Original Article

PREVALENCE OF HYPERTENSION IN MEDICAL PROFESSIONALS OF SMS, MEDICAL COLLEGE, JAIPUR AND ASSESSING THEIR AWARENESS ABOUT HYPERTENSION AND LIFESTYLE MEASURES TO CURB IT

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ABSTRACT

Objective: Hypertension presents a significant public health challenge in India, particularly among medical professionals who are notably vulnerable to this condition. Assessing their awareness about hypertension and lifestyle measures is crucial for effective intervention.

Methods: This cross-sectional study was conducted at SMS Medical College, Jaipur, involving 220 medical professionals aged 23 to 60 years, including 145 males and 75 females. The study aimed to estimate the prevalence of hypertension, assess knowledge regarding the condition, and gauge awareness of lifestyle interventions to curb it.

Results: Among the participants, 45.4% were normotensive, 43.2% had Stage I hypertension, and 11.3% had Stage II hypertension. The prevalence of hypertension was notably higher among those with higher body mass indices (BMI): 70% in the obese category, 56% in the overweight category, and 41.8% in the normal BMI group. Regarding awareness, 85% of the participants had good knowledge about hypertension, and 78% were aware of lifestyle measures to manage it. However, only 60% reported implementing these measures in their daily lives.

Conclusion: The study uncovered a high prevalence of hypertension among medical professionals. While awareness about hypertension and lifestyle measures is relatively high, actual implementation is suboptimal. Addressing BMI and promoting the adoption of lifestyle modifications could help mitigate the impact of hypertension within this group.

Keywords: Hypertension prevalence, Medical professionals, Awareness, Lifestyle measures, BMI, Hypertension

INTRODUCTION

Hypertension is a critical global health issue, with a prevalence exceeding 40% among individuals aged 25 and older as of 2008. From 1980 to 2008, the population suffering from uncontrolled hypertension escalated from approximately 600 million to nearly 1 billion, highlighting an alarming trend in cardiovascular risk factors globally [1]. Hypertension contributes significantly to morbidity and mortality worldwide, accounting for 7.5 million deaths annually, or 12.8% of all deaths, and 57 million disability-adjusted life years (DALYs), representing 3.7% of total global DALYs [2]. This condition is a crucial risk factor for multiple serious diseases, including ischemic and hemorrhagic strokes, coronary artery diseases, and other vascular conditions. The risk of cardiovascular diseases approximately doubles with each increment of 20/10 mmHg in blood pressure, underscoring the critical impact of blood pressure management [3].

Hypertension is also linked to a range of other serious health complications, such as heart failure, peripheral vascular disease, kidney disorders, retinal hemorrhages, and various ophthalmic conditions. Effective management of hypertension has been shown to significantly reduce these adverse outcomes [3]. Within the Indian context, the World Health Organization reported a hypertension prevalence of 32.5% among adults in 2008, with slight variations between genders [2]. Despite the availability of treatment, only about 25.6% of those treated achieved controlled blood pressure levels. A 2014 meta-analysis indicated a disparity in hypertension prevalence between rural (25%) and urban (33%) Indian populations, with considerably lower awareness and control rates in rural areas compared to urban settings [4, 5].

Furthermore, control of hypertension remains suboptimal, with only about 10% of affected individuals in rural areas and 20% in urban areas achieving target blood pressure levels [5]. Data on hypertension in India, particularly concerning the underlying contributory factors, remains scant [6]. Given these circumstances, medical professionals in India represent a particularly vulnerable group due to their stressful and often unhealthy lifestyle. This study seeks to elucidate the incidence and contributory factors of hypertension among medical professionals, assess their awareness about hypertension, and evaluate their knowledge of lifestyle measures to curb it, aiming to address this significant health concern within a high-risk population.

MATERIALS AND METHODS

Study design and setting

This cross-sectional observational study was conducted at SMS Medical College, Jaipur, during the period 2022-2023. The study aimed to assess the classification and determinants of hypertension among medical professionals at the college.

Selection criteria of the participants

Medical professionals, including faculty members, residents, and graduate and postgraduate medical students, were eligible for inclusion if they were aged between 23 and 60 years, had documented blood pressure measurements, and provided informed consent to participate in the study. Exclusion criteria included individuals outside the specified age range, those who did not provide informed consent, and participants with incomplete or unavailable blood pressure data.

Data collection procedure

Eligible participants were identified through departmental records and invited to participate in the study. Blood pressure measurements were taken using standardized procedures, and participants were categorized into normotensive, Stage I

hypertension, and Stage II hypertension groups based on the American Heart Association guidelines. Additionally, a structured questionnaire was administered to each participant to collect data on biosocial correlates, including type of family structure (nuclear or joint), gender (male or female), family history of hypertension (present or absent), dietary habits (vegetarian or mixed), physical activity levels, BMI, sleep duration, and academic performance (for students).

Ethical considerations

The study was conducted in accordance with the ethical standards of the medical research community and received approval from the Institutional Ethics Committee of SMS Medical College, Jaipur. Informed consent was obtained from all participants, ensuring their privacy and confidentiality were protected throughout the study.

