



THE SILENT STRAIN: A REGIONAL STUDY ON HYPERTENSION AMONG DOCTORS

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ABSTRACT

Hypertension is a major public health concern globally, affecting individuals across various demographics, including healthcare professionals. This study aimed to assess the prevalence of hypertension among healthcare professionals in Uttar Pradesh (UP). A cross-sectional study was conducted among healthcare professionals working in hospitals and clinics in the region. Data on demographic characteristics, lifestyle factors, medical history, and blood pressure measurements were collected. The prevalence of hypertension was determined, and associated factors were analyzed using statistical methods. The findings highlight the importance of regular screening and management of hypertension among healthcare professionals to improve their overall health and well-being.

The high-stress environment and demanding nature of healthcare work can contribute significantly to the development of hypertension. This study provides a detailed analysis of the prevalence and determinants of hypertension in this specific population, emphasizing the need for targeted interventions. Regular blood pressure monitoring and early detection through screening programs can lead to better management and control of hypertension, thereby reducing the risk of cardiovascular diseases and other complications.

Furthermore, promoting healthy lifestyle behaviors such as balanced diets, regular physical activity, and effective stress management techniques is crucial. Healthcare institutions must prioritize the well-being of their staff by implementing wellness programs and providing resources for healthy living. Access to quality healthcare services, including regular check-ups and hypertension management plans, should be readily available to all healthcare professionals.

In conclusion, addressing hypertension among healthcare professionals in Western Uttar Pradesh is imperative. The study underscores the necessity of ongoing research to understand the long-term impact of hypertension on this population and to develop comprehensive strategies to mitigate its effects. By improving the health of healthcare workers, we can enhance the overall quality of care provided to patients and strengthen the healthcare system as a whole.

Keywords: Hypertension, Healthcare Professionals, Prevalence, Uttar Pradesh.

INTRODUCTION

Hypertension is an increasingly significant medical and public health concern. Developing countries such as India are expected to encounter a substantial burden of non-communicable diseases (NCDs) in the future, with hypertension being one of the most critical treatable causes of mortality and morbidity among the elderly population. (1,2).

The occurrence of hypertension escalates as individuals age, from around 25- 40 years, 41- 60 years, over 60 years and over 75 years.



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This rise in systolic blood pressure with age plays a significant role in the increased incidence and prevalence of hypertension among older individuals. Chronic non-communicable diseases, including hypertension and diabetes, are prevalent among the adult population worldwide and are on the rise. Therefore, this study aimed to determine the prevalence of hypertension in Uttar Pradesh and identify associated demographic factors contributing to its occurrence.

METHODS AND METHODOLOGY

A cross-sectional study was undertaken among healthcare professionals in Uttar Pradesh over a study period of 2 months. An extensive literature review was conducted, encompassing primary, secondary, and tertiary sources. Data collection was facilitated through a structured questionnaire that

covered demographic characteristics, lifestyle habits (such as smoking, alcohol consumption, and physical activity), anthropometric data (weight, height & BMI were calculated) medical history (including family history of hypertension), and job-related factors (such as work hours and stress levels). Blood pressure measurements were conducted following standardized protocols.

Hypertension was defined as systolic blood pressure (SBP) ≥ 140 mmHg and diastolic blood pressure (DBP) ≥ 90 mmHg, or self-reported use of antihypertensive medications. The collected data were analyzed using statistical software, with pie charts utilized to visually represent factors associated with the prevalence of hypertension among healthcare professionals in the region.

OBSERVATION AND RESULTS

A total of 925 healthcare professionals participated in the study, including allied healthcare workers.

The mean age of the participants was 41-60 years, with 75.5 % male and 24.6% females. The overall prevalence of hypertension among healthcare professionals in Western UP was 50.2%.

Age Distribution of Patients:

The pie chart illustrates the distribution of healthcare professionals (HCP) across various age ranges, categorising them into four distinct groups: 25-40 years, 41-60 years, over 60 years, and over 75 years. This division provides a clear overview of the age demographics within the population. From 923 responses, 17% of participants were aged 25-40 years, 46.5% were aged 41-60 years, 32.5% were over 60 years, and 4% were over 75 years. This chart highlights the concentration of individuals in each age group and offers insights into the prevalence of certain age-related health conditions. The key insight is that the largest age group falls within the 41-60 years age range.

