

## ORIGINAL RESEARCH

**Prevalence of hypertension among sanitary workers in a tertiary care center, Shahjahanpur, Uttar Pradesh: A cross-sectional study****Saumitra Swaroop Sinha<sup>1</sup>, Vishal Sukhdev Rathod<sup>2</sup>, Snehal N Pawar<sup>3</sup>**<sup>1</sup>Assistant Professor, Department of Community Medicine, Autonomous State Medical College, Shahjahanpur, Uttar Pradesh, India.<sup>2</sup>Assistant Professor, Department of Community Medicine, IIMSR Warudi, Indian Institute of Medical Sciences and Research, Tq- Badnapur Dist- Jalna, India.<sup>3</sup>Assistant Professor, Sherryash College of Pharmacy, Satara Tanda, Tq. dist.- Aurangabad, India.

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**ABSTRACT**

**Background:** Hypertension is an important public health problem and it has no obvious signs or symptoms making the persons unaware of condition. World Health Organization (WHO) has stated that around 1.3 billion people around the world suffers from hypertension and less than one in five have their blood pressure under control

**Methods:** A cross sectional study, **Study setting:** Community medicine department of Tertiary care center. **Study population:** The study population included all the sanitary workers in tertiary care center. **Study duration** 2 months. **Sample size:** 311 **Results:** Only 10.7% of the workers were current tobacco users, while almost 15% were current alcohol users. More than three fourth of the study participants were physically active. More than 50% of the participants were obese ( $\geq 25.00 \text{ kg/m}^2$ ). Abdominal obesity was present in about 35% of the participants. Prevalence of hypertension among the sanitary workers was 36.6% (95% CI: 31.3-41.3%). Only 34 (10.9%) participants were aware of their hypertension status and 80 (25.7%) of the participants were newly diagnosed to have hypertension. Prehypertension was present in 114 out of 277 participants (41.1%; 95% CI: 35.3-47.2%) without any known history of hypertension. Among the 34 patients with known history of hypertension, only 12 (35.3%) belonged to controlled status category. Current tobacco users had 1.61 times higher prevalence of hypertension when compared to those who are not current users and this was statistically significant ( $P = 0.003$ ). Current alcohol users had significant association with hypertension (aPR-1.25;  $P = 0.02$ ). **Conclusions:** The current study found that more than one-third of the sanitary workers had hypertension. However, almost three-fourth of the hypertensives were not aware about their status.

**Keywords:** Hypertension, awareness, risk factors

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**Email:** [dr.v.rathod9@gmail.com](mailto:dr.v.rathod9@gmail.com)**INTRODUCTION**

Hypertension is an important public health problem and it has no obvious signs or symptoms making the persons unaware of condition. World Health Organization (WHO) has stated that

around 1.3 billion people around the world suffers from hypertension and less than one in five have their blood pressure under control.[1] It is also one of the leading causes of premature mortality.[1] Hence an earlier diagnosis by regular screening and adequate management with life style modification and drugs is required for effective reduction in high blood pressure. Occupational health deals with various health-related aspects and workplace safety. It focusses on the primary prevention of hazards.

The health of occupational workers has various determinants at workplace leading to accidents, communicable diseases like Tuberculosis, anthrax, brucellosis and non-communicable diseases like diabetes, hypertension and stress-related states.[2] Workers employed in certain occupations like sanitary workers have tendency to develop the above-mentioned conditions because of the nature of their work and level of stress faced during day-to-day activities. They are also more prone to lead unhealthy lifestyle like irregularities of meals and sleep pattern, low intensity physical activity, alcohol and tobacco consumption.[3] Though there is increased focus on the morbidity status of healthcare workers, sanitary workers employed within a healthcare institution/hospital is often neglected and their burden goes unnoticed.

Several studies has assessed the burden of hypertension among several cadres working in hospitals like doctors, nurses, laboratory technicians and administrative staffs.[4,5,6,7] There is still a narrow focus on the burden of hypertension among sanitary workers. Even, the studies that are done till now have targeted only sanitary workers working outside healthcare sector.[8]

There is a need to generate evidence related to sanitary workers working inside the healthcare institutions or hospitals as it will help in taking measures or develop appropriate strategies for prevention and control of hypertension amongst this vulnerable population. Hence, the current study was done to determine the prevalence, awareness, control and determinants of hypertension among sanitary workers employed in autonomous state medical college, Shahjahanpur, Uttar Pradesh.

