



Original Research Article

PREVALENCE OF HYPERTENSION AMONG NURSING STAFF IN A TERTIARY CARE HOSPITAL: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Hypertension is one of the leading modifiable risk factors for cardiovascular morbidity and mortality worldwide. Nursing professionals are exposed to occupational stress, irregular work schedules, inadequate sleep, and unhealthy lifestyle practices that may predispose them to hypertension. Assessing the burden of hypertension among nursing staff is important for planning workplace health promotion strategies. **Objectives:** To determine the prevalence of hypertension among nursing staff working in a tertiary care hospital. To identify associated lifestyle and occupational factors.

Materials and Methods: This study was conducted as part of an MD dissertation submitted to Maharashtra University of Medical Sciences, Nashik. This hospital-based cross-sectional study was carried out among 236 nursing staff from January 2021 to June 2022. Participants were selected using simple random sampling. Data were collected using a pretested questionnaire covering socio-demographic characteristics, occupational profile, lifestyle factors, physical activity, dietary habits, sleep duration, and stress levels. Blood pressure was measured according to JNC-8 guidelines. Data were analysed using descriptive statistics, Chi-square test and multivariate logistic regression.

Results: Among the 236 nursing staff, 60.59% were females and 39.41% were males. The mean age was 36.20 ± 8.01 years. The prevalence of pre-hypertension was 6.35%, while the overall prevalence of hypertension was 11.01%. Of the hypertensive individuals, 7.20% were known hypertensives with controlled blood pressure, 1.69% had uncontrolled hypertension, and 2.11% were newly diagnosed hypertensive cases. Significant associations were observed between hypertension and leisure-time physical inactivity, high salt intake, obesity, increased waist-hip ratio, and higher stress levels.

Conclusion: Hypertension was prevalent among more than one-tenth of nursing staff. Lifestyle modification, regular screening, stress management programs, and workplace health promotion activities are essential to reduce the burden of hypertension among nurses.

Keywords: Hypertension, Nursing staff, Prevalence, Occupational stress, Physical activity, Tertiary care hospital.

INTRODUCTION

Hypertension remains one of the most important modifiable risk factors for cardiovascular diseases and premature mortality worldwide. According to the World Health Organization (WHO), approximately 1.3 billion adults are living with hypertension

globally, with a substantial proportion remaining undiagnosed or inadequately controlled.^[1,2]

Healthcare workers, particularly nurses, constitute an occupational group vulnerable to hypertension because of rotating shifts, night duties, workplace stress, sleep deprivation, and unhealthy lifestyle practices,^[3,5] Studies from different countries have reported varying prevalence of hypertension among

nurses, ranging from 10% to over 50%, depending on the study setting and population characteristics.^[4,6]

Occupational stress and burnout have emerged as important contributors to cardiovascular risk among nursing professionals. Recent systematic reviews have demonstrated a significant association between workplace stress, burnout, and elevated blood pressure among nurses.^[7,8]

Physical inactivity, obesity, excess dietary salt intake, and inadequate sleep are additional modifiable risk factors associated with hypertension among healthcare workers.^[9,12] Therefore, assessment of hypertension and its determinants among nursing personnel is essential for planning workplace health promotion interventions.

Non-communicable diseases (NCDs) are emerging as major public health concerns globally, with hypertension being one of the most important risk factors for cardiovascular diseases. Health-care professionals, especially nurses, play a pivotal role in disease prevention and health promotion. However, despite possessing adequate health-related knowledge, nurses often experience occupational stress, irregular shifts, long working hours, inadequate sleep, and poor dietary habits, which may increase their susceptibility to hypertension.

Given the crucial role of nurses in health-care delivery, their own health status deserves special attention. Early detection and management of hypertension among nursing personnel can improve their quality of life and work performance while reducing future cardiovascular complications.

MATERIALS AND METHODS

This hospital-based cross-sectional study was conducted among nursing staff working in various departments of a tertiary care hospital from January 2021 to June 2022. The sample size was calculated using the formula $n = 4pq/L^2$. Based on a hypertension prevalence of 17% reported in previous

literature,^[16] and an allowable error of 5%, the minimum required sample size was estimated to be 226. A total of 236 nursing staff were included in the study using simple random sampling with replacement. Nursing staff who were willing to participate were included in the study, while those on long leave or medical leave during the study period were excluded.

Data were collected using a pretested structured questionnaire that gathered information on socio-demographic characteristics, occupational history, lifestyle practices, physical activity, dietary habits, sleep duration, and stress levels. JNC-7,^[17] guidelines used for classifying blood pressure. Stress levels were assessed using the Perceived Stress Scale (PSS-10).^[18] The collected data were entered into Microsoft Excel and analysed using SPSS version 21. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed. Associations between variables were assessed using Chi-square analysis, and factors independently associated with hypertension were identified through multivariate logistic regression analysis. A p-value of less than 0.05 was considered statistically significant.

RESULTS

Socio-demographic Characteristics

A total of 236 nursing staff participated in the study. Females constituted 60.59% (143) and males 39.41% (93). The mean age was 36.20 ± 8.01 years. More than half (51.27%) belonged to the age group of 26–35 years. Most participants were married (92.79%), and 68.22% possessed diploma qualifications in nursing.

