

Association Between Healthy Practices and Clinical Risk Factors among Patients with Hypertension in Jaipur and Lucknow: A Comparative Cross-Sectional Study

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Abstract: Background: Background Hypertension still represents one of the most important causes of global cardiovascular morbidity and mortality. Hypertension-related complications are much more likely to occur if you have poor lifestyle habits and uncontrolled clinical risk factors. Knowing how these healthy behaviours lead to clinical outcomes supports the foundation of preventive strategies. Objectives: This is a multicentre observational study, conducted to evaluate healthy practices in natural behaviour of patients with Hypertension, comorbidity peripheral & psychological clinical risk factor associated with implications of Hypertension physiologic stress/predictors of adverse predictor outcome been admired among patient/was Nurse Practitioner at two Urban setting Jaipur Rajasthan and Lucknow from October 2022 up to July 2023. Methods: Therefore, a cross-sectional comparative study was conducted in 400 patients of hypertension, comprising 200 from Jaipur and 200 from Lucknow. Data were obtained via a structured questionnaire to assess demographic features of health, clinical risk factors and hypertension complications. SPSS version XX was used for descriptive statistics, independent t-test, chi-square tests and logistic regression analysis. Statistical significance was acknowledged at $p < 0.05$. Results: Jaipur participants had significantly higher healthy practice score than Lucknow participants (52.4 ± 8.6 vs 48.7 ± 9.4 ; $t = 4.28$, $p < 0.001$). Common risk factors included high salt intake (49.5%), physical inactivity (45.8%), obesity (39.8%), diabetes mellitus (35.5%), smoking (31.8%) and poor medication adherence to therapies for 36/8%. The most common complication was coronary artery disease, which was followed by retinopathy and chronic kidney disease. Regarding complications, logistic regression showed that poor healthy practices (AOR = 4.11, 95% CI: 2.44–6.91), poor medication adherence (AOR = 3.27, 95% CI: 1.95–5.48), diabetes mellitus (AOR = 2.96, 95% CI: 1.78–4.91) and age over 60 years (AOR = 2.84; %CI %: %1%.72/4&68) were significant predictors of complications in the study sample. Conclusion: Implementing healthy practices is crucial to lowering clinical risk factors and adverse health outcomes related to hypertension. Implications Building on nurse-led interventions, lifestyle counselling and adherence monitoring might have greater impact on patient outcomes.

Keywords: Hypertension, Health-promotion, Clinical risk factors, Medication adherence, cardiovascular diseases. Nursing lifestyle modification

1. Introduction

Hypertension is one of the most important public health problems and reaches millions of people worldwide. It is the second most common risk factor for cardiovascular disease, stroke, chronic kidney disease and premature mortality. Hypertension is a major contributor to the global burden of non-communicable diseases and remains poorly controlled in many populations [1] [2].

Risk factors such as excessive salt intake, lack of exercise, obesity, smoking, alcohol use and non-compliance to antihypertensive medications are highly contribute factors for uncontrollable blood pressure with adverse clinical outcomes. The risk of complications can be significantly lessened by adopting healthy practices which include proper nutrition, physical activity, stress management and compliance with prescribed treatment regimens.

Nurses are in the forefront of patient education and promotion of health behaviours and chronic disease management.

Limited literature supports the relationship of various healthy practices with clinical risk factors in hypertensive patients living in north India. Thus, the present study was conducted to analyse health behaviour of hypertensive patients attending hypertension clinics in Jaipur and Lucknow and also find predictors of Hypertension treating complications.

Objectives:

- 1) To assess healthy practices among patients with hypertension.
- 2) To identify clinical risk factors associated with hypertension.
- 3) To determine the prevalence of hypertension-related complications.
- 4) To compare healthy practices between patients from Jaipur and Lucknow.
- 5) To identify predictors of hypertension-related complications.

2. Materials and Methodology

A comparative cross sectional research design selected healthy practices and predictors clinical complications was conducted among hypertensive patients in selected hospitals of Jaipur, Rajasthan and Lucknow, Uttar Pradesh. Study population: inclusion and exclusion criteria The study retrospectively included all patients diagnosed with hypertension who were receiving antihypertensive treatment at least once during the data collection period. Participants A total of 400 individuals were recruited, which included the participants from Jaipur (200): 44–56 years n=53; GST Before, After, n Presentation period and BLs Test, and End line Test results Test After BLs. Participants fulfilling the inclusion criteria were included by convenience sampling technique.

The inclusion criteria were hypertensive patients aged 30 years and older, who agreed to participate and consented. Critically ill patients, cognitantly impaired patients, and those unwilling to participate were excluded. Details were collected through structured questionnaire specifically designed by the researcher after a thorough literature review and consultations with experts. The questionnaire included four fundamental sections. In section I, data regarding demographics such as age, gender, marital status, normal conditions (residence and educational statuses (marital statuses), family history of hypertension and also monthly income were obtained. Section II evaluated healthy practices including grazing habits as well as physical activity, adherence to medications, stress management exercises, and other health behaviours. Clinical risk factors: obesity, diabetes mellitus, smoking, alcohol use, physical inactivity and high intake of saltSection iii Section IV assessed the history of complications associated with hypertensive disease] including coronary artery disease, stroke, chronic kidney diseases, hypertensive heart failure and hypertensive retinopathy.

