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Original Research Article

Wide gap between knowledge and practices: a cause of concern for high prevalence of hypertension among lower socioeconomic class among urban slum population

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ABSTRACT

Background: Being an important public health problem, increasing the awareness and changing the attitudes regarding hypertension among masses would definitely help in reducing its morbidity and mortality. The study was planned with the aim to study the knowledge, attitude, practices and the prevalence of hypertension and related different socio-demographic factors.
Methods: A cross-sectional study was conducted among 280 adults aged above 18 years at an urban slum in Nagpur during January 2016 to June 2017. The collection of data and the measurement of the blood pressure were done as per protocol and analysis was done.
Results: Among the total 280 study subjects, the majority of 149 (53%) participants were in the age group of 41 to 60 years and majority of 250 (89%) participants were from class IV and V. Among the study subjects, around 178 (64%) were tobacco and alcohol consumers. There was statistically significant association of hypertension with alcohol and tobacco consumption, physical activities at workplace, SES class and family history of hypertension amongst them. Though, 62% of the participants had good knowledge regarding hypertension, only 54% were having positive attitude regarding it. But barely 42.75% of the participants were actually practicing those healthy practices.
Conclusions: This difference in knowledge and practices is expected to have its impact on the morbidity and mortality of hypertension amongst the masses. There seems to be an urgent need for providing diagnostic and treatment facilities at primary healthcare level, including the need of health education regarding risk factors causing hypertension.

Keywords: Knowledge, Attitude, Practices regarding hypertension, Prevalence, Risk factors, Urban slum

INTRODUCTION

Cardiovascular diseases have been proved to be the leading cause of morbidity and mortality in developed countries, and are gradually emerging as an important health problem in developing countries as well.[1] Hypertension (HT) is one of the most common cardiovascular diseases with a prevalence ranging from 10 to 20% among adult population.[2] The participants with hypertension possess two fold higher risk of developing coronary artery disease (CAD), four times higher risk of congestive heart failure and seven times higher risk of cerebrovascular diseases (CVD), compared to normotensive participants.[3,4] Hypertension accounts for 57% of all deaths from stroke and 24% of all deaths from coronary heart disease in India.[5] The "Global Burden of Disease study" has projected CAD and CVD as the leading cause of death worldwide by the year 2020.[6]

The growth rate of the slum population in India has been much higher than the growth rate of the non-slum population.[7] The research in the urban slums has primarily focused on child health, and reproductive and communicable diseases.[8] Only a few reports are available on the prevalence of lifestyle diseases, such as hypertension, in the slums. The study to assess knowledge, attitude and practices regarding hypertension in an urban slum was needed to help to understand the lesser known facts of this problem. Hence, we conducted a cross sectional epidemiological study to assess knowledge, attitude, practices, associated socio-demographic risk factors along with prevalence of hypertension in an urban slum.

METHODS

The KAP study was conducted at urban slum which is an adopted field practice area of Department of Community Medicine and the study was approved by IEC of parent institute. The study area had a population of 23,265 with 3,188 houses. As study population consisted above 18 years of age, 13,541 persons were selected as per the registers maintained at UHTC in Nagpur during tenure of January 2016 to June 2017. Considering prevalence of hypertension as 16.5%, sample size was calculated as 280 by taking 95% confidence interval and 10% non-respondents which was calculated by open EPI 3.1 software.[9] A study population was selected by systematic random sampling with a sampling interval of 48. A lottery method was used for selecting first participant. A pilot study was done with 25 participants in Urban Health Centre, after which necessary corrections were made in proforma. All consenting participants above 18 years of age were included in this study while all non-consenting participants and pregnant women were excluded.

A house to house visit was done with a purpose to explain the study protocol along with medico-social worker from UHTC. After taking written informed consent, pre-designed semi structured KAP questionnaire was completed by interview method. The measurement of height and weight and blood pressure was done as per study protocol. The information regarding various socio-demographic factors, family history, addiction, exercise pattern, personal lifestyles was noted. The assessment of their knowledge, attitude and practices was also done as per study protocol. This data was analysed by SPSS version 22.0 software and p value of 0.05 was considered as significant.

RESULTS

Amongst the study participants, a majority of participants 149 (53%) were in the age group of 41 to 60 years, followed by 66 (24%) who were from age group 31 to 40 years. As per modified B.G. Prasad classification (January 2014), majority of 250 (89%) participants were from socio-economic class IV and V, followed by 22(8%) participants from class III. But none of the participants were from class I. Among the study participants, 178 (64%) were consuming tobacco on regular basis, while equal number of 179 (64%) were also alcohol users. The majority of 190 (68%) of the study participants were either obese or pre-obese as per Asian classification of body mass index. Thus, they were belonging to the high risk group (BMI≥23) for hypertension. A total of 80 (28.6%) participants had the positive family history of hypertension amongst them. Though, the majority of 184 (65%) of the participants were having medium to high activities at their workplace, 96 (35%) reported low workplace activity. The majority of 177 (63%) were not taking any regular exercise (Table 1).