Statistical analysis

Statistical analyses were carried out using the chi-square test to determine the associations between hypertension and various biosocial factors. The chi-square statistic and corresponding p-values were calculated to assess statistical significance, set at a threshold of $p < 0.05$. Data analysis was performed using software tools such as SPSS and Microsoft Excel.

RESULTS

This study investigated the classification and biosocial correlates of hypertension among 220 medical professionals, along with specific determinants and their awareness about hypertension and lifestyle measures. Our findings provide critical insights into various factors associated with the prevalence and risk of hypertension.

Blood pressure classification

The classification of blood pressure among the study participants is presented in table 1. Of the total subjects, 45.45% were normotensive, 43.18% presented with Stage I hypertension, and 11.36% with Stage II hypertension. This distribution underscores the significant prevalence of hypertension within the sampled population.

Table 1: Classification of blood pressure among study participants

Classification	Number of cases	Percentage
Normotensive	100	45.45
Stage I	95	43.18
Stage II	25	11.36
Total	220	100.00

Biosocial correlates of hypertension

Table 2 details the biosocial factors associated with hypertension. Analysis revealed a significant association of hypertension with gender, family history, and dietary habits but not with the type of family structure. Specifically, males exhibited a higher incidence of hypertension compared to females (65.83% versus 34.17%, p=0.003). A robust association was also noted with family history, where 77.50% of hypertensive individuals reported a familial predisposition (p<0.001). Regarding dietary influences, individuals consuming a mixed diet had a higher prevalence of hypertension than vegetarians (57.50% versus 42.50%, p=0.031).

Table 2: Biosocial correlates of hypertension

Variable	Hypertensive (n=120)	Non-hypertensive (n=100)	Chi-square	P-value
Type of family			2.219	0.136
Nuclear	55 (45.83%)	35 (35.00%)		
Joint	65 (54.17%)	65 (65.00%)		
Gender			8.797	0.003
Male	79 (65.83%)	45 (45.00%)		
Female	41 (34.17%)	55 (55.00%)		
Family history			44.189	p<0.001
Present	93 (77.50%)	32 (32.00%)		
Absent	27 (22.50%)	68 (68.00%)		
Diet			4.641	0.031
Vegetarian	51 (42.50%)	58 (58.00%)		
Mixed	69 (57.50%)	42 (42.00%)		

Table 3: Determinants of hypertension

Variable	Hypertensive (n=120)	Non-hypertensive (n=100)	Chi-square	P-value
Physical activity			13.220	0.001
Sedentary	103 (85.83%)	65 (65.00%)		
Moderate	16 (13.33%)	32 (32.00%)		
Heavy	1 (0.83%)	3 (3.00%)		
BMI			10.436	0.001
>25	39 (32.50%)	13 (13.00%)		
≤25	81 (67.50%)	87 (87.00%)		
Duration of sleep			0.147	0.702
>8 h	57 (47.50%)	44 (44.00%)		
≤8 h	63 (52.50%)	56 (56.00%)		
Academic performance			21.878	p<0.001
Good	66 (55.00%)	23 (23.00%)		
Average	54 (45.00%)	77 (77.00%)		

Determinants of hypertension

We explored specific determinants of hypertension as summarized in table 3. Physical activity emerged as a significant determinant; sedentary individuals constituted 85.83% of the hypertensive group compared to 65.00% in the non-hypertensive group (p=0.001). BMI was strongly associated with hypertension; subjects with a BMI over 25 were more likely to have hypertension (32.50% versus 13.00%, p=0.001). Sleep duration did not show a significant association with hypertension (p=0.702).

An intriguing association was observed between academic performance and hypertension among graduate and postgraduate medical students. Students reporting good academic performance had a higher prevalence of hypertension (55.00%) compared to those with average performance (23.00%, p<0.001), suggesting a potential stress-related component in achieving higher academic results.

Awareness about hypertension and lifestyle measures

The assessment of participants' awareness about hypertension and lifestyle measures is presented in table 4. Out of 220 participants:

- **Knowledge about hypertension:**

o **Good Knowledge:** 187 participants (85.00%)

o **Average Knowledge:** 25 participants (11.36%)

o **Poor Knowledge:** 8 participants (3.64%)

- **Awareness of lifestyle measures:**

o **Aware:** 172 participants (78.18%)

o **Not Aware:** 48 participants (21.82%)

- **Implementation of lifestyle measures:**

o **Implementing measures:** 132 participants (60.00%)

o **Not implementing measures:** 88 participants (40.00%)

Association between awareness and hypertension

Table 5 shows the association between awareness levels and hypertension status.

- Participants with good knowledge about hypertension had a slightly lower prevalence of hypertension (54.01%) compared to those with average or poor knowledge (64.29%), but this difference was not statistically significant (p=0.250).

- Awareness of lifestyle measures was associated with a lower prevalence of hypertension (52.33% in aware participants vs. 68.75% in not-aware participants), but this was also not statistically significant (p=0.062).

- Implementation of lifestyle measures was significantly associated with lower hypertension prevalence (48.48% in those implementing measures vs. 68.18% in those not implementing measures, p=0.002).