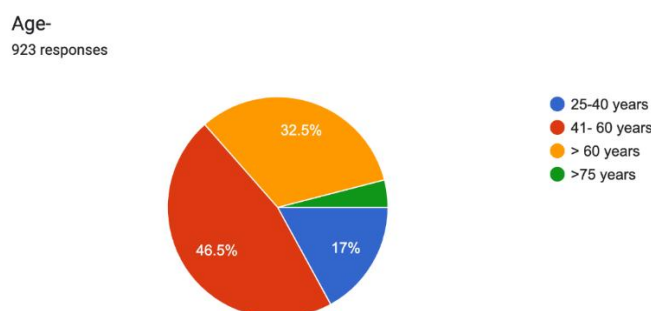


Fig. No.1: Age- Distribution of Patients

Gender Distribution

This visualisation shows the count of male and female healthcare professionals. 75.4% of the

participants were male, and 24.6% were female in the study.

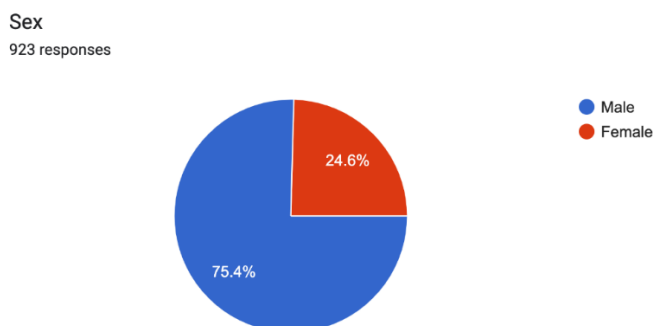


Fig. No.2: Gender Distribution

Hypertension Prevalence

The circular graph illustrates the distribution of participants with hypertension ('Yes') compared to those without it ('No'). The graph shows that 50.2% of the participant population has hypertension, while 49.8% does not. This visualisation highlights the

prevalence of hypertension, emphasizing the need for effective management and intervention strategies. Understanding this distribution is crucial for assessing the overall health status and planning appropriate healthcare measures to address hypertension.

Hypertension
923 responses

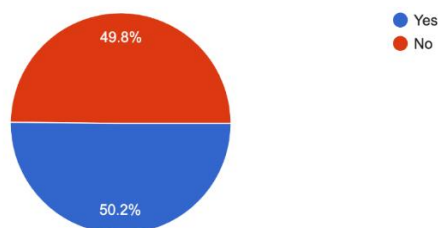


Fig. No.3: Hypertension Prevalence

Duration of HTN

From 472 responses, 37.5% of participants had been suffering from hypertension (HTN) for more than 10

years, 19.7% had been suffering for 5-10 years, 32% had been suffering for 1-5 years, and 10.8% had been suffering for less than 1 year.

Duration of HT
472 responses

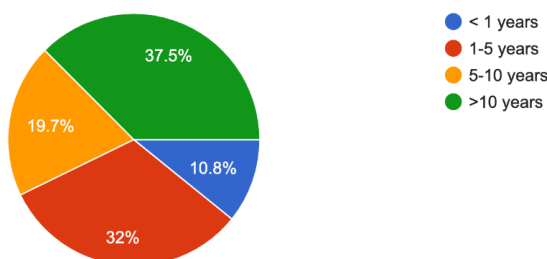


Fig. No.4: Duration of HTN Prevalence

Last Time Bp Checkup-

From 922 responses, 56.6% of participants reported checking their blood pressure (BP) within the last

week, 28.5% had checked their BP within the past one week to three months, and 14.9% had checked their BP more than three months ago.

