

## A Clinic-Based Study Evaluating Self-Care Practices among Individuals with Hypertension

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### ABSTRACT

**Background:** Hypertension constitutes the primary factor contributing to the highest number of preventable fatalities and illnesses in the country of India. One of the primary contributors to the development of cardiovascular disease, this factor was responsible for 23% of all fatalities and 32% of deaths among adults during the period of 2010-2013.

**Methods:** A cross-sectional study was conducted at a clinical setup, utilizing an observational approach. The data was collected from a sample of 248 individuals who had been diagnosed with hypertension. The data collection process involved the utilization of a pre-designed and pre-tested structured schedule. The aforementioned schedule consisted of multiple elements and was implemented for every participant.

**Results:** In the current investigation, it was found that a majority of the study participants (62.9%) who were diagnosed with hypertension exhibited unfavorable self-care practices. The logistic regression analysis revealed that several factors were significantly associated with unfavorable self-care practices. These factors included age above 60 years (odds ratio [OR] = 3.1), primary level education (OR = 5.6), poor socioeconomic status (OR = 2.4), being widowed or separated (OR = 3.3), and individuals who perceived their health status as poor (OR = 2.8). After controlling for other variables, age (adjusted odds ratio [AOR] = 2.3) and education (AOR = 3.8) continued to exhibit a significant association with the outcome.

**Conclusions:** The results of the study indicated that self-care practices among individuals with hypertension were suboptimal in rural regions. There is a significant imperative to enhance the level of awareness regarding healthy lifestyle practices among individuals diagnosed with hypertension. This study offers essential components for influencing policy changes and implementing social interventions.

**Keywords:** Self-care practice, Hypertensive patients

### INTRODUCTION

Hypertension stands as the primary factor responsible for the most significant proportion of preventable fatalities and illnesses within the context of India. Cardiovascular disease, a prominent risk factor, was responsible for 23% of total deaths and 32% of adult deaths during the period of 2010-2013.[1]The user's text is already academic in nature. India has made a commitment to undertake a variety of measures in order to achieve the Sustainable Development Goals (SDG) objective of reducing premature mortality caused by non-communicable diseases (NCDs) by one-third by the year 2030. However, the achievement of this objective largely depends on its capacity to effectively monitor the increase in hypertension. The study on the Global Burden of Hypertension has brought attention to the fact that out of the total global burden of 212 million Disability-Adjusted Life Years (DALYs) associated with hypertension, 18% were attributed to India in the year 2015.[2]The user's text is too short to be rewritten academically. The prevalence of hypertension in India is anticipated to increase significantly in the foreseeable future as a result of rapid environmental changes and shifts in lifestyle patterns. These changes are primarily driven by hazardous working conditions and the mounting social pressures associated with ensuring one's survival.[3,4]The user's text is too short to be rewritten in an academic manner. The user's text is too short to be rewritten in an academic manner.

The topic of interest pertains to the monitoring and evaluation of the Sustainable Development Goals (SDGs). Hence, it is crucial to monitor blood pressure trends in order to assess the country's progress in achieving the Sustainable Development Goal (SDG) of reducing non-communicable disease (NCD) mortality. In order to accomplish this, it is imperative to gather relevant data on hypertension. This will enable stakeholders to develop suitable interventions and assess the efficacy of national programmes that aim to effectively combat hypertension and its associated non-communicable diseases (NCDs). However, there was a scarcity of dependable data regarding the prevalence of hypertension in India. Consequently, in order to evaluate the extent of this issue, policymakers were compelled to depend on community studies or surveys that furnished self-reported information regarding hypertension. [5-8] Moreover,

