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### RESEARCH ARTICLE

#### ASSESSING PATIENT KNOWLEDGE AND COMPLIANCE WITH ANTIHYPERTENSIVE TREATMENT IN TECHIMAN MUNICIPALITY

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#### Abstract

The study focused on hypertension (HPT), commonly known as high blood pressure, which is defined as persistently elevated blood pressure levels in adults. It aimed to assess the knowledge and compliance of hypertensive patients with their antihypertensive treatment in the Techiman Municipality. The study employed a hospital-based cross-sectional quantitative descriptive approach using convenience sampling with a sample size of 234 adult hypertensive patients as respondents. The data was collected using structured questionnaires. The findings indicated that most patients believed that hypertension was caused by an increase in blood pressure. Furthermore, most of them were aware of practices that could elevate blood pressure, such as excessive salt intake and consuming fatty foods. Interestingly, some patients attributed hypertension to factors like witchcraft or financial constraints. The findings called for several key recommendations: Firstly, conduct larger-scale research to delve deeper into factors driving antihypertensive non-compliance. Strengthen health promotion initiatives, including advocating healthy lifestyles, patient education, family counseling, and robust social support networks, to boost treatment adherence and well-being. Implement compliance monitoring studies to pinpoint noncompliant patients more accurately and potentially reduce healthcare costs. Ensure convenient access and sufficient availability of antihypertensive medications. Lastly, prioritize patient education to dispel misconceptions about hypertension, especially beliefs related to witchcraft. In sum, these recommendations offer promise for improving hypertension management in Techiman Municipality.

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#### Introduction:-

Hypertension, often referred to as high blood pressure, stands as one of the most prevalent chronic health conditions globally (Al-Makki et al., 2022). Its impact is far-reaching, not only affecting individuals but also straining healthcare systems and resources. Effective management of hypertension is critical to reducing the risk of heart disease, stroke, and other cardiovascular complications (Whelton et al., 2018). But it is a complex task that calls for

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not just medical intervention but also patient engagement and commitment to recommended treatment regimens (Chowdhury et al., 2021).

This study embarks on a study of hypertension management, with a specific focus on hypertensive adult patients receiving care at New Leaf Hospital. Situated in the Techiman Municipality within the Bono East Region of Ghana, New Leaf Hospital provides a unique backdrop for investigating the dynamics between patient knowledge, attitudes, and treatment outcomes in the context of hypertension.

The study's core objectives encompass assessing patient knowledge and compliance with antihypertensive treatment in the Techiman Municipality, as well as the various factors influencing their adherence to antihypertensive regimens (Khayyat, Khayyat, Hyat Alhazmi, Mohamed, & Abdul Hadi 2017). Non-adherence to medication and lifestyle modifications poses a growing concern among hypertensive patients. Timmerman, Stronks, Groeneweg, and Huygen (2016) highlights the ongoing debate regarding whether non-adherence to medication is more prevalent among older patients. Prioritizing patient adherence to medication is crucial for effective disease management. In the Techiman Municipality, New Leaf Hospital is recognized as a prominent healthcare facility; however, the issue of non-compliance with antihypertensive medication among its patients remains relatively underexplored. Given these uncertainties, this study aims to evaluate patient knowledge and compliance with antihypertensive treatment in Techiman, focusing on New Leaf Hospital as the study center. By doing so, this research endeavors to unravel the complex interplay of elements that determine the success of hypertension management, from patients' perceptions to their practical actions.

This research aspires to exceed the confines of New Leaf Hospital and offer insights with broader implications. As hypertension continues to exert its considerable concern on public health worldwide, the findings of this study hold the potential to inform more targeted and effective interventions, ultimately enhancing the management and treatment outcomes of hypertensive patients in diverse healthcare settings (Shrivastava, Shrivastava, & Ramasamy, 2014).

## **Materials and Methods:-**

### **Study setting and design**

New Leaf Hospital, strategically located in the Techiman Municipality within the Bono East Region of Ghana, emerged as the ideal research setting and was selected as the research site because it was exceptionally suited for this investigation. With a substantial bed capacity and a wide range of healthcare units, including pediatrics, medical, emergency, surgery, maternity, labor wards, and dialysis unit, the hospital caters to a diverse patient population seeking primary and secondary level care. Additionally, its role as a regional referral point further underscores its significance in the healthcare network of the Bono East Region.

