

Research Article

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Socio-demographic determinants and awareness regarding hypertension among adult population in an urban slum of Mumbai, India

Bhakti S. Yennawar¹*, Yuvaraj B. Chavan², Purushottam A. Giri³

¹Department of Community Medicine (PSM), T. N. Medical College & B.Y.L. Nair Hospital, Mumbai, M.H., India

²Department of Community Medicine (PSM), G. S. Medical College & KEM Hospital, Parel, Mumbai, M.H., India

³Department of Community Medicine (PSM), JIIU's Indian Institute of Medical Science & Research Medical College, Badnapur, Jalna, M.H., India

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***Correspondence:**

Dr. Bhakti S. Yennawar,

E-mail: drbhakti_id@yahoo.co.in

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ABSTRACT

Background: Hypertension is a well-established risk factor for major cardiovascular diseases, thus a great challenge in modern public health. It is common, asymptomatic, readily detectable, having preventable risk factors and often lead to lethal complications if left untreated.

Methods: A cross-sectional study was carried out among 133 people in the field practice area of the T. N. Medical College, Mumbai during the period of August to October 2005. A pre-designed questionnaire was used to collect necessary information such as socio-demographic profile and level of awareness regards to risk factors, and complications of hypertension as the tool of data collection. Results were analysed using Statistical Package of Social Sciences (SPSS) version -17.0.

Results: In the present study, out of total 133 respondents, 60.9% were females and 39.1% were males. Awareness of modifiable risk factors for hypertension is significantly more in males than in females. As age increases awareness of non-modifiable risk factors for hypertension also increases. Socio-economic status of respondents shows significant association with awareness of complications of hypertension.

Conclusions: In this study, the level of awareness regarding hypertension among study population was poor indicating a need to target the hypertension screening and awareness campaigns. Hypertension awareness can also be improved by increasing public knowledge and health education targeting general public.

Keywords: Awareness, Hypertension, Adult population, Urban slum

INTRODUCTION

Hypertension is an iceberg disease. It is one of the non-communicable diseases imposing a double burden on the developing countries already combating the challenges of existing problems with infectious diseases. High blood pressure or hypertension accounts for almost 8 million deaths annually worldwide, which makes up approximately 13% of total mortality in the world.

According to estimates from 2000, approximately 1 billion people suffered from hypertension and it is estimated that this number could rise to 1.56 billion people by 2025.^{1,2} Untreated and uncontrolled hypertension as a highly prevalent risk factor in cardiovascular diseases causes stroke, myocardial infarction and cardiac arrest, but also dementia, renal failure and blindness.³ Ageing population, rapid urbanization and transition from agrarian life to a wage-

earning, modern city life are reported as major contributors to increased blood pressure. Prolonged survival is a result of good control of blood pressure.⁴

Despite the fact that high blood pressure is easy to detect by means of simple and widely available measurement device, majority of hypertensive remain unaware of their condition. Among those who are aware of high blood pressure, may either do not seek treatment or do not have the disease under control. The reasons for this are many, the most common being patients misconceptions and carelessness, inadequate counseling by the health care professionals and lack of a strong patient doctor relationship.⁵

Hypertension is one of the most preventable chronic conditions. Awareness and treatment are important prerequisites for controlling of hypertension. Improving hypertension awareness is a critical first step to reducing morbidity and mortality from hypertension in the elderly, yet the factors associated with hypertension awareness in India are poorly understood. Hence the present study was carried out to assess the level of awareness with regards to risk factors, and complications of hypertension in adults of urban slum of Mumbai.

METHODS

Study protocol

This community based cross-sectional study was carried out in adult people who are residing in the field practice area (Shivaji Nagar urban health centre) of the Topiwala National Medical College & B. Y. L. Nair Hospital, Mumbai during the period of August 2005 to October 2005. The ethics committee of the institute approved the study.