national-level estimates on hypertension were derived by extrapolating data from small-scale studies. The [9]. Despite the valuable contribution of these studies and their significance as a primary resource for health policy makers, the lack of active surveillance or data from population-based surveys poses a challenge in accurately assessing the actual prevalence of hypertension in India. The most recent health surveys have conducted assessments of blood pressure, offering a chance to examine the patterns in the occurrence of hypertension at various levels, including national, sub-national (state), and district levels. Due to the significant diversity in demographic and socioeconomic factors among the various states in India, it is highly probable that there will be substantial variations in the prevalence of hypertension between states. The numerical value provided by the user is 9. Furthermore, it is worth noting that there exist significant socioeconomic disparities that are prevalent even at an intra-state level. Therefore, it is necessary to obtain estimates at both the state and district levels in order to inform policy development, establish intervention priorities, and assess the effectiveness of national programmes. This research is the inaugural study conducted in India that presents estimations regarding the prevalence of hypertension at both the national level and within each state, district, rural and urban areas, as well as individual characteristics such as age, sex, and economic status. These estimations are based on the most up-to-date large-scale survey data available. In addition to offering estimations regarding the prevalence of hypertension, efforts were undertaken to identify the factors associated with hypertension.

## METHODS

This study employs a clinic-based observational approach with a cross-sectional design, focusing on hypertensive patients who sought care at the Outpatient Department (OPD) of a tertiary care centre. The study included individuals diagnosed with hypertension, who had a documented history of the condition for a duration of six months, and who provided informed consent. During the designated Outpatient Department (OPD) hours, it was feasible to conduct interviews with a limited number of hypertensive patients, specifically ranging from 6 to 8 individuals. This constraint was primarily due to the substantial time required to adequately complete each interview, which typically took approximately 15 to 20 minutes.

The data was gathered from a sample of 248 individuals diagnosed with hypertension. A pre-designed and pre-tested structured schedule was utilised to collect the data. This schedule encompassed various components and was administered to each participant.

- Socio demographic profile.
- The disease profile encompasses inquiries pertaining to the duration of hypertension, as well as the presence of a family history of the condition. Additionally, it includes the assessment of co-morbidities such as diabetes and arthritis.
- Self-perceived health status assessed by a question with three point Likert response.

Self-care practice was assessed by 12 questions which was adapted from Hypertension self-care activity level effects (H-SCALE), which is a self-report assessment designed to measure the self-care activities recommended by JNC 7.

### *Operational definition of favourable and unfavourable self-care practice*

Favourable self-care practises were defined as adhering to regular medication intake, monitoring blood pressure at least twice per month, engaging in physical activity on at least four days per week, making efforts to maintain a healthy weight, and abstaining from smoking.

The study participants were categorised into two groups, namely those with overall favourable self-care practises and those with overall unfavourable self-care practises, using a scoring system. In the end, a threshold of the 75th percentile was utilised to classify self-practice as either overall favourable ( $\geq 75^{\text{th}}$ ) or unfavourable ( $< 75^{\text{th}}$ ).

## RESULTS

Study participants aged from 41 to 82 years with mean age 57 years and median age 60 years. 46.8% are homemaker and 35.4% are working people. 30.6% participants belonged to poorest percentile ( $< 25^{\text{th}}$  percentile). Mean per capita income of study participants was 1019.8 rupees (Table 1).

**Table 1: Background characteristics of study participants [n=248].**

Variables		No. (%)
Age (in completed years) Mean (SD) 57.65 (10.57); Median 60; Range 41-82	41-50	82 (33.1)
	51-60	54 (21.8)
	61-70	84 (33.9)
	>71	28 (11.3)
Sex	Male	102 (41.1)
	Female	146 (58.9)
Educational status (median years of schooling– 5 years)	Illiterate	98 (29.5)
	Primary	24 (9.7)
	Middle	96 (38.7)
	Secondary	26 (10.5)

