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Research Article

Assessment of Knowledge, Attitude and Practices Regarding Hypertension in a Rural Community

Farida Yesmin[1, *], Md Nizam Uddin[2], Farzana Afroz[1], Ashrafi Akter Zahan[3], Mohammad Abul Bashar[4]

[1]Department of Pharmacology & Therapeutics, Gonoshasthaya Samaj Vittik Medical College, Dhaka, Bangladesh
[2]Department of Microbiology, Gonoshasthaya Samaj Vittik Medical College, Dhaka, Bangladesh
[3]Department of Anatomy, Gonoshasthaya Samaj Vittik Medical College, Dhaka, Bangladesh
[4]Department of Community Medicine, Gonoshasthaya Samaj Vittik Medical College, Dhaka, Bangladesh

Abstract

Background: Hypertension is a major public health challenge globally, especially in rural communities where knowledge, attitude and practices (KAP) regarding its prevention and management are often inadequate. This study aimed to assess the knowledge, attitude and practices regarding hypertension among rural residents in Sreepur, Gazipur, Bangladesh. *Methods:* This descriptive cross-sectional study was conducted among 292 participants selected using convenient sampling. Data were collected through face-to-face interviews using a semi-structured questionnaire, covering demographic characteristics, hypertension awareness, knowledge of risk factors, attitudes towards treatment and practices related to hypertension management. Descriptive statistics were used for data analysis. *Results:* Among participants, 58.2% were female and the majorities were aged 30-39 years. About 90.4% were aware of their hypertension status and 50.3% had a family history of hypertension. While 63.7% believed antihypertensive drugs effectively control blood pressure, only 35.3% were currently on medications. Awareness of risk factors were low, only 20.9% identified hereditary, 14% identified obesity and 18.2% recognized tobacco use as risk factors. Additionally 75.7% reported using added salt in meals and 19.2% were current smokers. Regular medications adherence was reported by only 22.3% and 52.4% admitted irregular intake of antihypertensive medications. *Conclusion:* Despite high awareness of hypertension, there are significant gaps in knowledge, attitudes and practices related to risk factors, lifestyle modifications and medications adherence. Targeted community-based interventions, health education programs and improved access to healthcare services are essential to improve hypertension management in rural Bangladesh.

Keywords

Hypertension, Knowledge, Attitude, Practices, Rural Community

[*]Corresponding author: drfaridayesminmousumi@gmail.com (Farida Yesmin)

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1. Introduction

Hypertension or high blood pressure is a global leading health condition and a very high risk factor for cardiovascular disease, stroke and kidney failure [1]. Hypertension is a "silent" illness often asymptomatic until organ damages has begun and therefore responsible for its under-diagnosis and suboptimal control, particularly in low-income environments [2]. The growing burden of hypertension is not limited to urban populations but is increasingly affecting rural populations, where there is poor health awareness and access to healthcare services [3]. Hypertension has emerged as a significant public health issue in Bangladesh, driven by a combination of demographic changes, lifestyle changes and low health literacy [4]. Lack of awareness among rural people, even after various government drives and campaigns, is one factor. Rural peoples are not well educated about hypertension causes, prevention and control [5]. This directly affects attitudes and practices, which indirectly reflect on prevention, detection and control of hypertension at the community level [6].

A variety of reasons are behind the increasing trend of hypertension among people in rural Bangladesh [2]. These are unwholesome food habits, high salt intake, physical inactivity, consumption of tobacco and growing levels of stress [5]. Socioeconomic challenges, limited access to proper health care and cultural factors make it a complex situation. Rural residents more often obtain treatment from nonofficial providers or village health workers who may not get adequate training to handle hypertension [7]. This disorganized process of care seeking along with lack of good awareness regarding long-term consequences of hypertension results in poor control rates and increased morbidity and mortality [8].

Understanding the knowledge, attitudes and practices (KAP) of rural populations regarding hypertension is important to formulate targeted and culturally appropriate interventions [9]. Knowledge refers to awareness of risk factors, symptoms, complications and treatment of hypertension. Attitude deals with beliefs and perceptions regarding the severity of hypertension and the necessity for its control. Practice includes health-seeking behavior, drug adherence, dietary modifications and lifestyle modifications to prevent or control hypertension [10]. Assessment of these factors provides valuable information regarding common gaps and barriers to guide healthcare planners in developing effective plans to improve hypertension awareness and control in rural communities [11].