Last time when you checked your BP
922 responses

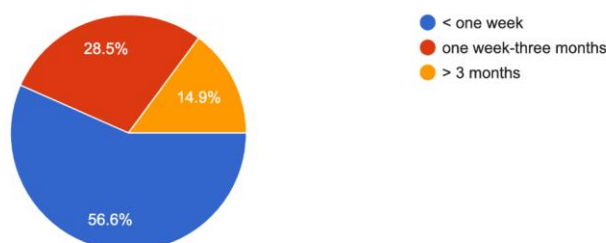


Fig.No.5: BP Checkup Last Time

Reading BP Value-

From 921 responses, 82.7% of participants had a blood pressure (BP) reading less than 140/90

mmHg, indicating normal BP levels, while 12.8% of healthcare professionals had high BP (greater than or equal to 140/90 mmHg).

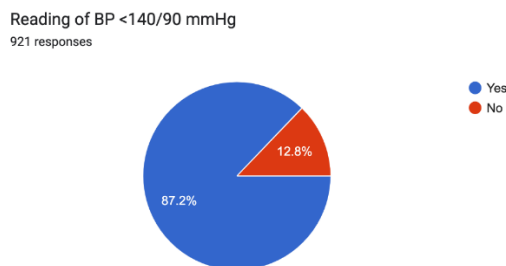


Fig.No.6: BP Checkup Last Time

Medications for Treating HTN-

From a total of 772 responses, 55.9% of participants were taking medications to manage their hypertension (HTN), while 44.1% were not. This indicates that a significant number are using pharmacological treatments to control their blood pressure, while a substantial portion are either managing it through non-medical means or are not compliant with prescribed treatments, highlighting the need for better education and support.

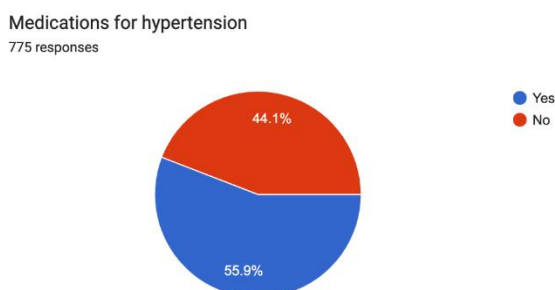


Fig. No.7: Medications for Hypertension

5.2% of participants consumed ACE inhibitors (ramipril), 59% used ARBs (telmisartan/olmesartan), 33.7% took CCBs (amlodipine/cilnidipine), 16.8% used diuretics

(hydrochlorothiazide), 34.2% used beta-blockers (atenolol/metoprolol), and 0.4% reported using none of these medications as shown in the following figure.

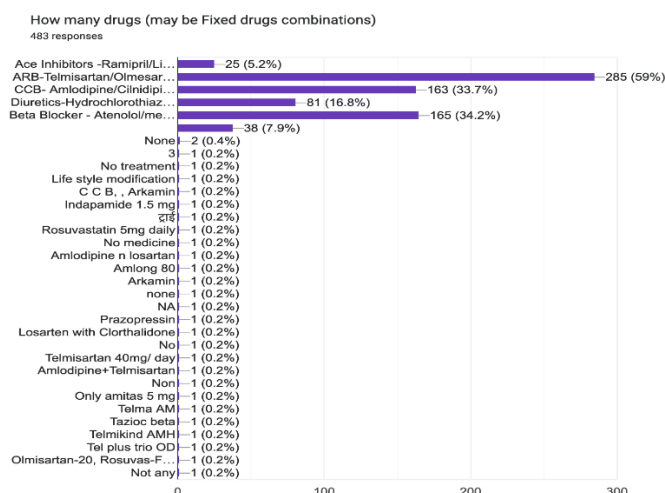


Fig. No.8: Combination of Fixed Drugs

Prevalence of Diabetes-

The pie chart illustrates the number of participants with diabetes ('Yes') compared to those without diabetes ('No'). From 923 responses, 76.4% of participants did not have diabetes, while 23.6% did. This visualisation provides insight into the

prevalence of diabetes within the population, offering valuable information about the extent of this chronic condition. Understanding this data is essential for assessing the overall health profile and for designing targeted interventions and management plans to effectively address diabetes.