## **AIM AND OBJECTIVES**

1. Prevalence of hypertension among sanitary workers in a tertiary care center
2. Study the various risk factors and awareness among sanitary workers

## **MATERIAL AND METHODS**

**Study design:** A cross sectional study

**Study setting:** Community medicine Department of Tertiary care center.

**Study population:** The study population included all the sanitary workers in a tertiary care center.

**Study duration:** 2 months October to November 2022

**Sample size:** 311

**Sampling techniques:** All the participants were selected using convenient sampling method.

### **INCLUSION CRITERIA:**

1. All the sanitary workers in a tertiary care center
2. Willing to participate in study after informed written consent.

### **EXCLUSION CRITERIA:**

1. Not willing to participate in the study
2. Patients below the age of 18 years

### **Approval for the study**

Written approval from Institutional Ethics committee was obtained beforehand. Written approval of community medicine and Related department was obtained. After obtaining

informed verbal consent from all sanitary workers in a tertiary care centre such cases were included in the study.

### Study procedure

First, approval for the study was obtained from the institutional ethics committee. After which, data has been collected after obtaining informed written consent from the eligible participants selected for the study. Data collection was performed within the premises of autonomous state medical college, Shahjahanpur. Weekly 3-4 visits have been made and 5-6 individuals were interviewed using a pre-tested semi-structured interview questionnaire. The questionnaire contained 3 sections. Interviewed all 311-study population.

The first section contained information on socio-demographic details; behavioural characteristics like current tobacco use (past one month), current alcohol use (past one year), dietary habits (vegetable and fruit intake – at least five servings per day)[9] and physical inactivity (moderate physical activity of at least 150 minutes/week or vigorous physical activity of at least 80 minutes/week).[10]

Anthropometric measurements like height, weight and waist circumference was measured using standard WHO guidelines.[11] Obesity was classified based on Asia Pacific guidelines for Body mass Index (BMI).[12] Waist circumference was classified based on International Diabetes Federation criteria for South Asian individuals.[13]

For measurement of blood pressure, 2 readings were taken at an interval of 5 minutes and mean of 2 measurements was taken as final blood pressure value.

Care was taken that the subject avoided caffeine, smoking or exercise at least 30 minutes prior to measurement. Hypertension was diagnosed according to Joint National Committee-7 guidelines,[14] individuals was diagnosed as hypertensive if systolic BP  $\geq 140$  mmHg and/or diastolic BP  $\geq 90$  mmHg. Hypertension was further classified into: Grade I (Systolic BP between 140-159 mmHg and/or diastolic BP between 90-99 mmHg), Grade II (Systolic BP between 160-179 mmHg or greater and/or diastolic BP between 100-109 mmHg.) or Grade III hypertension (Systolic BP 180 mm Hg or higher and/or diastolic BP 110 mmHg or higher).

Individuals were diagnosed as Prehypertension, if systolic BP is between 130-139 mmHg and/or diastolic BP is between 80-89 mmHg. Individuals who were on anti-hypertensive treatment were also included. Among the known case of hypertension, uncontrolled status was determined by the BP value of systolic BP  $\geq 140$  mmHg and/or diastolic BP  $\geq 90$  mmHg.[14]

### Statistical analysis

The data from the collected questionnaires was added to the M.S Excel sheets and was calculated in percentage.

## RESULTS AND OBSERVATIONS

**Table 1: Socio-demographic and work-related characteristics of the study participants (n=311)**

| Age          | Frequency | Percentage |
|--------------|-----------|------------|
| 18-30 years  | 40        | 12.9%      |
| 31-40        | 136       | 43.7%      |
| 41-50        | 109       | 35%        |
| 51-60        | 20        | 6.4%       |
| 61 and above | 06        | 1.9%       |
| Gender       |           |            |
| Male         | 179       | 57.6%      |
| Female       | 132       | 42.4%      |

|                     |     |       |
|---------------------|-----|-------|
| Education status    |     |       |
| No formal education | 65  | 20.9% |
| Primary school      | 55  | 17.7% |
| High school         | 124 | 39.9% |
| Secondary school    | 33  | 10.6% |
| Graduate            | 33  | 10.6% |

Majority of study participants in 31-40 years age group 136 (43.7%), Male 179 (57.6%) and 124 participants education upto high school level.

