

ORIGINAL RESEARCH

Factors influencing knowledge levels among hypertensive patients receiving treatment at the Komfo Anokye Teaching Hospital in Kumasi, Ghana: a cross-sectional study

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Abstract

Background

Basic knowledge about hypertension and its treatment can have a positive impact on high blood pressure control reducing cardiovascular morbidity and mortality. This study aimed at assessing the knowledge levels and to determine the factors that influenced knowledge levels among hypertensive patients receiving treatment at the Komfo Anokye Teaching Hospital (KATH) in Kumasi, Ghana.

Methods

A cross-sectional study was conducted at the outpatient hypertensive clinic of KATH between April and May 2019. Three hundred and ninety-seven (397) hypertensive patients aged 18 years and above who had been diagnosed with hypertension for at least six months and currently taking at least one antihypertensive drug completed a self-administered questionnaire. The questionnaire consisted of basic socio-demographic profile, patient-related information on hypertension and its treatment and knowledge on hypertension. The Hypertension Knowledge-Level Scale (HK-L) was used to determine the level of knowledge among patients receiving treatment at the Komfo Anokye Teaching Hospital (KATH), Kumasi.

Results

Out of the 397 patients, 199 (50.1%) had high level of knowledge on hypertension and 157 (39.55%) did not adhere to their medication. Factors contributing to high level of hypertension was being married (aOR=6.87, CI=1.21-39.06), being Christian (aOR1.81, CI=0.91-3.38), taking a monthly income of 200-600 Ghana cedis (aOR=1.97, CI=1.06-3.68), being enrolled on NHIS (aOR=0.38, 0.23-0.64) and being adherent on medication (aOR=3.40, CI=0.23-0.64).

Conclusion

High level of knowledge on hypertension is a significant independent contributing factor to medication adherence. Other factors included marital status, religion, monthly income, side effects, being enrolled on NHIS and medication adherence.

Introduction

Globally, among the four main chronic diseases, hypertension remains the most rapidly growing cardiovascular disease contributor.⁽¹⁾ Complication of hypertension causes about 7.5 million deaths annually, representing about 12.8% of all deaths and is one of the leading causes of disability.^(1,2) The World Health Organization estimated that in the year 2000, 972 million people were living with hypertension and this number is expected to rise to 1.5 billion in 2025.⁽³⁾ Management of hypertension differs widely by country in terms of capacity for management, but global observation is that the majority of diagnosed hypertensive cases is inadequately controlled.⁽⁴⁾ Specifically, the development, evolving paradigms of disease and the dynamic character of change that exist between countries, especially in sub-Saharan Africa, have been most challenging to global health in the management of hypertension.⁽⁵⁾ In Ghana, hypertension has been identified as the leading cause of heart failure, stroke, chronic kidney disease and sudden deaths.⁽⁶⁾ A study conducted by Amoah (2003) found an overall crude prevalence of 28.3% and age-standardized prevalence of 28.4% in Ghana.⁽⁷⁾ In addition, Addo et al., (2012) found a prevalence that ranged from 19.0% to 54.8% in rural and urban communities respectively and this increase was attributed to urbanization and scarcity of resources, inadequate healthcare provision, detection, treatment, and control of hypertension in sub-Saharan Africa.^(8,9)