<b>Occupation</b>	Higher secondary & above	4 (1.6)
	At home	44 (17.7)
	Homemaker	116 (46.8)
	Farmer	32 (12.9)
	Unskilled (labor)	38 (15.3)
	Semi-skilled*	18 (7.3)
<b>Per capita income in percentiles. (in Rupees) (Mean (SD) 1019.8 (388.7))</b>	< 25 <sup>th</sup> (<750)	76 (30.6)
	25 <sup>th</sup> -50 <sup>th</sup> (750-899)	54 (21.7)
	50 <sup>th</sup> -75 <sup>th</sup> (900-1249)	66 (26.7)
	>75 <sup>th</sup> (>1250)	52 (20.9)
<b>Marital status</b>	Currently married	166 (66.9)
	Widow	76 (30.6)
	Separated	6 (2.4)
<b>Type of family</b>	Nuclear	82 (33.9)
	Joint	166 (66.9)
<b>Perceived health status</b>	Good	42 (16.9)
	Fair	124 (50)
	Poor	82 (33.1)
<b>Family history of HTN</b>	Yes	82 (33.1)
	No	166 (66.9)
<b>Presence of any other disease</b>	Yes	130 (52.4)
	No	118 (47.5)
<b>Duration of hypertension (Median years-5)</b>	<5	160 (64.5)
	≥5	88 (35.5)

Semi-skilled: clerk, businessman, shopkeeper, jewel maker.

The study included individuals ranging in age from 41 to 82 years, with a mean age of 57 years and a median age of 60 years. The data reveals that 46.8% of individuals identified themselves as homemakers, while 35.4% identified themselves as individuals engaged in employment. Approximately 30.6% of the participants were classified within the lowest percentile, specifically below the 25th percentile. The average per capita income of the study participants was recorded as 1019.8 rupees, as indicated in Table 1. Out of the total number of participants, 156 individuals, accounting for 62.9% of the sample, exhibited unfavourable self-care practises. The univariate logistic regression analysis demonstrates a significant association between individuals aged above 60 years and the odds ratio (CI) with a 95% confidence interval. The individual's educational attainment is below the primary level, with a numerical grade of -3.1 (with a range of 1.4 to 6.7).

Regarding the practise of self-care, it was observed that 58% and 34% of individuals exhibited unfavourable levels of medication adherence and blood pressure monitoring, respectively. Approximately 29.1% of individuals have not made attempts to avoid consuming foods high in salt, while approximately 28.2% have not made efforts to avoid consuming foods high in fat. A significant proportion of individuals, specifically 48%, demonstrated a consistent effort to minimise the inclusion of excess salt in their meals. Additionally, a notable percentage of participants, specifically 19.4%, exhibited a preference for consuming boiled foods as opposed to fried alternatives. Approximately 36.3% of individuals reported consuming a minimum of five servings of fruits and vegetables on more than three days per week. A significant majority of individuals, specifically 72.6%, have not engaged in stress management strategies such as deep breathing exercises and meditation. According to Table 2, a mere 31.5% of individuals sought medical advice from doctors, while the remaining majority solely sought medications. According to the study findings, individuals in the lowest percentile with a confidence interval (CI) of -5.6 (ranging from 2.5 to 12.9) were found to have an increased likelihood of experiencing unfavourable outcomes. Similarly, those who were widowed or separated, with a CI of -2.4 (ranging from 1.1 to 5.7), were also associated with higher odds of unfavourable outcomes. Additionally, participants who reported having poor self-perceived health status, with a CI of -3.3 (ranging from 1.3 to 8), were found to have increased odds of unfavourable outcomes. Lastly, individuals with a CI of -2.8 (ranging from 1.2 to 6.7) were also identified as having elevated odds of unfavourable outcomes. The concept of self-care practise refers to the deliberate and proactive actions taken by individuals to promote their physical, mental, and emotional well In the context of multivariable logistic regression, the variables of age and education retained their significance even after being adjusted for other significant variables. The adjusted odds ratio (AOR) for age was found to be 2.3 (95% confidence interval [CI]: 1.02-5.3), while the AOR for education was 3.8 (95% CI: 1.4-10.1). The model has been successfully fitted. To elucidate the determinants of unfavourable self-care practises. The Hosmer-Lemeshow statistic is reported to be 0.6. The aforementioned factors account for approximately 26% of the variability observed in unfavourable self-care practises, as indicated by the Nagelkerke R<sup>2</sup> value of 0.258 (Table 4).