Study area

The study was carried out in an urban slum community which is a resettlement colony on the outskirts of Mumbai and having approximate population of 80000. This urban slum is the field practice area under the Department of Community Medicine of Topiwala National Medical College, Mumbai. The urban slum consists of total 45 plots. Each plot has A to T line. Each line has 9 houses. The houses in each row face the opposite row forming a pair.

Sample size calculation

The sample was collected by stratified random sampling method. Table of random numbers was used to determine which plot, and then which house number is to be included in the study. Thus the study was conducted by house-to-house survey. Prevalence of awareness of hypertension in a study done in an urban slum population was found to be 49.5%.⁵ Taking allowable error of 20, value of L was found to be 9.9 (20% of 49.5). Using the

formula $4pq/L^2$, the required sample size was found to be 102. To increase the power of the study, we over sampled to 133 participants.

Selection criteria

The beneficiaries meeting the following inclusion criteria were selected:

- Individuals residing in the houses as randomly selected by the above method.
- Individuals of age between 20-60 years.
- Individuals of either sex.

Data collection

A pre-designed questionnaire was used to collect necessary information such as socio-demographic profile and awareness with regards to risk factors (modifiable & non-modifiable), and complications of hypertension (i.e. effects of hypertension on body) was the tool of data collection. Informed consent was obtained verbally from all the participants after explaining the purpose of the study and promise was made about anonymity, and that social and economic information collected about them was to be kept confidential. Respondents were referred to as "Aware of non-modifiable risk factors of hypertension," if the person was found to have correct information of 2 out of 3 non-modifiable risk factors. "Aware of modifiable risk factors of hypertension" was defined as respondents correctly answering at least 6 out of 9 questions related modifiable risk factors. Respondents were also referred to as "Aware of complications of hypertension," if the person was found to have correct information at least 2 to 3 complications of hypertension. Socio-economic status was assessed by the modified B. G. Prasad classification.⁶

Statistical analysis

The statistical analysis was performed by using SPSS software (version 17.0). All values are expressed in the form of percentages, proportions, mean and standard deviation and the chi-square test was applied wherever necessary. Statistical significance was set at $P \leq 0.05$.

RESULTS

The demographic characteristic of the study population is shown in Table 1. Out of total 133 participants, 39.1% were males and 60.9% were females. There were 39.1% and 33.1% participants in the age groups 20-30 and 31-40 years respectively. Education level of the study population showed that 24.1% were illiterates and 10.5%, 23.3% and 30.0% had education levels of primary, secondary, and higher secondary respectively. Only 12.1% were graduates while none of them had postgraduate. Occupation of the study population showed that 55.6% were housewives, followed by 30.9% had service and 12.1% were self-employed. As per the

modified B. G. Prasad classification, 63.2% of the participants belonged to upper class, followed by 22.5% upper middle class while only 9.7% were from lower middle class.

Associations between socio-demographic profile and awareness about non-modifiable risk factors of hypertension are tabulated in Table 2. There was a significant association seen between age of respondents and awareness of non-modifiable risk factors for hypertension. As age increases, awareness of non-modifiable risk factors for hypertension also increases. Socio-economic status does not show association with the awareness of non-modifiable risk factors for hypertension. There is association between awareness of non-modifiable risk factors and education of respondents.

Associations between socio-demographic profile and awareness about modifiable risk factors of hypertension are tabulated in Table 3. Increasing age is associated with increasing awareness of modifiable risk factors. Awareness of modifiable risk factors for hypertension is significantly more in males than in female respondents. There is no association between awareness of modifiable risk factors and education of respondents.

Associations between socio-demographic profile and awareness about complications of hypertension are tabulated in Table 4. Almost equal no. of males and females were aware of coronary heart disease and stroke as complications of hypertension. Socio-economic status of respondents shows significant association with awareness of complications of hypertension. There was a significant association seen between education of respondents and awareness of complication of hypertension.

Table 1: Demographic characteristics of the study population.