Poor adherence to medication is identified as the main cause of failure to control hypertension. Problems in treatment adherence are widespread, and seriously compromise the effectiveness of antihypertensive treatment. A study investigating adherence to chronic disease treatment showed that patients often discontinue their medications or even do not take them at all because they consider them ineffective or experience undesirable side effects.⁽¹⁰⁾ Apart from the adverse effects and inadequate blood pressure control despite treatment, the most common causes of lack of adherence are believed to include a lack of patient involvement in the treatment process or motivation to continue it and a lack of information on the disease and its treatment, especially detailed information on dosage.⁽¹¹⁾ Knowledge gaps are important barriers in the effective prevention and treatment of hypertension.^(12,13) In the advent of scarce resources to improve management and control of hypertension, there is the need to focus attention on preventive measures which target behavioural change through education and awareness creation. Several models have proposed knowledge as important for health behaviours and sustained behavioural changes.⁽¹⁴⁻¹⁶⁾ Although these models may differ in content and perspective, they stress the importance of evaluating the perceptions, attitudes, beliefs and outcome expectations of individuals as crucial means to understand observed behaviours and to guide behavioural change. Knowledge of a disease condition influences patient's attitude and practice and improves adherence with treatment and subsequent reduction in prevalence.⁽¹⁷⁾ Patient's knowledge and understanding of the potential health risks associated with hypertension and the potential positive effects of lifestyle and modification are inadequate.^(18,19) A study by Rizwana et al., (2011) reported a huge gap in knowledge of modifiable risk factors of hypertension.⁽²⁰⁾ A study in a sub-urban Nigerian community also showed low levels of knowledge of hypertension, with only 18% of respondents having knowledge of risk factors of hypertension. Evidence from Oladapo et al., (2013) have also shown similar findings.⁽²¹⁾ This study, therefore, sought to assess and identify factors that influence knowledge level among hypertensive patients at the outpatient hypertensive clinic of KATH. It also aimed at determining the relationship between knowledge and medication adherence. The findings of this study provide more information for healthcare professionals to prepare therapeutic educative materials to raise awareness among the population and to achieve better medication adherence.

Methodology

Study Design

A cross-sectional study design was used to achieve the study purposes and answer the research questions.

Study Area

This study was carried out at the hypertensive clinic at the main outpatient department (OPD) of the Komfo Anokye Teaching Hospital (KATH), Kumasi in the Ashanti Region of Ghana. KATH is a 1200-bed capacity tertiary hospital that serves as a major referral hospital

for the northern parts of the country as well as other neighbouring countries. The clinic is run by the directorate of Internal Medicine for patients only on Tuesdays.

Study Population

The population of interest for the study were all adult hypertensive patients of the Komfo Anokye Teaching Hospital (KATH) reporting

at the Medical out-patient department (OPD) for follow up and treatment.

Inclusion criteria

All adult patients aged 18 years and above, presenting with a history of hypertension at the main OPD of the hospital for at least six months, and were taking, at least, one antihypertensive drug, were invited to participate in the study. Participants with co-existing medical conditions such as diabetes, dyslipidaemia and arthritis (i.e. confirmed through history, last or current prescription) were all part of the study provided they were still on antihypertensive medication.

Exclusion criteria

Pregnancy induced hypertensive patients were excluded from the study. Patients' diagnosed hypertensive but less than six months duration were also excluded, likewise hypertensive patients on hypertension,

Sampling

The sample size for the study was determined using Yamane's equation $(\frac{1+N}{1+Ne^2})$.⁽²²⁾ Based on the clinic's historical data, it was estimated that 3854 patients with hypertension seek treatment at the clinic. Using this as the study's population size, the calculated sample size was 362 (at 95% confidence interval and 5% margin of error) but a sample size of three hundred and ninety-seven (397) was arrived at. A convenience/incidental sampling method was used to recruit participants who satisfied the inclusion criteria.

Based on the results of this study, a patient was defined or categorized as hypertensive if he or she had a systolic blood pressure greater than or equal to 140mmHg and a diastolic blood pressure greater than or equal to 90mmHg based on three or more measurements on two or more occasions.

Data collection

Data was collected primarily through self-administered questionnaires by the principal and co-investigator. All eligible individuals were made to complete a structured questionnaire comprising basic socio-demographic profile, patient-related information on hypertension and knowledge about hypertension and its treatment. For participants who could not read and write, the researchers translated and guided them through completion of the questionnaire.

Data quality assurance

Data collectors were trained for one day the data collection approach of the study. The questionnaire was translated into 'Asante Twi' and back translated into English by another person to check for consistency and meaning. Continuous follow-up and supervision were made by the principal and co-investigator throughout the data collection period. Collected data was reviewed and checked daily for completeness and consistency at the spot during the data collection time.

Data processing and analysis

Statistical analyses were conducted using STATA/IC software version 14.0. Data were presented using tables. Continuous variables were summarized by means and standard deviations whilst categorical values were summarized in the form of frequencies and percentages. Multivariate logistics regression was made to test the strength of an association between the dependent and independent variable, p-value ≤ 0.05 were considered statistically significant.