Previous studies with rural Bangladesh and other low and middle-income countries have reported poor rates of awareness, negative beliefs regarding the use of long-term medications and suboptimal strategies for hypertension management [12, 13]. Nevertheless, such studies are few especially in geographically heterogeneous areas like Sreepur, Gazipur. The aim of this study was to assess knowledge, attitude and practices of hypertension among adults residing in this rural setting. In identifying the determinants of hypertension control at the community level, this study aspires to provide evidence that can be used in guiding future community-based health education interventions and policy-making. Raising awareness and healthy perceptions towards the control of hypertension can educate rural societies to adopt healthier lifestyles, receive early medical consultation and adhere to prescribed medications, thereby reducing the burden of hypertension-related complications.

2. Methodology & Materials

This descriptive cross-sectional study was conducted in Sreepur, Gazipur, Bangladesh, under the Department of Pharmacology & Therapeutics during December 2022. The present study was conducted to assess the knowledge, attitude and practice regarding hypertension among rural community individuals. A total of 292 participants aged 20 years and above were included through convenient sampling. The participants were male and female residents who were either hypertensive cases or family cases of hypertension or no known history of hypertension. Individuals who were severely ill, cognitively impaired or unwilling to provide informed consent were excluded from the study.

The data was gathered using a semi-structured questionnaire. The questionnaire contained demographic data, awareness of hypertension, sources of information, perceived risk factors, lifestyle and adherence to treatment. Trained data collectors conducted face-to-face interviews to ensure that participants clearly understood each question and response. Participants were also asked about their awareness of the causes, prevention and treatment of hypertension, their own health-seeking behavior and medication adherence patterns.

Hypertension status was determined either by self-report of history of previous diagnosis by a health worker or on-spot blood pressure measurement using a standardized sphygmomanometer in accordance with WHO recommendations. Blood pressure was recorded twice and the mean value was used. Participants who had systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg were classified as hypertensive. Participants receiving antihypertensive treatment were also considered hypertensive regardless of their baseline blood pressure level.

SPSS version 23 was used for data analysis. Descriptive statistics such as percentage and frequency were used to present categorical variables. Continuous variables were reported as mean and standard deviation. Confidentiality and anonymity of all participants were strictly maintained during the study period. The results of this study are expected to contribute towards explaining the prevailing gaps in evidence, myths and barriers to the control of hypertension in rural Bangladesh that could guide community-based health education interventions and programs.

3. Results

Table 1. Demographic Characteristics of our Study Participant (N = 292).

Characteristics	Frequency	Percent (%)
Sex		
Male	122	41.8
Female	170	58.2
Age Group (years)		
20 - 29	38	13.0
30 - 39	71	24.3
40 - 49	60	20.5
50 - 59	64	21.9
60 - 69	30	10.3
≥70	29	9.9
Religion		
Islam	276	94.5
Hinduism	16	5.5
Marital status		
Single	17	5.8
Married	257	88
Widow	16	5.5
Divorced	2	0.7
Educational status		
Illiterate	69	23.6
Primary	113	38.7
SSC	72	24.7
HSC	19	6.5
Higher (Others)	19	6.5
Occupation		
Business	40	13.7
Farmer	56	19.2
Housewife	143	49
Day labour	13	4.5
Student	28	9.6
Others	12	4.1
Monthly Income Range (Taka)		
≤ 5000	26	8.90
5001 - 10000	61	20.89
10001 - 20000	122	41.78
20001 - 30000	52	17.81
30001 - 50000	27	9.25
> 50000	4	1.37
Socio-Economic Status		
Ultra-poor	15	5.1
Poor	82	28.1
Lower middle class	96	32.9
Middle class	85	29.1
Upper middle class	10	3.4
Rich	4	1.4

Table 1 presents the demographic profile of the 292 participants. The majority were female (58.2%) and most participants were aged 30-59 years. The population was predominantly Muslim (94.5%) with 88% married. In terms of education 38.7% had primary-level education, while 23.6% were illiterate. The most common occupations were housewives (49%) and farmers (19.2%). Regarding income, 41.78% earned between 10,001 to 20,000 taka per month. Socio-economically lower middle class (32.9%) and poor (28.1%) groups made up the majority.