Particulars	No. (n=133)	Percentage
Age (years)		
20-30	52	39.1
31-40	44	33.1
41-50	20	15.0
51-60	17	12.8
Gender		
Male	52	39.1
Female	81	60.9
Education		
Illiterate	32	24.1
Primary	14	10.5
Secondary	31	23.3
Higher secondary	40	30.0
Graduate	16	12.1
Occupation		
Housewife	74	55.6
Self employed	16	12.1
Service	41	30.9
Retired	02	1.5
Socio-economic status#		
Class I (Upper)	84	63.2
Class II (Upper middle)	30	22.5
Class III (Lower middle)	13	9.7
Class IV (Upper lower)	04	3.0
Class V (Lower)	02	1.5
Religion		
Hindu	71	53.4
Muslim	44	33.1
Christian	18	13.5

#As per the modified B. G. Prasad classification

Table 2: Associations between socio-demographic profile and awareness about non-modifiable risk factors of hypertension.

Socio-demographic profile	Non-modifiable factors			χ^2 value	P value
	Aware (%)	Not aware (%)	Total (%)		
Age (years)					
20-30	08 (15.4)	44 (84.6)	52 (100)	$\chi^2=12.14$	
31-40	20 (45.5)	24 (54.5)	44 (100)	df=3	
41-50	09 (45.0)	11 (55.0)	20 (100)	p<0.01	
51-60	07 (41.2)	10 (58.8)	17 (100)		
Gender				$\chi^2=8.67$	
Male	25 (48.1)	27 (51.9)	52 (100)	df=1	
Female	19 (23.5)	62 (76.5)	81 (100)	p<0.05	
Education					
Illiterate	04 (16.7)	20 (83.3)	24 (100)	$\chi^2=13.07$	
Primary	06 (42.8)	08 (57.1)	14 (100)	df=4	
Secondary	05 (16.1)	26 (83.9)	31 (100)	p<0.02	
Higher secondary	19 (47.5)	21 (52.5)	40 (100)		
Graduate	10 (41.7)	14 (58.3)	24 (100)		
Socio-economic status				$\chi^2=1.862$	
Class I	31 (36.9)	53 (63.1)	84 (100)	df=2	
Class II	07 (23.3)	23 (76.6)	30 (100)	p>0.05	
Class III, IV & V	06 (31.6)	13 (68.4)	19 (100)		

Table 3: Associations between socio-demographic profile and awareness about modifiable risk factors of hypertension.

Socio-demographic profile	Modifiable factors			χ^2 value P value
	Aware (%)	Not aware (%)	Total (%)	
Age (years)				
20-30	35 (67.3)	17 (32.7)	52 (100)	$\chi^2=10.318$
31-40	35 (79.5)	09 (20.5)	44 (100)	df=3
41-50	15 (75.0)	05 (25.0)	20 (100)	p<0.02
51-60	08 (47.1)	09 (52.9)	17 (100)	
Gender				$\chi^2=8.75$
Male	44 (84.6)	08 (15.4)	52 (100)	df=1
Female	49 (60.5)	32 (39.5)	81 (100)	p<0.05
Education				
Illiterate	13 (54.2)	11 (45.8)	24 (100)	$\chi^2=8.74$
Primary	09 (64.3)	05 (35.7)	14 (100)	df=4
Secondary	19 (61.3)	12 (38.7)	31 (100)	p>0.05
Higher secondary	31 (77.5)	09 (22.5)	40 (100)	
Graduate	21 (87.5)	03 (12.5)	24 (100)	
Socio-economic status				$\chi^2=25.5$
Class I	30 (41.1)	43 (58.9)	73 (100)	df=2
Class II	32 (86.5)	05 (13.5)	37 (100)	p<0.001
Class III, IV & V	15 (65.2)	08 (34.8)	23 (100)	

Table 4: Associations between socio-demographic profile and awareness about complications of hypertension.