Knowledge of hypertension was assessed using the Hypertension Knowledge-Level (HK-L) scale. The HK-L scale is a 22-item self-report scale that is used in assessing six key areas of hypertension knowledge (definition, treatment, drug adherence, lifestyle, diet, and complications). Scores greater than 17 indicated high knowledge while scores less or equal to 17 indicated low knowledge on hypertension.⁽²³⁾ Total knowledge scores out of 22 were presented as marks out of 100.

Assessment of medication adherence

Self-reported medication adherence was determined by the eight-item Morisky Medication Adherence Scale (MMAS-8). MMAS-8 has scores ranging from zero to eight; scores greater than 6 were indicated as adherent and scores less or equal to 6 were indicated as non-adherent. The tool has been confirmed as reliable (Cronbach's alpha=0.83) for assessment of adherence in patients with hypertension and is significantly associated with blood pressure control.⁽²⁴⁻²⁶⁾

Ethical Consideration

Ethics approval was obtained from the Committee on Human Research, Publication and Ethics at the School of Medical Sciences (SMS), KNUST and the site approval was obtained from Komfo Anokye Teaching Hospital. Participation of subjects conformed to the required ethical guidelines. All the participants were well informed about the study, its objectives and method of data collection. They were assured that participation was voluntary before they signed the informed consent. Participants were informed the outcome of the study would be used to improve services received and were not going to be harmed in any way by participating in the study.

Results

Socio-demographic characteristics of the patients

Three hundred and ninety-seven participants were involved in the study. The mean age of the respondents was 59.5 years, with a standard deviation of 11.9. Majority of the respondents were female (72.3%), married (65.0%), Christians (76.6%) and more than 55 years old (64.5%). Almost 71% of the respondents were urban residents. A greater percentage of the respondents (50.1%) had obtained education to the basic level, employed (69.5%) and had a monthly income of less than GHC200.00 (58.4%). (

Table 1)

Table 1: Sociodemographic characteristics of patients

Variable	Frequency (n=397)	Percentage (%)
Gender		
Female	287	72.29
Male	110	27.71
Age (years)		
Young adults (18-35)	11	2.77
Middle-aged adults (36-55)	130	32.75
Older adults (> 55)	256	64.48
Mean (SD)	59.48 (±11.94)	
Marital status		
Single	15	3.78

Variable	Frequency (n=397)	Percentage (%)
Married	258	64.99
Divorced	48	12.09
Widowed	76	19.14
Religion		
Christian	304	76.57
Muslim	93	23.43
Residency		
Rural	116	29.22
Urban	281	70.78
Educational level		
No formal education	71	17.88
Basic education	240	60.45
Secondary education	60	15.11
Tertiary education	26	6.55
Employment status		
Unemployed	121	30.48
Employed	276	69.52
Monthly income*		
< 200	232	58.44
200-600	107	26.95
601-1000	43	10.83
>1000	15	3.78

*Currency in Ghana Cedis

Patient clinical characteristics

One third of the participants (39.3%) had been diagnosed with hypertension for at most 5 years another one third (32.8%) were diagnosed for more than 10 years and the last one third (28.0%) were diagnosed between 6 to 10 years. There were almost equal respondents for those with and without a family history of hypertension respectively (50.6% and 49.4%).

Majority of the respondents were on more than one antihypertensive medication (88.9%) and a few on a single agent (11.1%). The most common combination was one including calcium-channel blockers (81.4%). Those on angiotensin-converting enzyme inhibitors and angiotensin-II-receptor blockers in combination with other medications were 68.3%. About .0% and 26.7% were on diuretics and beta-adrenoceptor blockers respectively. Only a few (10.0%) took methyldopa as part of their regimen (Table 2).