### **Research design**

The study employed a hospital-based cross-sectional quantitative descriptive design, and was conducted at New Leaf Hospital. This approach involved gathering data from respondents once during the study period, using questionnaires. This quantitative methodology was selected to provide a numeric portrayal of trends, attitudes, and opinions, ensuring impartiality in respondents' answers. Given the study's aim to capture hypertension patients' perspectives on their treatment plans, a descriptive approach was deemed most suitable.

### **Population**

The research targeted hypertensive patients aged 18 years and above, who received regular follow-up care over a four-month period (from September to December 2022) at the hospital. This inclusive criterion encompassed patients using antihypertensive medication, possessing comprehensive medical records, and displaying a willingness to participate. Patients with incomplete records were thoughtfully excluded.

### **Sampling**

To select respondents, a non-probability convenience sampling method was employed, targeting patients who were readily available and willing to participate. Data collection occurred on particular hypertensive clinic days (Mondays, Tuesdays, and Thursdays) at the hospital's Outpatient Department (OPD).

### **Sample size**

The sample size was determined using Yamane's formula. It was calculated as;

$n = \frac{N}{1 + Ne^2}$ , where “n” is the samples size, “N” is the estimated population and “e” is the margin of error. For  $n = 384/1 + 384(0.05 \times 0.05) = 384/1.96 \approx 196$ . Adjusting for a 10% non-response rate gives,  $0.1 \times 384 \approx 38$ , Therefore, the desired sample size for the study is estimated as  $196 + 38 \approx 234$  as sample size. As a result, 234 questionnaires were distributed.

### Data collection instrument

Structured questionnaires served as the primary data collection instruments, comprising sections on demographic characteristics, patient awareness of medicines, lifestyle modifications for hypertension management, and factors influencing adherence to antihypertensive medication.

### Pre-test

A crucial pretest phase was conducted among health workers at Arms Hospital in the Techiman municipality, constituting 10% of the intended sample. This pretest provided valuable insights into the questionnaire's effectiveness, clarity, and relevance, facilitating necessary refinements, including the removal of redundant or repositioned questions.

### Data collection procedure

The researchers, with an official authority letter, diligently sought permission from New Leaf Hospital. Questionnaires were administered in collaboration with trained colleagues enlisted for data collection.

### Statistical data analysis

Quantitative data analysis was carried out using Excel and SPSS version 25. Key demographic characteristics and other study objectives were thoughtfully presented in tables, employing frequencies and percentages.

### Ethical considerations

The research was conducted with unwavering adherence to ethical principles. Ethical approvals were diligently obtained from the Ghana Health Service and New Leaf Hospital. Participants were provided with comprehensive information about the study, granting them the autonomy to provide informed consent. Patients were assured of confidentiality measure and the right to withdraw was communicated to them to ensure their absolute comfort and compliance. Codes were employed instead of names to safeguard participants' identities, as names were deemed unnecessary for data analysis.

## Results:-

### Socio-demographic Characteristics of Patients

The socio-demographic characteristics of the respondents are presented in Table 1. The highest age range was 50–59 years, and the lowest was > 80 years and above. Females were far higher than males at 73.7%. With marital status, married couples had the highest condition 60%, and Christianity was 76.3% more than the other two religious' groups. For residents, those in urban areas dominated at 51%, and employment was self-employed at 66.3%. Regarding education, basic education dominates at 45%.

