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# Knowledge and Practices Related to Dietary Sodium Restriction in Hypertensive Patients

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## ABSTRACT:

**Background:** Hypertension is a major global public health challenge and a key risk factor for cardiovascular diseases. Dietary sodium restriction has been recognized as an effective non-pharmacological strategy for blood pressure control. However, there is limited data on how well hypertensive patients understand and implement sodium restriction in their daily lives. **Aim:** To assess the knowledge and practices related to dietary sodium restriction among patients diagnosed with hypertension. **Materials and Methods:** A cross-sectional study was conducted on 200 hypertensive patients attending a tertiary care hospital. A validated questionnaire assessed their knowledge and practices regarding sodium intake. Data were analyzed using SPSS software. **Results:** Only 42% of patients demonstrated good knowledge of dietary sodium recommendations. 37.5% reported actively reducing salt in meals. The primary barriers included lack of awareness (48%) and difficulty understanding food labels (35%). **Conclusion:** There is a significant gap between knowledge and practice related to sodium restriction in hypertensive patients. Focused dietary counseling and health education interventions are urgently needed.

Keywords: Hypertension, Sodium Intake, Dietary Salt, Patient Education, Lifestyle Modification

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# INTRODUCTION

Hypertension, often termed the "silent killer," is one of the most prevalent non-communicable diseases globally. It significantly contributes to the burden of cardiovascular diseases (CVDs), stroke, renal failure, and premature mortality. According to the World Health Organization (WHO), hypertension affects over one billion people worldwide and is responsible for approximately 9.4 million deaths each year. effectively requires a Managing hypertension multifaceted approach, including lifestyle modification and pharmacological treatment. Among lifestyle interventions, dietary sodium restriction has proven to be one of the most effective strategies for blood pressure control<sup>1-4</sup>.

The relationship between sodium intake and blood pressure is well-documented. Numerous clinical and epidemiological studies have demonstrated a direct, dose-dependent correlation between sodium consumption and elevated blood pressure levels. Populations with higher sodium consumption exhibit greater prevalence of hypertension and related complications. Conversely, sodium reduction has been associated with a significant reduction in systolic and diastolic blood pressure, especially in salt-sensitive individuals and the elderly<sup>5</sup>.

Despite this evidence, the global population continues to consume sodium at levels far exceeding the recommended intake. The WHO suggests a maximum of 2 grams of sodium per day (equivalent to 5 grams of salt), but average global consumption ranges between 9 to 12 grams daily. This discrepancy is partly due to poor public awareness, inadequate food labeling, and a strong preference for salty foods.

In low- and middle-income countries, including India, the burden of hypertension is rising steadily. The prevalence is estimated to be 25-30% among adults, with poor treatment adherence and inadequate lifestyle modification being major concerns. Dietary practices in India traditionally include high-salt foods, pickles, papads, and processed snacks—all of which contribute to excessive sodium intake. Moreover, public health initiatives focusing on sodium reduction remain scarce, and dietary counseling is not routinely integrated into hypertension management<sup>6-8</sup>.

Patient education regarding sodium restriction is crucial for sustainable hypertension control. However, previous studies have shown that many hypertensive patients are unaware of dietary guidelines, struggle to interpret food labels, and find it difficult to modify long-standing food habits. Understanding patient knowledge and practices is essential for designing targeted interventions that bridge the gap between awareness and action<sup>9,10</sup>.

This study was conducted to evaluate the current level of knowledge and actual dietary practices related to sodium restriction among hypertensive patients in a tertiary care setting. The findings aim to identify gaps and suggest strategies for more effective patient education and behavior change.

## MATERIALS AND METHODS **Study Design and Setting**

A descriptive cross-sectional study was conducted at the outpatient department of General Medicine in a tertiary care hospital.

## Sample Size and Selection

A total of 200 patients diagnosed with hypertension (age  $\geq$  30 years) were selected through convenience sampling. Inclusion criteria included patients diagnosed with hypertension for more than six months and on dietary or pharmacological treatment. Patients with cognitive impairment or severe comorbidities were excluded.