Socio-demographic profile	Complications of hypertension			χ^2 value P value
	Aware (%)	Not aware (%)	Total (%)	
Age (years)				
20-30	17 (37.8)	28 (62.2)	45 (100)	$\chi^2=5.94$
31-40	19 (51.3)	18 (48.7)	37 (100)	df=3
41-50	16 (44.5)	20 (55.5)	36 (100)	P>0.05
51-60	08 (53.3)	07 (46.7)	15 (100)	
Gender				$\chi^2=0.04$
Male	24 (46.2)	28 (53.8)	52 (100)	df=1
Female	36 (44.5)	45 (55.5)	81 (100)	P>0.05
Education				
Illiterate	06 (25.0)	18 (75.0)	24 (100)	$\chi^2=15.87$
Primary	05 (35.7)	09 (64.3)	14 (100)	df=4
Secondary	15 (48.4)	16 (51.6)	31 (100)	P<0.05
Higher secondary	22 (55.0)	18 (45.0)	40 (100)	
Graduate	12 (50.0)	12 (50.0)	24 (100)	
Socio-economic status				$\chi^2=11.48$
Class I	47 (55.9)	37 (44.1)	84 (100)	df=2
Class II	08 (26.6)	22 (73.4)	30 (100)	p<0.05
Class III, IV & V	05 (26.3)	14 (73.7)	19 (100)	

DISCUSSION

The present era has shown an upsurge in the incidence of hypertension among the general population aged 50 years or more. Lack of hypertension awareness has been identified as one of the public health and medical challenges in the prevention and treatment of the modifiable disease.⁷ Decreasing and preventing the complications arising from hypertension is an issue of great importance. The morbidity and mortality caused by

hypertension and cardiovascular disease alone has a big impact on a country's economy and health care system. This can be achieved if it is diagnosed early and thus prompt and adequate management can be started.⁸ Having a good control of hypertension is of vital importance. A good control of blood pressure will lead to a lower incidence of complications. For this it is extremely vital that the general public is aware of the risk factors and complications of hypertension, to enable better and earlier care seeking behaviour and thus earlier diagnosis.⁹

In the present study, the socio-demographic table shows that greater number of those studied were within the age range of 20-30 (39.1%), followed by 31-40 years (33.1%). Occupation of the study population showed that 55.6% were housewives, followed by 30.9% had service. Education level of the study population showed that 24.1% were illiterates and 10.5%, 23.3% and 30.0% had education levels of primary, secondary, and higher secondary respectively. Only 12.1% were graduates. Similar findings were found in study conducted by Azubuike SO et al.¹⁰ and Ashfaq T et al.¹¹

Regarding awareness of non-modifiable risk factors for hypertension, as age increases awareness of non-modifiable risk factors for hypertension also increases. There is association between awareness of non-modifiable risk factors and education of respondents. Similar findings were found in study conducted by Azubuike SO et al.¹⁰ and Ashfaq T et al.¹¹

Regarding awareness of modifiable risk factors for hypertension, increasing age is associated with increasing awareness of modifiable risk factors. Awareness of modifiable risk factors for hypertension is significantly more in males than in female respondents. There is no association between awareness of modifiable risk factors and education of respondents. Similar findings were found in study conducted by Azubuike SO et al.¹⁰ and Ashfaq T et al.¹¹

The present study revealed that maximum respondents were aware of the fact that stroke and coronary heart disease are complications of hypertension, but not many knew that eye diseases, renal problems and atherosclerosis are also complications of hypertension. Socio-economic status of respondents shows significant association with awareness of complications of hypertension. Similar observations has been reported by other researchers also.^{12,13} It has been reported that lack of awareness of asymptomatic presentation of hypertension affect positive attitude towards screening.¹⁴

Limitations

One of the limitations of this community based cross-sectional study was that we could not include questions on practice, prevention, treatment and control of hypertension in this study.

CONCLUSIONS

In this study, the level of awareness regarding hypertension amongst study population was poor. This underscores the need for more efforts on awareness creation. Special IEC programs should be targeted at improving awareness about modifiable & non-modifiable risk factors and complications of hypertension among younger age group. So that the aim of initiating preventive measures against hypertension at an early age can be achieved. As prevention is better than cure, the

incidence of complication of hypertension like stroke and Coronary Heart Disease (CHD) can be reduced by improving awareness about all aspects of hypertension.

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