Table 1: Descriptive table showing socio-demographic factors.

Sr. No.	Socio-demographic factors		Percentage (number)
1	Age	18-30 years	14% (39)
		31-40 years	24% (66)
		41-50 years	28% (79)
		51-60 years	25% (70)
		61 to 70 years	06% (18)
		71 to 80 years	03% (08)
2	Gender	Male	56% (157)
		Female	44% (123)
3	Marital status	Married	64% (178)
		Unmarried	36% (102)
4	Education	Illiterate	46% (129)
		Under graduate	49% (138)
		Graduate	5% (13)
5	Occupation	Unemployed	43% (121)
		Non-skilled/semiskilled	53% (148)
		Skilled/professional	4% (11)
6	Family type	Nuclear	61% (172)
		Joint	36% (100)
		Three generation	3% (08)

Continued.

Sr. No.	Socio-demographic factors	Percentage (number)	
7	SES (Modified B.G. Prasad, January – 2014)	Class V	64% (179)
		Class IV	25% (71)
		Class III	8% (22)
		Class II	3% (08)
8	Tobacco consumption	Present	64% (178)
		Absent	36% (102)
9	Alcohol	Present	64% (179)
		Absent	36% (101)
10	BMI (Asian classification)	Underweight	4% (10)
		Normal	28% (80)
		Pre-obese and obese	68% (190)
11	Moderate activity at workplace	Low	35% (96)
		Medium to high	65% (184)
		High	19% (54)
12	Consumption of pickle/papad	Present	74% (207)
		Absent	26% (73)
13	Sleeping time	<7 hours	23% (65)
		≥7 hours	77% (215)
14	Family history of HT	Present	28.6% (80)
		Absent	71.4% (200)
15	Exercise	Present	103 (37%)
		Absent	177 (63%)

Table 2: Table showing association of hypertension with socio-demographic factors.

	Hypertension		Total	Association
	Present (%)	**Absent (%)**		
Alcohol				
Present	63 (35)	116 (65)	179	χ^2=17.89, OR=4.02 (95% CI 2.04 – 7.92), p<0.0001
Absent	12 (12)	89 (88)	101	
Total	75	205	280	
Tobacco				
Present	67 (38)	111 (62)	178	χ^2=29.35, OR=7.09 (95% CI 3.24 – 15.51), p<0.0001
Absent	8 (8)	94 (92)	102	
Total	75	205	280	
Family history				
Present	34 (42.5)	46 (57.5)	80	χ^2=14.01, OR=2.86 (95% CI 1.63 – 5.02), p=0.0002
Absent	41 (20.5)	159 (79.5)	200	
Total	75	205	280	
Physical activities at workplace				
High	09 (17)	45 (83)	54	Chi-square for trend= 5.74, p=0.01
Medium	33 (25)	97 (75)	130	
Low	33 (34)	63 (66)	96	
Total	75	205	280	
SES Class (B.G. Prasad classification)				
V	67 (37)	112 (63)	179	Chi-square for trend= 26.8, p<0.0001
IV	08 (11)	63 (89)	71	
III	00	22	22	
II	00	08	8	
Total	125	205	280	

Table 2 shows relationship between the blood pressure of participants and different socio-demographic factors.

The prevalence of hypertension in the present study was seen to be 26.8%, which is definitely higher than the previous available studies, In present study the tobacco consumption has shown seven times more risk for having hypertension and also showed significant association in this regard [(95% CI 3.24-15.51), P<0.0001]. It was also seen that among those who are using alcohol on daily basis, had 4 times more risk for getting hypertension [(95% CI 2.04-7.92), p<0.0001]. The association of hypertension with physical activities at workplace had shown the linear association [Chi-square for trend = 5.74, p=0.01]. Similarly, socio-economic status had a significant association with the hypertension and revealed the inverse trend [Chi-square for trend= 26.8, p<0.0001]. The history of hypertension among the first degree relatives of participants was also seen to be associated with hypertension and odds of having hypertension in participants with positive family history was 2.86 [(95% CI 1.63-5.02), p=0.0002].

Table 3: Table showing knowledge about hypertension.

Knowledge of hypertension		Count and percentage (%)
K1 – Do you know that hypertension is a dangerous disease?	Yes	185 (66.1)
	No	95 (33.9)
K2 – Do you know that normal blood pressure is less than 140/90 mm Hg?	Yes	164 (58.6)
	No	116 (41.4)
K3 – Do you know that high blood pressure always present with symptoms?	Yes	162 (57.9)
	No	118 (42.1)
K4 – Do you know that high blood pressure affects brain, kidney and eyes?	Yes	211 (75.4)
	No	69 (24.6)
K5 – Do you know that tobacco consumption increases chances of having high blood pressure?	Yes	195 (69.6)
	No	85 (30.4)

Good knowledge– 62%.