Majority of the respondents (63.7%) reported no side effects. The most common comorbidities reported were diabetes (22.7%) and high cholesterol (16.9%). Other medical conditions reported were asthma, arthritis, and ulcer. Majority of the respondents (79.1%) did not take any non-prescribed medication. A small percentage (39.0%) obtained all drugs through the National Health Insurance Scheme (NHIS). (Table 2)

Table 2: Patients clinical characteristics

Variable	Frequency (n=397)	Percentage (%)
Years been diagnosed of hypertension (years)		
≤5	156	39.29
6-10	111	27.96
>10	130	32.75
Family history of hypertension		
Yes	201	50.63
No	196	49.37
Medication*		
Diuretics	202	50.88
Calcium-channel blockers	323	81.36
Beta-adrenoceptor blocker	106	26.70
ACE inhibitor	271	68.26
Methyldopa	41	10.33
Treatment type		
Single agent treatment	44	11.08
Combination treatment	353	88.92
Experience side effects in anti-hypertensive drug		
Yes	114	28.72
No	253	63.73
Don't know	30	7.56
Comorbidities*		
Diabetes	90	22.67
Asthma	9	2.27
Arthritis	32	8.06
Ulcer	25	6.30
High cholesterol	67	16.88
Take non-prescribed drug		
Yes	83	20.91
No	314	79.09
Type of non-prescribed drug	n=83	
Traditional	58	69.88
Orthodox	16	19.28
Both	9	10.84
Enrolled on NHIS*		
Yes	146	39.04
No	228	60.96
Medication adherence		
Non-adherent	157	39.55
Adherent	240	60.45

*Multiple responses *National Health Insurance Scheme

Hypertension knowledge-level scale

Knowledge in the complications of the disease was averagely high in our sample (Table 3)

Table 3: Number (proportions) of correct answers to hypertension knowledge-level scale (HK-LS) items

Sub-dimensions	Question Item	Correct Answer	
		Frequency (N=397)	Percentage (%)
Definition	High diastolic or systolic blood pressure indicates increased blood pressure (Yes)	220	55.42
	Increased diastolic blood pressure also indicates increased blood pressure (Yes)	145	36.52
Medical Treatment	Drugs for increased blood pressure must be taken every day (Yes)	382	96.22
	Individuals with increased blood pressure must take their medication only when they feel ill (No)	361	90.93
	Individuals with increased blood pressure must take their medication throughout their life (Yes)	342	86.15
	Individuals with increased blood pressure must take their medication in a manner that makes them feel good (No)	104	26.20
Drug compliance	If the medication for increased blood pressure can control blood pressure, there is no need to change lifestyles (No)	257	64.74
	Increased blood pressure is the result of aging, so treatment is unnecessary (No)	303	76.32
	If individuals with increased blood pressure change their lifestyles, there is no need for treatment (No)	313	78.84
	Individuals with increased blood pressure can eat salty foods as long as they take their drugs regularly (No)	287	72.29
Lifestyle	Individuals with increased blood pressure can drink alcoholic beverages (No)	341	85.89
	Individuals with increased blood pressure must not smoke (Yes)	361	90.93
	Individuals with increased blood pressure must eat fruits and vegetables frequently (Yes)	371	93.45
	For individuals with increased blood pressure, the best cooking method is frying (No)	282	71.03
	For individuals with increased blood pressure, the best cooking method is boiling or grilling (No)	350	88.16
Diet	The best type of meat for individuals with increased blood pressure is white meat (Yes)	325	81.86
	The best type of meat for individuals with increased blood pressure is red meat (No)	273	68.77
Complications	Increased blood pressure can cause premature death if left untreated	366	92.19
	Increased blood pressure can cause heart diseases, such as heart attack, if left untreated (Yes)	362	91.18
	Increased blood pressure can cause strokes, if left untreated (Yes)	365	91.94
	Increased blood pressure can cause kidney failure, if left untreated (Yes)	278	70.03
	Increased blood pressure can cause visual disturbances, if left untreated (Yes)	328	82.62

Knowledge level of the hypertensive patient

There was just a very little over 50% of patients with high level of knowledge on hypertension. (Figure 1).