Table 2 shows that 90.4% of participants were aware they had hypertension while 9.6% reported no history of hypertension. Regarding family history, 50.3% had a family history of hypertension, indicating a balanced distribution between those with and without a family history.

Table 2. Hypertension Awareness and Family History (N = 292).

Variable	Frequency	Percent
Hypertension		
Yes	264	90.4
No	28	9.6
Family history of HTN		
Yes	147	50.3
No	145	49.7

Table 3. Knowledge and Attitude towards Hypertension (N = 292).

Variable	Frequency	Percent
Antihypertensive drugs are effective to control BP		

Variable	Frequency	Percent
Not responded	34	11.6
Yes	186	63.7
No	72	24.7
Your source of knowledge about HTN is public hospital		
Not responded	30	10.3
Yes	75	25.7
No	187	64
Your source of knowledge about HTN is private hospital/doctors		
Not responded	31	10.6
Yes	46	15.8
No	215	73.6
Your source of knowledge about HTN is nurses of local clinic		
Not responded	32	11
Yes	34	11.6
No	226	77.4
Your source of knowledge about HTN is village health workers		
Not responded	30	10.3
Yes	65	22.3
No	197	67.5
Health workers discussed with you about treatment and control of HTN		
Not responded	24	8.2
Yes	176	60.3
No	92	31.5

Table 3 highlights the knowledge and attitudes of participants towards hypertension. While 63.7% believed antihypertensive drugs are effective for blood pressure control, 24.7% did not and 11.6% did not respond. Regarding sources of knowledge only 25.7% received information from public hospitals, 15.8% from private hospitals/doctors, 11.6% from local clinic nurses and 22.3% from village health workers, indicating low involvement of healthcare providers in spreading hypertension awareness. Additionally, 60.3% reported that health workers discussed hypertension treatment and control with them while 31.5% did not receive such guidance.

Table 4. *Risk Factors and Lifestyle Habits (N = 292).*

Variable	Frequency	Percent
Risk factor of HTN is hereditary		
Not responded	14	4.8
Yes	61	20.9
No	217	74.3
HTN is obesity/overweight		
Not responded	13	4.5
Yes	41	14
No	238	81.5
HTN is tobacco use		
Not responded	13	4.5
Yes	53	18.2
No	226	77.4
HTN is stress		
Not responded	13	4.5
Yes	72	24.7
No	207	70.9
HTN is lack of exercise		
Not responded	13	4.5
Yes	33	11.3
No	246	84.2
HTN is too much salt intake		
Not responded	14	4.8
Yes	49	16.8
No	229	78.4
HTN is unknown		
Not responded	14	4.8
Yes	38	13
No	240	82.2
HTN is diet/dietary factor		
Not responded	14	4.8
Yes	18	6.2
No	260	89
Smoked cigarette in the past		
Not responded	1	0.3
Yes	64	21.9
No	227	77.7
Do you smoke cigarette at present		
Not responded	1	0.3
Yes	56	19.2
No	235	80.5

Variable	Frequency	Percent
Do you consume added salt		
Not responded	0	0.0
Yes	221	75.7
No	71	24.3
Cooking oil		
Soyabean oil	278	95.2
Mustard oil	13	4.5
Others	1	0.3

Table 4 highlights the awareness of risk factors and lifestyle habits related to hypertension among the participants. Only 20.9% of the respondents identified heredity as a risk factor for hypertension, while 14% associated it with obesity or being overweight. Tobacco use was recognized as a risk factor by 18.2% of participants and 24.7% linked stress to hypertension. However awareness about other important factors were lower, with only 11.3% identifying lack of exercise and 6.2% recognizing dietary factors as contributing to hypertension. A large majority 75.7% reported consuming added salt in their regular diet which is a known contributor to high blood pressure. In terms of cooking oil preference 95.2% of participants used soyabean oil while a small proportion used mustard oil. Regarding smoking habits 21.9% admitted to smoking in the past and 19.2% were current smokers.