Though, the overall knowledge about the hypertension among the study subjects was 62%, which implies that almost more than one-third of the study subjects had an unmet need for proper health education. While analyzing about attitudes of the study subjects for hypertension, it was surprising to note that just half i.e. 54% were having the positive attitudes. With a proper knowledge level at 62% and positive attitude at 54%, when their lifestyle and related practices were analyzed, the scenario turned out to be from bad to worst. It was noticed that the distribution of healthy practices among the study subjects was barely 42.75% (Table 3 to 5).

Table 4: Table showing attitude of participants towards hypertension.

Attitude about hypertension		Count and percentage (%)
A1 – Do you feel that optimal intake of salt helps in controlling BP present?	Yes	176 (62.9)
	No	104 (37.1)
A2 – Do you feel that usage of sunflower oil is better than groundnut oil in cooking?	Yes	121 (43.2)
	No	159 (56.8)
A3 – Do you feel that tobacco consumption may increase chances of high blood pressure?	Yes	161 (57.5)
	No	119 (42.5)

Positive attitude– 54%.

Table 5: Table showing practices among participants.

Practices about hypertension		Count and percentage (%)
P1 – Do you follow periodic blood pressure check-up schedule?	Yes	154 (55.0)
	No	126 (45.0)
P2 – Are Salads and fruits included in meals on daily basis?	Yes	116 (41.4)
	No	164 (58.6)
P3 – Do you exercise for 30 minutes daily?	Yes	133 (47.5)
	No	147 (52.5)
P4 – Do you consume any tobacco products?	Yes	204 (72.9)
	No	76 (27.1)

Healthy practices– 42.75%.

DISCUSSION

The prevalence of hypertension in present study is 26.8%. But the range for prevalence of hypertension in different studies ranges from as low as 8.6% as reported by Reddy et al in urban slums of Tirupati to as high as 42% as reported by Banerjee et al.[10,11] In similar study conducted in Delhi by Chaturvedi et al, it was reported to be 27.5%, while Deepa et al reported prevalence of hypertension to be 22.1%.[12,13] Kaur et al from West Bengal reported the prevalence of hypertension as 34.2%, which is definitely more than the present study.[8] While Anand et al reported the prevalence of hypertension to be 17.2% in men and 15.8% in women.[14] Rawal et al from the city of Dhaka reported prevalence of hypertension to be 13.7%, while Panesar et al from Delhi reported prevalence of hypertension to be 17.4%.[15,16] These differences in prevalence of hypertension among the different studies may be due to the characteristics of study population, the prevalent socio-demographic characteristics of study population or different cut-off points for the diagnosis of hypertension, which are changing over the period as per the JNC recommendations.

The present study has 89% of the population belonging to class IV and V. Though, the prevalence of hypertension

is known to be more amongst higher SES classes in any given population, the present study revealed disturbing trend of inverse significant association of hypertension with socio-economic status (p<0.0001). Similar to present study, Mahajan et al reported that significantly more hypertensive were present in lower SES class (p<0.01).[17] Similar results were also reported by Teo et al in Chinese population.[18] In contrast to this, Banerjee et al reported the high prevalence of hypertension among higher SES.[11] On the other hand, a study done in Mumbai by Dalai et al revealed that, there is no difference between high and low socio-economic groups, which was similar to the result of a National study by the Cardiology society of India by Anand et al.[19,20]

In present study, 28.6%participants had the family history of hypertension. In the present study, the odds of being hypertensive among first degree relatives was 2.86(95% CI 1.63-5.02, p=0.0002). There are the multiple epidemiological studies reporting that 20-60% of essential hypertension is inherited and remaining is acquired or environmental. The higher prevalence of hypertension among first degree relatives was 23.3% as reported by Chaturvedi et al.[12] The Reddy et al similarly reported the odds of being hypertensive with family history of hypertension as 6.0 (95% CI 5.1-6.9, p<0.001).[10] The Panesar et al also reported that positive family history of hypertension in both parents (OR=4.4, p =0.013) was significantly associated with hypertension.[16]

The present study reported that consumption of tobacco in any form was found in 64% participants and the odds of being hypertensive among tobacco consumers were 7.09 (95% CI 3.24-15.51, p<0.0001). Similar to present study, a significant association of tobacco use with the hypertension was seen by Gupta et al.[21] A case control study from Bangalore by Pais et al revealed that smoking was an independent risk factor for hypertension and the odds of being hypertensive among tobacco consumers were 2.25 (p=0.014).[22] Similar to present study, Banerjee et al reported that significantly more number of hypertensive participants were found among tobacco users, when compared to tobacco non-users.[11] The higher prevalence of hypertension was found amongst participants with history of smoking (22.4%) in the study by Chaturvedi et al.[12] According to study by Reddy et al, the odds of a smoker of being hypertensive were 3.8 (3.1-4.6, p<0.01), compared to a non-smoker.[10]