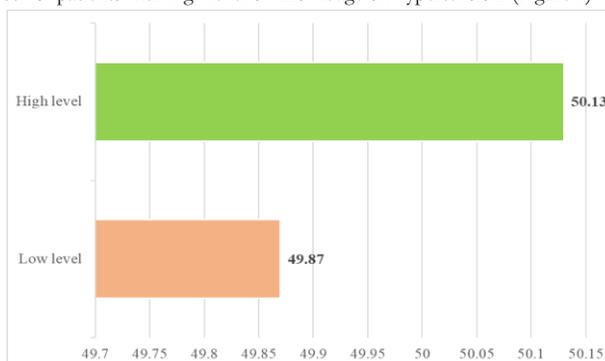


Figure 1: Distribution of knowledge level of the hypertensive patients

Factors Influencing High Knowledge Level of the Hypertensive Patients

The study revealed a significant association between high knowledge level and marital status, religion, monthly income, side effects of drugs, being enrolled on NHIS and medication adherence. Based on the results, patients who were married were 6.87 times more likely to have high knowledge on hypertension as compared to their counterparts (aOR=6.87, CI=1.21-39.06, p=0.030). In regards to religion, patients who were Christian were 1.81 times likely to have high knowledge on hypertension as compared to their counterparts (aOR=1.81, CI=0.91-3.38, p=0.049). Patients who received 200-600 Ghana Cedis as monthly payment were 1.97 times more likely to have high knowledge on hypertension as compared to their counterpart (aOR=1.97, CI=1.06-3.68, p=0.033). Patients who were enrolled on NHIS were 62.00% less likely to have knowledge on hypertension as compared to their counterpart (aOR=0.38, CI=0.23-0.64, p<0.000) (

Table 4) Patients who reported that they do not know if they experienced side effects of the hypertensive medications were 69.00% less likely to have high knowledge on hypertension as compared to their counterparts (aOR=0.31 CI=0.12-0.84, p=0.021 and patients who were adherent to their medication were 3.40 times more likely to have high knowledge on hypertension as compared to those who are non-adherent (aOR=3.40, CI=1.97-5.85, p<0.000) (Table 5).

Table 4: Factors Influencing High Knowledge Level of the Hypertensive Patients (Demographics)

Variable	OR (95%CI)	p-value	aOR (95%CI)	p-value
Gender				
Female	1.30 (0.83-2.01)	0.25	1.19 (0.64-2.22)	0.575
Male	Ref		Ref	
Age (years)				
Young adults (18-35)	Ref		Ref	
Middle-aged adults (36-55)	1.1 (0.32-3.97)	0.879	0.99 (0.21-4.73)	0.986
Older adults (> 55)	0.72 (0.22-2.43)	0.601	0.71 (0.14-3.54)	0.672
Marital status				
Single	Ref		Ref	
Married	2.34 (0.78-7.03)	0.131	6.87 (1.21-39.06)	0.030*
Divorced	1.69 (0.50-5.70)	0.396	5.31 (0.83-33.84)	0.077
Widowed	1.53 (0.48-4.92)	0.471	4.47 (0.72-27.66)	0.108
Religion				
Christian	1.73 (1.08-2.77)	0.023*	1.81 (0.91-3.38)	0.049*
Muslim	Ref		Ref	
Residency				
Rural	Ref		Ref	
Urban	1.17 (0.76-1.80)	0.488	1.30 (0.74-2.30)	0.366
Educational level				
No formal education	Ref		Ref	
Basic education	1.74 (1.01-3.00)	0.045*	1.76 (0.91-3.38)	0.091
Secondary education	1.99 (0.99-4.00)	0.053	1.59 (0.65-3.91)	0.314
Tertiary education	2.22 (0.89-5.54)	0.087	1.03 (0.30-3.62)	0.957
Employment status				
Unemployed	Ref		Ref	
Employed	1.30 (0.85-2.01)	0.218	1.05 (0.58-1.88)	0.879
Monthly income				
< 200	Ref		Ref	
200-600	1.74 (1.09-2.77)	0.020*	1.97 (1.06-3.68)	0.033*
601-1000	1.01 (0.53-1.95)	0.962	0.98 (0.40-2.40)	0.956
>1000	1.34 (0.47-3.08)	0.588	3.02 (0.71-12.84)	0.134
Enrolled on NHIS				
Yes	0.44 (0.29-0.67)	0.000*	0.38 (0.23-0.64)	<0.000*
No	Ref		Ref	

OR= Crude odds ratio aOR=Adjusted odds ratio. * = p-value significant at ≤ 0.05

Table 5: Factors Influencing High Knowledge Level of the Hypertensive Patients (Clinical Parameters)