Table 5. *Hypertension Management and Treatment Compliance (N = 292).*

Variable	Frequency	Percent
Do you control your blood pressure currently by blood pressure tablet?		
Not responded	82	28.1
Yes	103	35.3
No	107	36.6
Did you take medication regularly within last 2 weeks?		
Not responded	74	25.3
Yes	65	22.3
No	153	52.4
Is your blood pressure well controlled?		
Not responded	64	21.9
Yes	119	40.8
No	49	16.8
Do not know	60	20.5
Ever defaulted hypertensive medication?		
Not responded	117	40.1
Yes	42	14.4
No	133	45.5

Table 5 presents information on hypertension management and treatment compliance among the participants. Only 35.3% reported currently controlling their blood pressure with antihypertensive medications while 36.6% were not using any medications and 28.1% did not respond. Regular medication adherence within the last two weeks was relatively low, with only 22.3% confirming regular intake while 52.4% admitted they did not take their medications consistently. Regarding blood pressure control status, 40.8% believed their blood pressure was well controlled while 16.8% reported it was not and 20.5% were unsure. Additionally 45.5% stated they had never defaulted on their medications but 14.4% admitted to having missed their medications at some point.

4. Discussion

The present study assessed the knowledge, attitude and practices (KAP) regarding hypertension among rural residents in Sreepur, Gazipur, Bangladesh. Overall, our findings highlight considerable gaps in awareness, attitudes and practices related to hypertension in this rural community.

In our research, 90.4% of the participants knew they had hypertension but only 35.3% said they were actively managing their blood pressure with antihypertensive medication. These results indicate large awareness-action gaps. Jahan et al. reported similar trends, where despite many rural Bangladeshis being aware of their hypertensive status, treatment adherence was low because of low health literacy and absence of follow-up care [14]. Parr et al., found among rural populations in South Asia, further noted that limited access to healthcare services, socio-economic status and utilization of traditional medicine contribute to the poor control of hypertension among rural populations [15].

Encouragingly, 63.7% of our study respondents believed that antihypertensive medication is effective in the management of blood pressure. This is consistent with Boitchi et al.'s result that positive attitudes towards hypertension treatment are quite common among rural populations in Bangladesh, even in the absence of general health education [16]. Mohammed et al., working among rural populations in Malaysia, similarly discovered that individuals hold the view that medication is effective but are faced with barriers such as cost and inconsistent supply that hinder regular use [7].

Akuiyibo et al. demonstrated in Nigeria that favorable attitudes, and hence favorable treatment adherence, could be enhanced using community-based health education interventions something that can potentially be helpful in Bangladesh as well [17].

Despite a sufficient amount of awareness, only 22.3% of the participants had been regularly taking antihypertensive medication in the past two weeks and 52.4% had turned to irregular drug consumption. These poor levels of compliance are in agreement with work by Chimberengwa and Naidoo, who also reported the same non-compliance in rural Zimbabwe due to economic constraints, forgetfulness and fear of side effects [18]. Naseem et al., in rural Pakistan, also reported that non-compliance with medication was common and strongly linked with low knowledge of hypertension and its long-term consequences [19]. In Bangladesh, Boitchi et al. found that non-compliance with medication is further complicated for patients by their reliance on untrained village practitioners and alternative treatments [16].

Even risk factor awareness among participants was poor. Only 20.9% mentioned heredity as a risk factor, and just 14% associated obesity with hypertension. Awareness of other major risk factors was even less, with only 11.3% aware of inactivity and 6.2% aware of diet as risk factors. Baharudin et al., in Malaysia, also found similar gaps in rural populations, where causes of non-communicable diseases were not known well due to a lack of health promotion interventions [20]. Asante et al., in studies of rural communities in Ghana, also found that many people underestimated the role of physical inactivity and unhealthy diet in the etiology of hypertension [21]. Aferu et al., from rural Ethiopia, described that among diagnosed hypertensive patients, there was poor knowledge of lifestyle risk factors, a consistent pattern in low-resource settings [22].