Ethical approval was obtained from the Institutional Ethics Committee before starting data collection and written informed consent was taken from all participants. Participant confidentiality and anonymity were maintained throughout the study. Data were coded, entered, and analyzed using Statistical Package for the Social Sciences (SPSS) version 26. The data were described in terms of descriptive statistics (frequency, percentage, mean and standard deviation). Associations and predictors of clinical complications among hypertensive patients were analyzed by using inferential statistical tests such as independent t-tests, chi-square tests, and logistic regression analysis. Statistical significance was set at $p < 0.05$.

3. Results and Interpretation

Table 1: Demographic Characteristics of Participants (N=400)

Variable	Jaipur (n=200)	Lucknow (n=200)
Age 51–60 years	72 (36.0%)	78 (39.0%)
Male	118 (59.0%)	122 (61.0%)
Married	168 (84.0%)	171 (85.5%)
Urban Residence	128 (64.0%)	121 (60.5%)
Family History of Hypertension	116 (58.0%)	121 (60.5%)

Interpretation

Most participants belonged to the 51–60-year age group. Males constituted the majority of respondents in both cities. A substantial proportion reported a family history of hypertension, indicating a significant hereditary component.

Table 2: Healthy Practice Scores among Participants

Healthy Practice Level	Jaipur n (%)	Lucknow n (%)
Good	72 (36.0)	58 (29.0)
Moderate	95 (47.5)	88 (44.0)
Poor	33 (16.5)	54 (27.0)

Mean Healthy Practice Scores

- Jaipur = 52.4 ± 8.6
 - Lucknow = 48.7 ± 9.4
- $t = 4.28$
 $p < 0.001$

Interpretation

Participants from Jaipur demonstrated significantly better healthy practices than those from Lucknow. Poor healthy practices were more prevalent among participants from Lucknow.

Table 3: Clinical Risk Factors among Participants

Risk Factor	Jaipur n (%)	Lucknow n (%)
High Salt Intake	92 (46.0)	106 (53.0)
Physical Inactivity	84 (42.0)	99 (49.5)
Obesity	76 (38.0)	83 (41.5)
Diabetes Mellitus	68 (34.0)	74 (37.0)
Smoking	61 (30.5)	66 (33.0)
Poor Medication Adherence	68 (34.0)	79 (39.5)

Interpretation

High salt intake and physical inactivity were the most common risk factors. Poor medication adherence and obesity were also highly prevalent, emphasizing the need for targeted interventions.

Table 4: Hypertension-Related Complications

Complication	Jaipur n (%)	Lucknow n (%)
Coronary Artery Disease	34 (17.0)	42 (21.0)
Stroke/TIA	18 (9.0)	24 (12.0)
Chronic Kidney Disease	21 (10.5)	29 (14.5)
Heart Failure	15 (7.5)	20 (10.0)
Retinopathy	29 (14.5)	37 (18.5)

Interpretation

Coronary artery disease emerged as the most common complication, followed by retinopathy and chronic kidney disease. Complications were consistently more prevalent among participants from Lucknow.

Table 5: Logistic Regression Analysis for Predictors of Clinical Complications

Variable	AOR	95% CI	p-value
Poor Healthy Practices	4.11	2.44–6.91	<0.001
Poor Medication Adherence	3.27	1.95–5.48	<0.001
Diabetes Mellitus	2.96	1.78–4.91	<0.001
Age >60 Years	2.84	1.72–4.68	<0.001
Physical Inactivity	2.48	1.53–4.01	<0.001
Obesity	2.31	1.41–3.78	0.002
Smoking	2.12	1.24–3.62	0.005

Interpretation

Poor healthy practices were identified as the strongest predictor of hypertension-related complications. Medication adherence, diabetes mellitus, advanced age, physical inactivity, obesity, and smoking also significantly increased the risk of adverse outcomes.

4. Discussion

The results show a healthy character considerably affects the clinical outcome of hypertensive patients. Higher healthy practice score of Jaipur participants as compared to Lucknow ones reveals some regional variation among health behaviour and overall better management of diseases.

Our results also consistent with several other studies [21, 24] that indicated High salt intake and physical inactivity as the predominant risk factors and this could be contributed to their substantial role in contributing hypertension progression process. This association is intensified by the high prevalence of obesity and diabetes mellitus [41] which together reinforce the need for integrated chronic disease management programs.

Coronary artery disease was the most common complication, indicating specific long-term cardiovascular effects of poorly controlled hypertension. Logistic regression analysis showed that poor healthy behaviour and poorly taking medicines significantly increased the risk of complications.

These results corroborate what is already known from earlier data about lifestyle modification and treatment adherence for the prevention of cardiovascular adverse events.

5. Conclusion

After controlling for other clinical risk factors, healthy practices were significantly associated with decreased incidence and prevalence of hypertension-related complications. It is well-established that poor healthy habits, non-adherence to medicine, diabetes mellitus (DM), obesity, smoking, and sedentary behavior dramatically contribute to worse outcomes [13–16]. To achieve this and to have better disease control while reducing complications, greater emphasis on nurse-led interventions such as patient education, monitoring of blood pressure, also community-based hypertension management programs should be maintained.

Conflict of Interest:

The authors declare that there are no conflicts of interest related to this study.

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