**Table 2: Distribution of study participants according to their self-care practices [n=248].**

Self-care practices	Favorable [score-2] No. (%)	Unfavorable [score-0] No. (%)	
Medication adherence	104 (41.9)	144 (58.1)	
Frequency of BP monitoring	164 (66.1)	84 (33.9)	
Physical activity	44 (17.8)	204 (82.2)	
Trying to keep weight down	74 (29.8)	174 (70.2)	
Smoking habit	174 (70.2)	74 (29.8)	
	Always [score2]	Sometimes [score1]	Never [score-0]
Avoid high salt foods	42 (16.9)	134 (54)	72 (29.1)
Avoid extra salt in food	118 (47.8)	104 (41.9)	26 (10.5)
Avoid high fat foods	42 (16.9)	136 (54.8)	70 (28.2)
Taking boiled food instead of fried foods.	48 (19.4)	160 (64.5)	40 (16.1)
Consuming fruits and vegetables	90 (36.3)	140 (56.5)	18 (7.3)
Deep breathing, meditation practice	10 (4)	58 (23.4)	180 (72.6)
Visit for doctors advise	78 (31.5)	110(44.4)	60 (24.2)

**Table 3: Scoring distribution of self-care practice of study participants [n=248].**

Scores	Value/s
Attainable score	0-24
Attained score	3-22
25 <sup>th</sup> percentile	8
50 <sup>th</sup> percentile	10
75 <sup>th</sup> percentile	13

**Table 4: Factors associated with unfavourable self-care practice among study participants [n=248].**

Factors	Total No.(%)	Unfavorable self-care practice. No. (%)	OR (95% C.I.)	AOR <sup>#</sup> (95% C.I.)
Age (≥60 years)	130 (52.5)	98 (75.4)	3.1 (1.4-6.7)*	2.3 (1.02-5.3)* (p=0.04)
Sex (female)	146 (58.9)	92 (63)	1.01 (0.4-2.1)	
Education (≤primary level)	122 (49.2)	100 (82)	5.6 (2.5-12.9)*	3.8 (1.4-10.1)* (p=0.006)
Occupation (unemployed)	160 (64.6)	104 (65)	1.2 (0.6-2.7)	
Socioeconomic status (poorest percentile)	76 (30.6)	58 (76.3)	2.4 (1.1-5.7)*	1.6 (0.6-4.1)
Marital status (widow/separated)	82 (33.1)	65 (80)	3.3 (1.3-8)*	1.1 (0.3-3.4)
Type of family (nuclear)	82 (33.1)	60 (73.2)	1.9 (0.8-4.5)	
Perceived health status (poor)	82 (33.1)	64 (78)	2.8 (1.2-6.7)*	1.4 (0.5-4.0)
Duration of hypertension (≥ 5 years)	488(35.5)	60 (68.2)	1.4 (0.6-3.1)	
No family history of HTN	166 (66.9)	108 (65.1)	1.3 (0.6-2.8)	
History of any other disease.	130 (52.5)	87 (67.2)	1.5 (0.7-3.1)	
Nagelkarke R <sup>2</sup>		0.261		

\*Statistically significant (P<0.05); OR– odd's ratio; CI– confidence interval; AOR- adjusted odd's ratio. <sup>#</sup>For multivariate binary logistic regression, only those independent variables were included in the model that were significant in bivariate analysis.