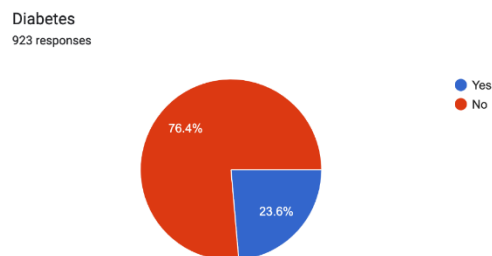


Fig.No.8: Prevalence of Diabetes

Cardiovascular Disease Prevalence

The pie chart illustrates the prevalence of cardiovascular diseases among healthcare professionals, distinguishing between those with ('Yes') and without ('No') the condition. From 923 responses, 93.2% of participants did not have cardiovascular disease, while 6.8% had the disease.

This visualisation provides crucial insights into the health status of the population, particularly regarding cardiovascular health. This information is vital for developing effective healthcare strategies and interventions aimed at managing and preventing cardiovascular diseases.

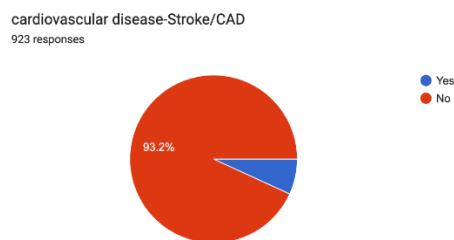


Fig.No.9: Cardiovascular Disease Prevalence

Chronic Kidney Disease Prevalence

The pie chart displays the number of participants with chronic kidney disease (CKD) ('Yes') compared to those without CKD ('No'). From 923 responses, 97.9% of patients did not have CKD, while 3.1% did. This visualisation offers valuable insights into

the prevalence of this serious condition within the patient population. Understanding the distribution of CKD among patients is crucial for developing targeted treatment plans and preventative measures to manage and reduce the impact of chronic kidney disease.

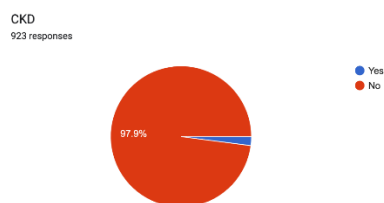


Fig.10: Prevalence of CKD

Feeling of Burnout

From 921 responses, 65.4% had no feeling of burnout during practice 34.6% had feeling of burnout.

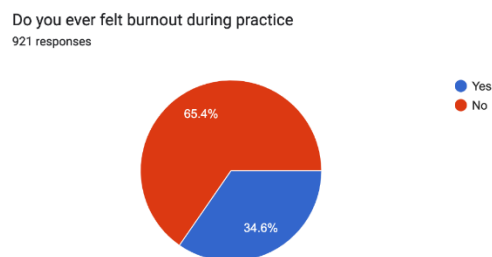


Fig.No.11: Feeling of Burnout

Tobacco/ Smoking

This graph illustrates the number of participants who smoke or use tobacco ('Yes') compared to those who do not ('No'). From 923 responses, 11.2% reported smoking or using tobacco, while 88.8% did not. This visualisation provides important insights into a key

risk factor affecting overall health. Understanding the distribution of tobacco use is essential for creating targeted interventions and public health strategies to reduce smoking rates and improve patient outcomes.

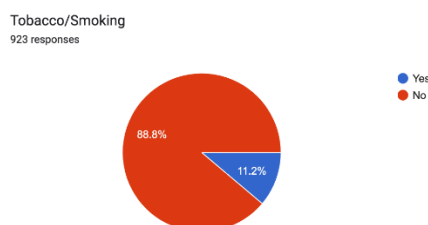


Fig.No.12: Prevalence of Tobacco/ Smoking

Alcohol Consumption Prevalence

The graph compares the number of participants who consume alcohol ('Yes') with those who do not ('No'). From 923 responses, 68.1% of participants reported not consuming alcohol, while 31.9% reported consuming alcohol. This visualisation sheds light on the prevalence of alcohol

consumption within the population, highlighting an important behavioural factor in healthcare. Understanding the distribution of alcohol consumption among patients is essential for developing tailored interventions and support services aimed at promoting healthier lifestyles and addressing alcohol-related health issues.