Prevalence of Hypertension

The mean systolic blood pressure was 112.29 ± 8.88 mmHg and the mean diastolic blood pressure was 75.89 ± 4.44 mmHg.

Table 1: The distribution of blood pressure status

Blood pressure status	Frequency(n)	Percentage
Normal	195	86.62%
Pre-Hypertension	15	6.35%
Hypertension*	26	11.02%
Total	236	100%

*Among the twenty-six hypertensives, twenty-two of them had Stage -1 HTN and remaining four had stage - 2 HTN. The prevalence of pre-hypertension was 6.35%, while the overall prevalence of hypertension was 11.01%.

Table 2: Association of Hypertension with Selected Risk Factors (Bivariate Analysis)

Variable	χ^2 (df)	Crude OR (95% CI)	p-value
Leisure-time physical activity	4.498 (1)	2.32(1.05-5.13)	0.0339
Salt intake	58.768 (1)	14.41(6.59-31.53)	0.00001
Body Mass Index	14.732 (2)	8.87(3.74-21.06)	0.000632
Waist–Hip Ratio Risk	22.954 (2)	5.86(2.65-12.97)	0.00001
Stress Level	15.856 (2)	2.11(1.00-4.45)	0.00036

Table 3: Multi variate Logistic Regression Analysis of Factors Associated with Hypertension

Variable	Adjusted OR (95% CI)	p-value
Leisure-time physical activity	1.98(1.08-3.65)	0.027
Salt intake	11.24(5.12-24.68)	<0.001
Body Mass Index	6.72(2.95-15.29)	<0.001
Waist-Hip Ratio Risk	4.38(1.98-9.71)	<0.001
Stress Level	1.89(1.02-3.51)	0.042

Lifestyle Factors

Only 36.44% of participants reported engaging in leisure-time physical activity, while 63.56% did not engage in any regular physical activity. The majority of participants slept less than seven hours per day. Overweight and obesity were observed in 32.20% and 11.44% respectively.

Factors Associated with Hypertension

Physical Activity

A significant association was observed between leisure-time physical activity and hypertension ($p < 0.05$). Among hypertensive individuals, 78.05% reported no leisure-time physical activity.

Salt Intake

High salt intake (>5 g/day) showed a highly significant association with hypertension ($p < 0.01$).

Stress

Stress demonstrated a highly significant association with hypertension ($p < 0.01$). Severe stress was more common among hypertensive individuals compared to normotensive participants.

Obesity and Waist-Hip Ratio

Body Mass Index (BMI) and waist-hip ratio were significantly associated with hypertension, indicating the role of obesity and central adiposity in increasing cardiovascular risk.

DISCUSSION

The present study found an overall prevalence of hypertension of 11.01% among nursing staff. This finding is comparable to the prevalence reported by Shailendra Kumar et al. (13.7%),^[3] and Rajarajan Kayaroganam et al. (14.4%).^[4] However, the prevalence was lower than that reported by Bin Zhao et al. (28.96%),^[5] in China and Sizeka Monakali et al. (52%),^[6] in South Africa. Differences in age distribution, occupational workload, lifestyle factors, and healthcare access may explain these variations.

Physical inactivity was significantly associated with hypertension in the current study. Similar observations have been reported by Mills et al. and the NCD Risk Factor Collaboration, which identified sedentary behaviour as an important contributor to elevated blood pressure and cardiovascular risk.^[9,10]

Obesity and increased waist-hip ratio showed significant associations with hypertension. These findings are consistent with previous studies demonstrating that excess body weight contributes substantially to hypertension through increased sympathetic activity, insulin resistance, and vascular dysfunction.^[9,11]

Dietary salt intake was another significant determinant identified in the present study. WHO

guidelines recommend reducing salt consumption to less than 5 g/day to decrease the risk of hypertension and cardiovascular diseases.^[1,2]

Stress was strongly associated with hypertension among nursing staff. Nursing professionals frequently encounter heavy workloads, shift duties, emotional exhaustion, and occupational burnout. Recent systematic reviews have confirmed the role of workplace stress and burnout in the development of hypertension among nurses.^[7,8,15]

The findings emphasize the need for regular screening, stress management interventions, and workplace wellness programmes for nursing personnel.^[12,14]

CONCLUSION

The study revealed that hypertension affects 11.01% of nursing staff working in a tertiary care hospital, while 6.3% were pre-hypertensive. Physical inactivity, obesity, increased waist-hip ratio, excessive salt intake, and stress were significantly associated with hypertension.

Regular screening, promotion of physical activity, dietary modification, stress management programs, and workplace wellness initiatives are essential for preventing hypertension and improving the overall health of nursing professionals.

Recommendations

1. Annual blood pressure screening for all nursing staff.
2. Workplace physical activity and fitness programs.
3. Reduction of dietary salt intake to less than 5 g/day.
4. Stress management interventions including yoga, meditation, and counseling.
5. Periodic health education on cardiovascular risk factors.
6. Adequate sleep and proper work-life balance.
7. Regular monitoring of BMI and waist-hip ratio.

Conflicts of interest: Nil

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