of age.

Result of study supported by study of Nilesh Thakor1, Pankaj B. Nimbalkar2*, Maulik D. Joshi3(2021) conducted study on Prevalence of hypertension among the rural population of Mehsana district of North Gujarat region, study finding showed that Out of total 602, 25 (4.2%) subjects had hypertension stage 1 with mean age of 45.82±11.48 years and 13 (2.2%) subjects had hypertension stage 2 with mean age of 53.77±16.02 years[6]

Prevalence of hypertension and associated risk factors (N=150)

Point prevalence of hypertension was 28.6% and there was significant association between systolic blood pressure and body mass index with adjusted odd ratio (CI 95% ,1.15-4.87)) 2.36 at (p=0.001). there was no significant association between systolic blood pressure and other associated risk factors.

Above finding was supported by study of Mehjabin M Hirani[1],Rohan Kumar Gandhi[2],Dipenkumar G Thakkar[3],Nilesh Kateshiya[4], Yogesh Murugan et all,2024,in this study Investigating the Prevalence and Predictors of Uncontrolled Hypertension: A Cross-Sectional Study in Gujarat, India. Prevalence of hypertension among rural population was 6.4%. The prevalence of uncontrolled hypertension was 60.2% (95% CI: 56.7%-63.7%). In the multivariate analysis, increasing age (adjusted OR: 1.21, 95% CI: 1.05-1.39), increased body mass index (adjusted OR: 1.49, 95% CI: 1.27-1.75), diabetes (adjusted OR: 1.68, 95% CI: 1.20-2.35), chronic kidney disease (adjusted OR: 2.11, 95% CI: 1.22-3.65), and current smoking status (adjusted OR: 1.83, 95% CI: 1.14-2.93) were identified as independent predictors of uncontrolled hypertension.[7]

LIMITATION

The study was limited to one-time interaction with Shopkeepers. The study was conducted in a selected area of Bardoli. period for data collection was only for Three days.

CONCLUSION

Based on the findings of the study the following conclusion was drawn.Out of 150 shopkeepers surveyed, 43 were having hypertension. 18.6(8) % of them not aware of this condition as they never went for a health checkup. This brings about a need of regular screening of adults in the community for hypertension and take necessary measures to control it. awareness programs and regular screening is mandatory.

Conflict of interest:
There was no conflict of interest reported.

Source of funding:
This study was self-funded

Ethical Clearance:
Permission was obtained from the District Health Officer (Ref No: N.J.P/3816-18/2024) in, Surat, Gujarat. The researcher Taken signature of participant in consent form.

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