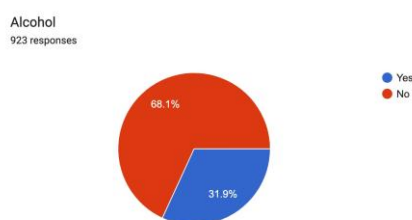


Fig.No.13: Prevalence of Alcohol Consumption

Prevalence of Duration of Sleep-

The graph shows the distribution of participants based on their sleep duration, categorizing them into three groups: '6-8 hrs', '< 6 hrs', and '>8 hrs'. From 923 responses, 76.4% of participants reported sleeping 6-8 hours, 18.3% reported sleeping less than 6 hours, and 5.6% reported sleeping more than 8 hours. This segmentation provides valuable

insights into the sleep patterns of the population, highlighting the proportion of individuals in each duration category. Understanding the distribution of sleep durations among participants is important for identifying potential sleep-related health issues and developing targeted interventions to promote healthy sleep habits and improve overall well-being.

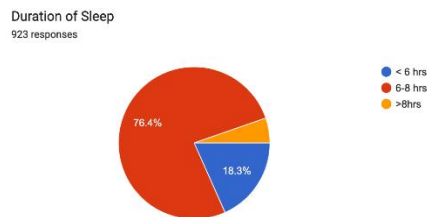


Fig. No.14: Prevalence of Sleep Duration

Physical Activity Prevalence

This visualisation represents the number of participants engaging in physical activity, exercise, or yoga ('Yes') versus those who do not ('No'). From 932 responses, 75.3% of participants were engaged in physical activity, while 24.7% were not. This graph provides valuable insights into health-

promoting behaviors among the population. Understanding the distribution of physical activity levels is crucial for designing effective health promotion programs and interventions to encourage regular exercise and improve overall fitness and well-being.

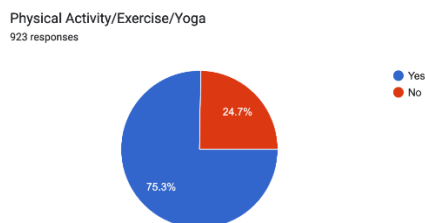


Fig. No. 15: Prevalence of Physical Activity

Prevalence of Obesity

Among all the doctors population overall prevalence was around 83% it is at par with American

population, prevalence of Hypertension was 89% in obese population as compare, among all the obese population 86% were normotensive

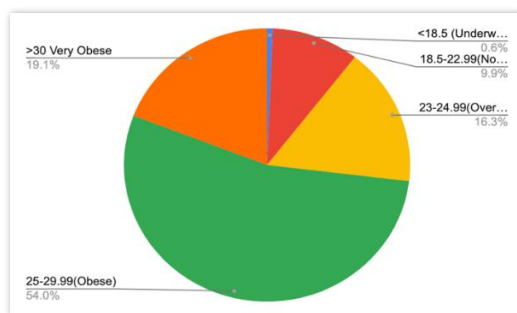


Fig 16: Prevalence of Obesity in Hypertensive Population

Very obese BMI > 30 -19.1% obese BMI 25-29.9 - 54 % Overweight BMI 23-24.9. -16.3% Normal BMI 18.5-22.99 -9.9% underweight <18.5 -0.6%

DISCUSSION

Studies have indicated a high prevalence of hypertension among healthcare professionals in Uttar Pradesh (UP), India, with prevalence rates almost comparable to those in the USA. This study aims to determine the changing trends of hypertension prevalence in Indian populations aged 25-75 years using a structured questionnaire. Trends in hypertension prevalence in India have been reviewed in this journal and elsewhere (3-4).