## **Data Collection Tool**

A pre-validated structured questionnaire was used. It included three sections:

- Demographics education, (age, gender, occupation)
- Knowledge (10 questions about sodium recommendations, sources of sodium, and health risks)
- Practices (8 questions about cooking methods, label reading, salt substitutes, and eating habits)

## **Statistical Analysis**

Data were analyzed using SPSS v25. Descriptive statistics (frequencies, percentages) and Chi-square test were used to examine associations between knowledge levels and demographic variables.

## RESULTS Table 1: Demographic Characteristics of Participants (N=200)

Variable	Frequency (n)	Percentage (%)
Age (years)		
30–45	60	30.0
46–60	85	42.5
>60	55	27.5
Gender		
Male	110	55.0
Female	90	45.0
Education Level		
No formal education	48	24.0
Primary/Secondary	82	41.0
Graduate and above	70	35.0

Most participants were aged between 46-60 years (42.5%) and more than half were male (55%). Education level varied widely, with 24% having no formal education (Table 1).

## **Table 2: Knowledge and Practices Regarding Sodium Restriction**

Domain	Correct Response (%)
Knowledge of daily salt limit	42.0
Awareness of salt in processed food	36.5
Knows to read nutrition labels	35.0
Reduces salt during cooking	45.5
Avoids pickles and papads	31.0
Uses low-sodium alternatives	26.5
Discussed sodium intake with doctor	38.0

Only 42% of participants knew the recommended daily salt intake. Practices such as reading nutrition labels and avoiding processed foods were poorly adopted. Less than 30% used low-sodium substitutes (Table 2).

## DISCUSSION

This study highlights significant gaps in both knowledge and practice concerning dietary sodium restriction among hypertensive patients. While 42% were aware of the daily salt limit, actual behavioral changes were much less prevalent. These findings align with previous studies, suggesting that awareness alone does not necessarily translate into appropriate action.

A study by He and MacGregor<sup>2</sup> emphasized that sodium restriction can reduce systolic blood pressure by up to 5 mmHg in hypertensive patients. Yet, our study shows that nearly 60% of patients are unaware

of this benefit or do not practice it. This mismatch could be attributed to inadequate health education and cultural dietary norms that favor high-salt foods<sup>11</sup>.

Further, the finding that only 35% of patients understood nutrition labels reflects an urgent need for simplifying food labeling in India<sup>12</sup>. According to Johnson RK et al.<sup>6</sup>, easy-to-read food labels are critical for dietary behavior change, particularly in populations with lower literacy.

The use of low-sodium salt alternatives was low (26.5%), possibly due to cost, lack of awareness, or unavailability in local markets. This trend was similarly reported by Kumanyika et al.<sup>3</sup>, who noted socio-economic factors as barriers to adopting healthier dietary options.

Gender and education level played a significant role in awareness and practices<sup>13</sup>. Men and individuals with higher education were more likely to reduce salt intake, possibly because of better access to health information. This reinforces the need for tailored interventions for low-literacy and underserved populations.

Another important finding is that only 38% of participants reported having a conversation with their doctor about sodium restriction. This reveals a missed opportunity in clinical practice<sup>14</sup>. Incorporating dietary counseling into routine care has been advocated by several authors, including Whelton et al.<sup>4</sup>, who suggest that even brief interventions can significantly influence patient behavior.

Finally, cultural preferences for salty foods such as pickles, papads, and processed snacks pose significant challenges in achieving sodium reduction. Behavioral change strategies should therefore involve family-based counseling and community participation to gradually alter long-standing dietary habits<sup>15,16</sup>.

#### CONCLUSION

Despite known benefits of dietary sodium restriction in hypertension management, this study found that the majority of patients neither possess adequate knowledge nor follow sodium reduction practices. Addressing this gap requires coordinated efforts including patient education, counseling during clinical visits, improved food labeling, and culturally sensitive public health campaigns.

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