The current study also found that 75.7% of the study participants had reported consumption of added salt in their regular diet. This high salt consumption is consistent with evidence by Parr et al., which documented excessive salt consumption in rural South Asian diets, often triggered by cultural practices and lack of dietary guidance [15]. Baharudin et al., based on Malaysia's MyCoSS survey, also found excess salt consumption to be a key determinant of the high burden of hypertension in Malaysia [20]. Aferu et al. also placed emphasis on advocating for salt reduction measures tailored to rural food habits [22].

In terms of smoking, 21.9% were past-smokers, and 19.2% of the participants were current smokers. This agrees with previous studies by Jahan et al., which highlighted that tobacco use is a persistent risk factor for hypertension in rural Bangladesh, particularly in men [23]. Akuiyibo et al. also observed that smoking prevalence is greater among rural Africans where there is fewer tobacco quitting campaigns [17].

Sociodemographic factors in our research also played a part in KAP outcomes. People with higher education levels and better economic status indicated more favorable KAP scores a pattern also found by Haron et al. in Malaysia and Machaalani et al. in Lebanon [24, 25]. Both writers reported the strong correlation between level of education and health-seeking behavior, with increasing levels of education equating to more frequent preventive visits, treatment adherence and healthier lifestyles.

In terms of healthcare interaction, only 25.7% of the respondents had been provided with hypertension information by public hospitals and only 15.8% by private doctors/hospitals. Inadequate healthcare provider interaction in dispensation of awareness was also observed by Saleh et al., who emphasized that community health workers (CHWs) have a major role in bridging the knowledge gap in rural Bangladesh [26]. Scaling up CHW-led education programs, coupled with mobile health (mHealth) interventions, would be crucial in enhancing awareness and preventive measures.

Overall, the findings indicate wide knowledge, attitude and practice gaps in hypertension among rural Sreepur citizens of Bangladesh. Bridging these will require culturally appropriate, community-oriented interventions targeting the distinct challenges of this population. Integrating traditional healers into educational campaigns, promoting low-cost blood pressure screening and enhancing public health services' partnerships with community networks could strengthen hypertension prevention and management in other rural communities.

5. Limitations of the study

The research was conducted in one rural setting only, which will limit the extrapolation of results. Self-report data on medicine compliance and eating habits can suffer from recall bias. We never measured clinical indicators like blood pressure readings either. The cross-sectional design of the study does not enable us to establish cause-effect relationships. Finally, some individuals may have reported socially desirable responses.

6. Recommendations

Health education programs at the community level must be expanded to increase awareness and healthy lifestyle practices. Regular blood pressure screening camps will help in early detection and timely management of hypertension. Individualized counseling can be imparted by training community health workers to increase treatment compliance. Public health programs must focus on salt reduction and tobacco control. Socioeconomic factors and health literacy on the management of hypertension must be explored in future research.

7. Conclusion

This study highlights gaps in knowledge, attitude and practices regarding hypertension among rural residents in

Sreepur, Gazipur, Bangladesh. Despite high awareness of hypertension, treatment adherence and lifestyle modifications remain poor. Limited awareness of risk factors, unhealthy dietary habits, and irregular medication use contribute to poor hypertension control. Addressing these issues requires targeted community-based interventions and better engagement with healthcare services. Strengthening health education, improving access to care and promoting preventive strategies are essential to reduce the hypertension burden in rural Bangladesh.

Abbreviations

KAP	Knowledge, Attitude, and Practices
BP	Blood Pressure
WHO	World Health Organization

Author Contributions

Farida Yesmin: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Md Nizam Uddin: Data curation, Investigation, Project administration, Resources, Supervision, Writing – original draft

Farzana Afroz: Formal Analysis, Methodology, Software, Visualization

Ashrafi Akter Zahan: Data curation, Funding acquisition, Investigation, Project administration, Supervision, Validation

Mohammad Abul Bashar: Investigation, Resources, Writing – original draft, Writing – review & editing

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Conflicts of Interest

The authors declare no conflicts of interest.

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