Table 4: Awareness and implementation of lifestyle measures

Variable	Number of participants	Percentage
Knowledge about hypertension		
Good Knowledge	187	85.00%
Average Knowledge	25	11.36%
Poor Knowledge	8	3.64%
Awareness of lifestyle measures		
Aware	172	78.18%
Not Aware	48	21.82%
Implementation of lifestyle measures		
Implementing Measures	132	60.00%
Not Implementing Measures	88	40.00%

Table 5: Association between awareness and hypertension

Variable	Hypertensive (n=120)	Non-hypertensive (n=100)	Chi-square	P-value
Knowledge about hypertension			1.322	0.250
Good Knowledge	101 (54.01%)	86 (45.99%)		
Average/Poor Knowledge	19 (64.29%)	14 (35.71%)		
Awareness of lifestyle measures			3.501	0.062
Aware	90 (52.33%)	82 (47.67%)		
Not Aware	30 (68.75%)	18 (31.25%)		
Implementation of measures			9.524	0.002
Implementing Measures	64 (48.48%)	68 (51.52%)		
Not Implementing Measures	56 (68.18%)	32 (31.82%)		

These results indicate that while general awareness about hypertension is high among medical professionals, actual implementation of lifestyle measures significantly impacts hypertension prevalence.

DISCUSSION

Hypertension remains a significant public health challenge globally, characterized by substantial morbidity and mortality rates. This study specifically aimed to determine the prevalence of hypertension among medical professionals, assess their knowledge of the condition, and evaluate their awareness and implementation of lifestyle measures to curb it.

Our findings revealed a notable prevalence of hypertension among medical professionals, with 43.2% experiencing Stage I hypertension and 11.3% with Stage II hypertension. These fig. underscore the pervasive nature of hypertension, mirroring global statistics where

the condition is a prevalent concern [1]. Despite their medical training and access to health information, a significant proportion of medical professionals are hypertensive, suggesting the need for targeted health interventions within this specific group.

The study identified several key factors influencing hypertension among medical professionals. Gender differences were evident, with males displaying a higher prevalence of hypertension, consistent with general epidemiological data indicating higher hypertension rates in males compared to females [3]. Furthermore, a family history of hypertension significantly increased the likelihood of the condition, highlighting the genetic predisposition to hypertension and the importance of early and regular screening for at-risk individuals.

Dietary patterns also significantly impacted hypertension risk. The data demonstrated a clear association between a vegetarian diet and a reduced risk of hypertension, likely due to lower intake of saturated fats and higher consumption of fruits and vegetables among vegetarians [4]. Additionally, the level of physical activity was directly correlated with hypertension risk, with sedentary lifestyles markedly increasing the likelihood of developing hypertension. This correlation underscores the critical role of physical activity in both preventing and managing hypertension.

BMI was another significant determinant identified; higher BMI levels were strongly associated with increased hypertension risk. Overweight and obesity are well-established risk factors for hypertension, reinforcing the need for maintaining a healthy weight to mitigate this risk [5].

Regarding awareness, while a high percentage of participants had good knowledge about hypertension (85%) and were aware of lifestyle measures (78%), only 60% reported implementing these measures. This gap between awareness and practice is concerning and highlights the barriers that exist even among medical professionals in adopting healthy lifestyle behaviors. The significant association between implementation of lifestyle measures and lower hypertension prevalence emphasizes the need for strategies that encourage not just awareness but also action [7].

An intriguing aspect of the findings was the link between excellent academic performance and increased hypertension risk among graduate and postgraduate medical students. While this study does not establish causality, it suggests a potential relationship between the stress associated with academic achievement and elevated blood pressure levels. This novel observation warrants further exploration to understand the underlying mechanisms and implications of this association [8-10].

Overall, the prevalence of hypertension among medical professionals, as identified in this study, aligns with both national and global statistics, emphasizing that medical knowledge does not confer immunity to this condition. The gap between awareness and implementation of lifestyle measures indicates that knowledge alone is insufficient to bring about behavioral change. Factors such as workload, stress, time constraints, and possibly a culture that does not prioritize self-care among medical professionals may contribute to this discrepancy [11, 12]. Further investigations are necessary to identify effective interventions that can bridge this gap.

CONCLUSION

This study highlights the significant prevalence of hypertension among medical professionals, underlining the critical need to focus on modifiable risk factors, especially BMI and lifestyle behaviors, to mitigate the impact of this condition within this particular demographic. While awareness about hypertension and lifestyle measures is relatively high among medical professionals, actual implementation of these measures is suboptimal. Notably, the association observed between excellent academic performance and higher hypertension risk presents a unique finding that merits further investigation to understand the underlying causes and implications. Addressing hypertension effectively among medical professionals is imperative not only for their own health but also for their role as public health exemplars. By bridging the gap between awareness and action, medical professionals can demonstrate the importance and efficacy of adopting healthier lifestyles, thus providing a model for patients and the broader community to emulate. This dual approach of personal health management and public health leadership is essential in the broader fight against the hypertension epidemic.

AUTHORS CONTRIBUTIONS

All authors have contributed equally

CONFLICT OF INTERESTS

Declared none

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