Although numerous researchers have extensively documented the cardiovascular risks associated with elevated blood pressure (5-11), a limited number have provided detailed insights into the absolute and relative risks of cardiovascular disease based on the blood pressure categories used in clinical practice. High-normal blood pressure, a category that encompasses readings just below the threshold for hypertension, rivals the prevalence of mild hypertension within the U.S. adult population (12). Despite this, comprehensive information regarding the risk of cardiovascular disease associated with the high-normal blood pressure category remains sparse. Most existing studies focus primarily on fatal

cardiovascular events, leaving a significant gap in understanding the broader spectrum of cardiovascular risks linked to this blood pressure range (13-14).

Diabetes mellitus and hypertension are common diseases that coexist at a greater frequency than chance alone would predict. Hypertension in the diabetic individual markedly increases the risk and accelerates the course of cardiac disease, peripheral vascular disease, stroke, retinopathy, and nephropathy (15-16). The prevalence of diabetes among healthcare professionals was 76.4% without diabetes and 23.6% with diabetes, which exacerbates the consequences. Prevalence of obesity among hypertensive population is significant around 89% which further increases prevalence of other comorbidity.

Chronic kidney disease (CKD) is characterised by a progressive loss of kidney function, leading to a decreased ability to process waste in the blood and affecting other vital kidney functions (17-18). The disease progresses through different stages, each impacting the individual's health status. Among healthcare professionals, the prevalence of CKD was 97.9% without the disease and 3.1% with CKD. Cigarette smoking is a significant cardiovascular risk factor, and quitting smoking is the most effective lifestyle change for preventing numerous cardiovascular diseases. Smoking contributes to the impairment of endothelial function, arterial stiffness, inflammation, lipid modification, and alterations in antithrombotic and prothrombotic factors, all of which play major roles in initiating and accelerating the atherothrombotic process that leads to cardiovascular events (19). Among healthcare professionals, 11.2% reported smoking or using tobacco, while 88.8% did not.

The prevalence of hypertension has been steadily rising over the years, yet most reviews from India are based on older studies. Recent repeat surveys in other cities have yielded varying results. A study from Jaipur indicated no significant change in hypertension prevalence over two decades from 1990, with a decrease in mean SBP during this period (20-21). Conversely, a repeat survey from Chennai showed an increase in self-reported hypertension prevalence among low-income and middle-income groups.

The outcomes derived from this study shed light on a substantial prevalence of hypertension among healthcare professionals in Uttar Pradesh (UP), signifying a critical need for targeted screening initiatives and intervention programs. These results underscore the importance of adopting comprehensive strategies to address the challenges posed by hypertension within this specific demographic.

Given the high prevalence observed, it becomes imperative to delve deeper into the factors contributing to this trend and to explore the nuances

of hypertension management within the healthcare community. Lifestyle modifications, encompassing dietary changes, physical activity promotion, and stress management techniques, emerge as pivotal components in mitigating the impact of hypertension among healthcare professionals.

Furthermore, the implementation of regular blood pressure monitoring protocols assumes paramount significance, ensuring timely detection of hypertension and facilitating prompt interventions. Collaborative endeavors between healthcare institutions, professional associations, and policymakers become indispensable in formulating and executing effective hypertension management strategies tailored to the unique needs of healthcare professionals in UP.

By fostering interdisciplinary cooperation and leveraging evidence-based practices, the healthcare community can strive towards enhancing the overall well-being and cardiovascular health outcomes of healthcare professionals in the region.

CONCLUSION

Hypertension is notably prevalent among healthcare professionals in Uttar Pradesh, with several modifiable risk factors identified. To address this issue effectively, it is crucial to implement regular screening programs that can facilitate early detection and timely intervention. Promoting healthy lifestyle behaviors, such as balanced nutrition, regular physical activity, and effective stress management techniques, is essential in preventing and managing hypertension within this population.

Additionally, ensuring that healthcare professionals have access to quality healthcare services is vital for ongoing management and support. This includes providing resources for continuous monitoring of blood pressure, as well as access to medical consultations and treatment options tailored to their specific needs.

Further research is necessary to explore the long-term impact of hypertension on the health outcomes of healthcare professionals and the overall healthcare delivery in the region. Understanding the chronic effects of hypertension on this critical workforce will help in designing more effective intervention strategies and policies that can improve their health and, by extension, the quality of care they provide to patients.

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