## DISCUSSION

This study represents a pioneering effort within the rural population of Singur block, West Bengal, as it aims to elucidate the self-care practises prevalent in this region. This may potentially foster novel perspectives on self-care management programmes for hypertension, an area that remains lacking in empirical research within the context of West Bengal. This study examines all domains outlined by the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) in relation to self-care practises. Previous research has predominantly focused on examining individual domains in isolation. However, in this particular study, a novel approach was adopted whereby all domains were integrated to create a comprehensive measure of self-care practise. This study found that specific socio-demographic factors were linked to unfavourable self-care practises, particularly among older

individuals who belong to dependent groups, resulting in neglect of their health. Unfavourable self-care practises were observed among individuals with limited awareness, those who had completed only primary level education, individuals with low socio-economic status, those living alone, and those who perceived their health status to be poor. This study revealed a disparity in self-care practises between males and females, with males exhibiting higher levels of engagement. Conversely, a separate study conducted in Delhi demonstrated that females engage in self-care practises to a greater extent. This discrepancy may be attributed to the neglect of women's health in rural areas, relative to that of men. In the study, it was observed that the proportion of individuals perceiving their health status as good and poor was 16% and 34% respectively, whereas the corresponding figures reported in the previous study were approximately 1% and 29%. The prevalence of specific practises, such as engaging in regular physical activity and refraining from adding additional salt to food, is significantly greater than what has been reported in this study. The disparity can be attributed to the geographical distinction between rural and urban areas, as well as variations in the literacy levels of individuals.[10]

A separate study conducted in Nepal demonstrated a notable increase in the prevalence of self-care practises across all domains. The aforementioned phenomenon can be attributed to individuals adopting healthy lifestyles, which encompass their dietary patterns and engagement in physical exercise. The research was carried out within a tertiary hospital setting, where patients possess a heightened awareness of their health status and exhibit a greater inclination towards seeking healthcare services.[11] The research conducted in Mumbai reveals a significant prevalence of unfavourable self-practices within a slum setting. The inhabitants of this area exhibit an unhealthy lifestyle, particularly in terms of dietary habits, which contrasts with the practises observed among rural populations. Furthermore, there is a notable lack of awareness regarding the significance of maintaining good health. [12] A separate investigation carried out at a tertiary hospital in Chennai revealed notable instances of positive self-care practises. Specifically, 89% of individuals were identified as non-smokers, and 75% reported abstaining from excessive salt consumption. In contrast, the present study observed a lower proportion of participants, specifically 47.8%, who reported avoiding excessive salt intake. The aforementioned factors contributing to this phenomenon are the level of education, socio-economic status, and health considerations among urban residents.[13] The study conducted in a rural population of China demonstrated that each domain exhibited higher values in comparison to the present study. The disparity can be attributed to their adherence to a healthy lifestyle.[14] However, it is important to note that this study does have a number of limitations. The present study is a clinic-based survey, thus it is important to note that the findings may not be generalizable to the broader population. The entire population. Furthermore, due to the utilisation of a cross-sectional design, it was not possible to establish causality. Furthermore, the data in this study were acquired via a self-report questionnaire, thus making it susceptible to a certain degree of recall bias. In this study, we employed specific criteria that were tailored to the objectives of the research in order to evaluate the self-care practises.

### Conclusion

In conclusion, it can be inferred that the aforementioned points support the notion that...This study demonstrates that the implementation of self-care practises is not preferred in rural areas. One primary factor contributing to this issue is a general lack of knowledge regarding the advantages of non-pharmacological interventions in managing hypertension. The significance of conducting research on hypertension self-care practise lies in its potential to contribute valuable insights towards the development of novel multilevel models pertaining to self-care support. This research can also offer recommendations for practical interventions that can be implemented. It is imperative to conduct an assessment of potential barriers to adherence and self-management in all patients, followed by appropriate referral for additional counselling. Patient and family education regarding antihypertensive therapy ought to be tailored to the patient's comprehension level and financial means.

Hypertension is commonly referred to as a "Iceberg disease" in academic literature. Hence, it is imperative to implement a rigorous public health initiative aimed at identifying, managing, and mitigating the adverse outcomes associated with hypertension. The training of basic health workers in the detection of hypertension, particularly in rural areas where manpower is limited, can be an effective strategy to address this issue. This can be complemented by efforts to enhance public health surveillance systems. Given the considerable public health advantages associated with the regulation of blood pressure, it is imperative to prioritise the self-care management of hypertension.

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