**Table 2: Behavioural and anthropometric characteristics of the study participants**

| Current tobacco use        | Frequency | Percentage |
|----------------------------|-----------|------------|
| Yes                        | 32        | 10.3%      |
| No                         | 279       | 89.7%      |
| <b>Current Alcohol use</b> |           |            |
| Yes                        | 45        | 14.5%      |
| No                         | 266       | 85.5%      |
| <b>Physical activity</b>   |           |            |
| Adequate                   | 241       | 77.5%      |
| Inadequate                 | 70        | 22.5%      |
| <b>BMI Category</b>        |           |            |
| Underweight (<18.50)       | 15        | 4.8%       |
| Normal (18.50-22.99)       | 69        | 22.2%      |
| Overweight (>18.50)        | 67        | 21.5%      |
| Obesity ( $\geq 25.00$ )   | 160       | 51.5%      |

Above table shows 32 participants were current tobacco user, 45 gave history of alcohol, 70 study participants gave history of inadequate physical activity.

**Table 3: Prevalence of hypertension among the study participants**

|  | Frequency | Proportion with 95% CI |
|--|-----------|------------------------|
| Overall prevalence of hypertension (n=311)                                 | 114       | 36.7 (31.3-41.3)       |
| <b>Table no:4 Awareness of hypertension among study population (n=311)</b> |           |                        |
| Newly diagnosed hypertension (unaware)                                     | 80        | 25.8 (20.9-30.9)       |
| Known case (aware of hypertension status)                                  | 34        | 10.9 (7.7-14.9)        |

Prevalence of hypertension was 36.7%, and newly diagnosed hypertension (unaware) 80 (25.8%), Known case (aware of hypertension status) 34 (10.9%)

## DISCUSSION

This cross-sectional study conducted among sanitary workers employed in autonomous state medical college, Shahjahanpur, Uttar Pradesh, reported prevalence of hypertension as 36.7%. A systematic review on hypertension among general population in India reported a prevalence of 29.8%, which shows that the burden is higher among sanitary workers compared to the general population.[15]

Though not much studies are done to find the burden of hypertension among sanitary workers, one study reported prevalence among sanitation workers in Shimla where it was 18.5%. [8] This difference in findings can be attributed to difference in the study settings and difference in nature of work between sanitation workers in community and sanitary workers employed in healthcare institutes. Hence, occupations with significantly higher prevalence of hypertension, when compared to general population, need to be studied in detail to explore the possible risk factors involved.

Our study also found that only 30% were aware of their condition which is almost similar to the general population. [15] The awareness level still needs to be improved by periodic or annual screening of workers for high blood pressure. This baseline information is useful for the relevant policymakers as it shows the target population with such lesser awareness level regarding their own hypertension status and the need to develop specific strategies targeting them.

This study also identified more than 70% workers unaware of their hypertension status and provided appropriate referral services for further management at the end of the project. One important measure that needs strict implementation is pre-placement screening of blood pressure for hypertension. Persons identified with raised blood pressure can be suggested to take up any other less stressful job as suggested by the concept of “ergonomics” (Fitting the job to the worker). [16]

After recruitment, further periodic screening need to be done at least every year. This calls for integrated approach between health and labour sector.

Further workplace interventions like regular health education sessions on how to prevent the hypertension, addressing the importance of proper adherence to medications and annual visit by mental health counsellors for counselling of persons with high degree of stress are required.

Development and implementation of protocols and guidelines for the screening and management of hypertension for vulnerable occupational groups can be done at national level. Incorporation of multiple components in multiple levels can be done in existing interventions to achieve better control of hypertension.

## CONCLUSION

The current study found that more than one-third of the sanitary workers had hypertension. However, almost three-fourth of the hypertensives were not aware about their status

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