**Table 1:-** Socio-demographic Characteristics of Patients/

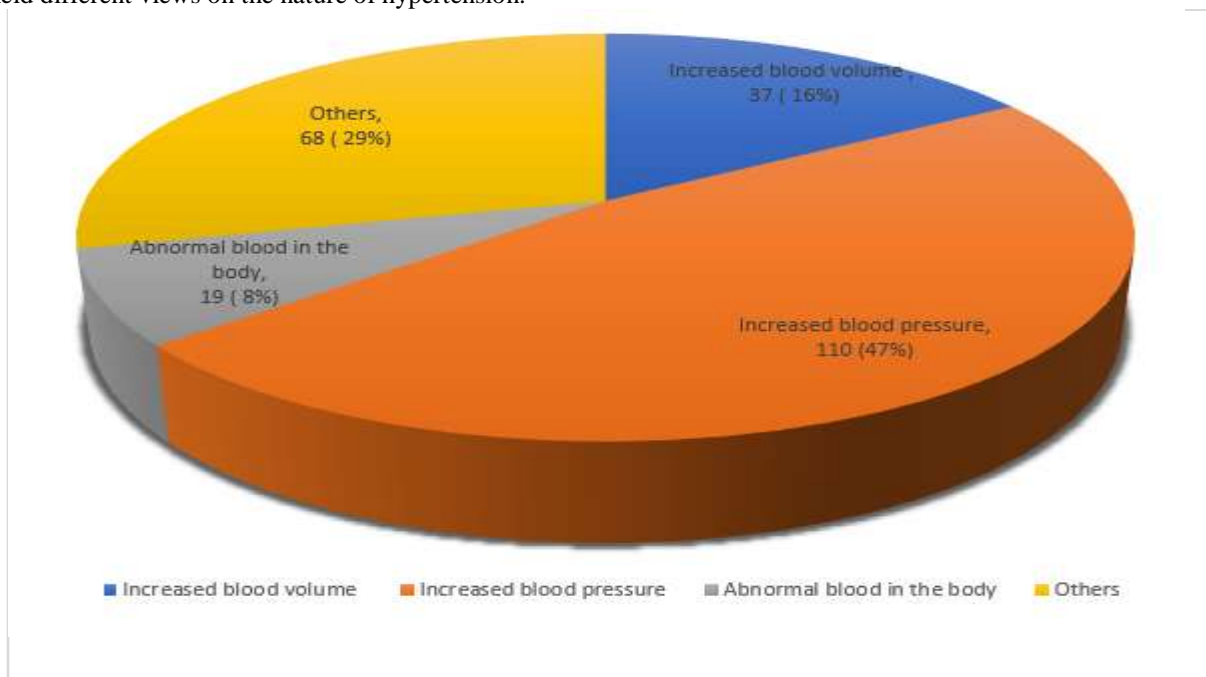
Variable	Category	Frequency [N=234]	Percentage (%)
Age range	40-49	50	21.4
	50-59	78	33.3
	60-69	50	21.3
	70-79	40	17.0
	>80	17	7.0
Sex	Female	172	73.7
	Male	62	26.3
Marital Status	Single	35	15
	Married	140	60
	Divorced	47	20
	Widowed	12	5
Religion	Christianity	178	76.3

	Traditional	3	1.3	
Residence	Urban	119	51	
	Peris Urban	59	25	
	Rural	56	24	
Employment	Student	66	28.1	
	Unemployed	85	36.2	
	Self-employed	155	66.3	
	Salaried employment	26	11.3	
Education	Non-formal education	101	43	
	Basic	105	45	
	Secondary	3	1.3	
	Tertiary	26	11.3	

#### Patients' Knowledge of Hypertension and Their Awareness of Medicines and Lifestyle Modification

##### Patients' knowledge on hypertension and its complications

Figure 1 provides insights into the patients' understanding of hypertension and its associated complications. Among the 234 patients surveyed, 110 individuals (representing 47%) correctly identified hypertension as increased blood pressure. Additionally, 37 patients (16%) associated it with increased blood volume, while 19 patients (8%) recognized it as abnormal blood circulation within the body. Few of the patients, constituting 68 individuals (29%), held different views on the nature of hypertension.



**Figure 1:-** Hypertension meaning to patients.

#### Patients' level of awareness of medicines and lifestyle modification for hypertension

Table 2 shows the level of awareness patients have with managing hypertension, using medication without modifying their lifestyles, and taking steps to minimize complications.