In present study, 64% of participants were alcohol consumers. Among total alcoholics, 35% had developed hypertension as compared to only 13% in non-alcoholic participants and the odds of being hypertensive were 4.02 (95% CI 2.04-7.92, p<0.0001. The higher prevalence of hypertension was found with participants with high alcohol intake (20.0%) in study by Chaturvedi et al.[12] According to study by Reddy et al, the odds of being hypertensive in a person who is consuming alcoholic beverages was 3.1 (2.5-3.8, p<0.001) as compared to those who were not having such beverages.[10] The Chennai urban population study conducted by Deepa et al revealed that there is no significant association between hypertension and alcohol consumption.[23]

There is a wide gap between existing knowledge and the prevalent practices amongst the present study participants. In this study, 62% of the participants had the good knowledge, while 54% were also having the positive attitude, but only 42.75% participants were actually had the lifestyles which can help them to manage their hypertension. This can be attributed mainly to their illiteracy, lack of awareness in relation to DASH particularly among those with low socioeconomic condition. This needs periodic health education activities in relation to lifestyle management for the prevention and the control of hypertension. Similar to the present study, Parmar et al in Gujarat reported that among knowledge component, participants responded correctly in 66.35% of total questions.[24] In the present study, the questions related to attitude were answered correctly by more number of participants (54%) as compared to 44.36% of participants in study by Parmar et al.[24] The practices for the hypertension prevention were correctly followed by 42.75% of the participants in present study, as compared to only 19.36% as reported by Parmar et al.[24]

The study carried out by Dorobantu et al in Romania reported that general rate of awareness about hypertension as 44.26%, which is much lower than the present study (62%).[25] In a similar study by Williams et al, out of 402 participants, 189 (47%) patients had inadequate knowledge; 49 (12%) patients had marginal knowledge and 155 (38.5%) had adequate knowledge for hypertension.[26]

There has been a lack of sensitization among healthcare providers in this regard, which also results in poor utilization of existing facilities and limited access to primary health among urban slum population in India as reported by Agrawal et al.[27] Hence, it is recommended that the proactive measures should be taken by concerned healthcare providing authorities.

CONCLUSION

The prevalence of hypertension in present study is 26.8%. For any urban slum population, inherent stress of urbanisation coupled with high tobacco and alcohol consumption and illiteracy is universal. Though, the prevalence of hypertension is known to be more amongst higher SES classes in any given population, the present study revealed disturbing trend of inverse significant association of hypertension with socio-economic status (p<0.0001). In the present study, the odds of being hypertensive among first degree relatives was 2.86 (95% CI 1.63-5.02, p=0.0002). The present study also reported that consumption of tobacco in any form was found in 64% participants and the odds of being hypertensive among tobacco consumers were 7.09 (95% CI 3.24-

15.51, p<0.0001). Among total alcoholics, 35% had developed hypertension as compared to only 13% in non-alcoholic participants and the odds of being hypertensive were 4.02 (95% CI 2.04-7.92, p<0.0001. There is a wide gap between existing knowledge and the prevalent practices amongst the present study participants. This can be attributed mainly to their illiteracy, lack of awareness in relation to DASH particularly among those with low socioeconomic condition. This needs periodic health education activities in relation to lifestyle management for the prevention and the control of hypertension.

Recommendations

- Looking at a wide gap between existing knowledge and the prevalent practices amongst the study participants, there is a strong need of health education in relation to related lifestyles.
- The present study had shown highly significant association of hypertension with tobacco use in any form and hence, health education sessions for quitting this socially acceptable habit should be imparted to them.
- Looking at significant association of hypertension with the history of hypertension in family, it is strongly recommended that all those with such family history should be screened periodically after the age of 30 years.
- The present study has shown the odds of 4.02 for hypertension among alcoholics. Hence, it is recommended that the person with other risk factors should be encouraged for abstinence through proper health education.
- It is highly recommended that the proactive measures should be undertaken by the concerned healthcare providers for strengthening of healthcare facilities for improving the availability, accessibility and acceptability of such services in relation to hypertension screening and treatment.

Limitations of study

- The assessment of co-morbidities like diabetes, kidney diseases and other cardiovascular morbidities was not done in present study.
- The association of different socio-demographic factors in relation to their existing knowledge and the prevalent practices was also not done in the present study for the lack of availability of validated scale, which could have been used in this regard.

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