The results indicate that, 25% of patients were unaware of how to manage their hypertension, compared to 75% of patients who were (p-value = 0.0004). This suggests that a significant number of patients knew how to manage their medical condition.

In terms of using medication without modifying their lifestyle, 54% were aware of this management while 46% did not (p-value 0.0001). This study emphasizes the necessity for patients to be educated on the importance of adopting lifestyle changes in addition to taking medicine.

On patients' awareness of lifestyle modification measures also varied significantly. These findings underscore the importance of patient education and awareness in hypertension management. According to the results, a significant 69.9% of patients were aware of the need to reduce salt intake, while 30.1% lacked awareness (p-value = 0.0003). This highlights the significant proportion of patients who acknowledge the importance of dietary modifications in the treatment of hypertension.

Similarly, 76.5% of patients were aware of the importance of avoiding fatty foods, while 23.5% were not informed. This reflects a positive awareness level regarding dietary choices that can impact hypertension.

Approximately 67% of patients acknowledged the significance of regular checkups, underscoring the importance of routine monitoring in hypertension management. However, 33% were not aware of this necessity.

Stress management emerged as another crucial aspect, with 60% of patients recognizing its importance, whereas 40% lacked awareness. Managing stress is a key element in controlling hypertension and reducing complications.

For other lifestyle modification measures, 38.4% were aware, and 61.6% were not. This category indicates a need for further patient education to enhance awareness of various aspects of lifestyle modifications.

**Table 2:- Patients' Level of Awareness of Medicines and Lifestyle Modification for Managing Hypertension.**

Table 2: Patients' Level of Awareness of Medicines and Lifestyle Modification for Managing Hypertension.				
Variable (N=234)		Level of Awareness		
		N (%)		
		Aware	Not Aware	P-value
Management of hypertension				
Yes	120 (75)	40 (25)		0.0004
No	70 (94.5)	4 (5.5)		
Medication without lifestyle modification				
Yes	13 (54.0)	11 (46.0)		0.0001
No	203 (97)	7 (3.0)		
Lifestyle modification measures to minimize complications				
Salt intake	64 (69.9)	16 (30.1)		0.0003
Fatty foods	55 (76.5)	59 (23.5)		
Checkup	13(67)	12 (33)		
Stress	5 (60)	3 (40)		
Other	3 (38.4)	4 (61.6)		

#### **Patient-related factors associated with adherence**

The factors related to patient non-adherence to antihypertensive medication are detailed in Table 3. The data reveals that 57% of the patients failed to adhere to their prescribed medications because they lacked reminders to take their drugs. Additionally, a significant 78% reported financial constraints as a substantial contributor to their non-adherence, preventing them from purchasing their antihypertensive medications. Furthermore, 67% held the belief that hypertension was caused by supernatural forces like witchcraft, which led them to dismiss the necessity of medication.

**Table 3:- Patient-related Factors Associated with Adherence.**

Variable	Frequency (N=234)	Percentage (%)
Have you ever stopped taking your drugs because?		
You were busy at home		
Yes	70	30
No	164	70
There was no one to remind you		
Yes	133	57

No	101	43
You were worried about taking them, lifelong		
Yes	63	27
No	171	73
You did not have money to buy them		
Yes	183	78
No	51	22
You believe that the disease is caused by Witchcraft		
Yes	157	67
No	77	33
You felt you did not need the drug		
Yes	14	6
No	220	94

### Discussion:-

Table 1 outlines the patient demographics, with 33.3% falling in the 50-59 age range and a gender distribution of 73.7% females and 26.3% males. These findings are consistent with Atinyi et al. (2017) study in the Keta Municipality, Ghana, which highlighted higher hypertension rates among women (29.5%) compared to men (27.6%). The results again agree with a study at Komfo Anokye Teaching Hospital, where 59.20% were females and 40.80% were males among hypertensive patients. In the study, it was found that most participants were Christians (76.3%), followed by Muslims (22.5%) and then people who practice traditional religions (1.3%). This may be because Christians are more likely to seek regular medical checkups than people of other religions, potentially implying a higher engagement in activities associated with hypertension. Another study by Robbins et al. (2021) found that most participants were employed. This is different from our study, which shows that the population is diverse.

The result on patients' knowledge of hypertension and its complications also indicated that only 47% of the patient's identified hypertension as an increase in blood pressure, while 52% had varying, often incorrect, views on its meaning. Compared these results to the previous study conducted by Udeh in 2012, it was observed that knowledge about hypertension remained low. In Udeh's study, only 30.5% of participants correctly identified hypertension as an increase in blood pressure. The findings indicated a persistent lack of understanding among hypertensive patients regarding hypertension, which can have serious implications for their health outcomes. This knowledge gap emphasizes the need for targeted educational interventions and improved communication between healthcare providers and patients to enhance awareness and management of hypertension. Addressing this issue is crucial in preventing complications associated with uncontrolled hypertension.

The sense of awareness on medicine and the lifestyle modification in managing hypertension were another important area studied. Awareness was cross classified with medication without lifestyle modification. In terms of medication without lifestyle modification, most, 90% supported the fact that medication without lifestyle modification was an unhealthy behavior. This implies that, having taking medication, it is important to be careful about the way of comporting one's self; which is in terms of eating habit, the way we exercise, sleeping etc. The study of Winzer, Woitek, and Linke (2018) pointed out that regular exercise has a positive effect on the prevention, treatment and control of hypertension. In the case of lifestyle modification measures to minimize complications, the study found a significant association with level of awareness. Salt intake, fatty foods were the main cause of hypertension as identified by the respondents. In a study by Frohlich and Messerli (2018), a moderate reduction of dietary salt in-take and fatty foods are generally an effective measure to reduce blood pressure, which corroborates with the current findings.

In assessing patient-related factors that influence compliance with antihypertensive medication, 57% of the respondents did not adhere to antihypertensive medication due to a lack of reminders, financial constraints, and belief in witchcraft. With belief system, this study found that perception influenced hypertension and antihypertensive medication adherence, with 67% believing the diseases were caused by witchcraft. Other studies have also confirmed that cultural influences, beliefs and perceptions about medications and the disease contribute either positively or negatively to prescribed therapy (Lemay et al., 2018). It can be indicated that the spiritual attachments of patients with a supreme being may increase their trust in divine healing. Again, cost, time

commitment, and social support have been showed to have an effect on medication adherence (Gu et al., 2017). This study discovered that 78% of the poor adherent group had difficulty acquiring their antihypertensive drugs due to financial restrictions. Meanwhile, there has been little research into how cost influences antihypertensive drug adherence (Musinguzi, G., Anthierens, Nuwaha, Van Geertruyden, Wanyenze, & Bastiaens, 2018).

### Conclusion:-

In conclusion, this study aimed to assess patient knowledge and compliance with antihypertensive treatment in the Techiman Municipality. Regarding patients' knowledge levels about antihypertension, the findings suggest that the majority of patients believed that hypertension results from an increase in blood pressure. In terms of awareness, it can be concluded that most patients demonstrated an understanding of how to manage hypertension and were aware of practices that could elevate blood pressure, such as excessive salt and fatty food consumption.

However, when considering medication and lifestyle modification, a significant portion, nearly 50%, appeared to take their medication but did not pay sufficient attention to lifestyle modifications. Examining patient-related factors, it was observed that many attributed hypertension to witchcraft beliefs, while others cited financial constraints as a hindrance to their adherence to treatment.

### Recommendation (s):-

Based on the findings related to lifestyle modification and cultural beliefs, the study recommends that:

Techiman Municipality should implement educational programs and awareness campaigns emphasizing lifestyle modifications for managing hypertension, focusing on reducing salt, fatty food intake, regular exercise, and healthy dietary choices. Address cultural beliefs, such as attributing hypertension to witchcraft, and collaborate with traditional leaders to promote evidence-based healthcare practices and treatment adherence.

### Conflict of Interest

None to declare.

### Further Research

<sup>1</sup>Investigate dietary patterns among hypertensive patients in the Techiman Municipality

<sup>2</sup>Investigate in-depth the influence of cultural beliefs on healthcare decision-making and treatment adherence among hypertensive patients in the Techiman Municipality

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