Variable	OR (95%CI)	p-value	aOR (95%CI)	p-value
Years been diagnosed of hypertension (years)				
≤5	Ref		Ref	
6-10	1.04 (0.64-1.70)	0.86	1.23 (0.62-2.42)	0.551
>10	1.06 (0.66-1.69)	0.812	1.55 (0.79-3.04)	0.199
Family history of hypertension				
Yes	1.19 (0.80-1.76)	0.394	1.25 (0.77-2.04)	0.369
No	Ref		Ref	
Diuretics				
Yes	1.26 (0.85-1.87)	0.249	1.36 (0.80-2.32)	0.253
No	Ref		Ref	
Calcium-channel blockers				
Yes	1.84 (1.100-3.10)	0.020*	2.03 (0.97-4.26)	0.061
No	Ref		Ref	
Beta-adrenoceptor blocker				
Yes	0.85 (0.55-1.33)		0.61 (0.35-1.06)	0.081
No	Ref		Ref	
ACE inhibitor				
Yes	1.61 (1.05-2.47)	0.029*	1.30 (0.72-2.36)	0.38
No	Ref		Ref	
Methyldopa				
Yes	0.94 (0.49-1.80)	0.856	0.96 (0.43-2.16)	0.927
No	Ref		Ref	
Treatment type				
Single agent treatment	Ref		Ref	
Combination treatment	1.01 (0.54-1.88)	0.986	0.76 (0.32-1.81)	0.532
Experience side effects in anti-hypertensive drug				
Yes	0.76 (0.49-1.18)	0.224	0.76 (0.44-1.31)	0.317
No	Ref		Ref	
Don't know	0.51 (0.23-1.11)	0.088	0.31 (0.12-0.84)	0.021*
Diabetes				
Yes	1.05 (0.66-1.68)	0.832	1.33 (0.73-2.41)	0.350
No	Ref			
Arthritis				
Yes	0.66 (0.32-1.37)	0.265	0.57 (0.24-1.37)	0.211
No	Ref			
Ulcer				
Yes	1.84 (0.79-1.26)	0.157	2.75 (0.93-8.11)	0.067
No	Ref			
High cholesterol				
Yes	1.19 (0.70-2.01)	0.518	0.96 (0.49-1.86)	0.898
No	Ref		Ref	
Take non-prescribed drug				
Yes	0.45 (0.28-0.75)	0.002*	0.61 (0.33-1.30)	0.61
No	Ref		Ref	
Medication adherence				
Non-adherent	Ref		Ref	
Adherent	2.91 (1.92-4.43)	0.000*	3.40 (1.97-5.85)	<0.000*

OR= Crude odds ratio aOR=Adjusted odds ratio. * = p-value significant at ≤ 0.05

Discussion

In our study we had more females compared to males, with a male: female ratio of 1:2.61 which may be because we received more

females suggesting good health seeking behaviour among females and this correlates with a study conducted in USA and Nigeria.^(27, 28)

Our patients were from the older age group (> 55 years), which is a proven fact that hypertension increases with age.

The most common classes of antihypertensive were calcium channel blockers and diuretics and this is in line with the management of primary hypertension recommended by the Ghana standard treatment guidelines and the National Institute of Health and Clinical Guidelines (NICE).^(29, 30) Furthermore, almost 3 out of 10 patients in this study were aware of the common side effects of antihypertensives dispensed which is poor when compared to a study conducted by Jolles et al., (2013) in Canada which reported almost 5 in 10 of their respondents were aware of the side effects of antihypertensives dispensed.⁽³¹⁾ It's therefore necessary that patients are made to know some common side effects of their medications as this could reduce anxiety when patients start experiencing these side effects. Our patients were adherent to medication which was higher and lower as compared to studies conducted in Malaysia (44.2%), Egypt (74.1%), Pakistan (77%) and Scotland (91.0%) respectively.⁽³²⁻³⁵⁾

In this study, 50.1% of the participants showed a high level of knowledge which is higher than a high knowledge level of 37% reported in a study conducted in Wroclaw, Poland amongst two hundred and thirty-three (233) patients between January 2015 and November 2015.⁽³⁶⁾ This finding is also higher than a high knowledge level of 25.2% reported by Motlagh et al., (2012).⁽³⁷⁾ This increase in knowledge level may be due to the fact that most of the participants were urban dwellers, regularly visited their physicians, had high educational levels and were in their middle-ages.

It was further found that, marital status, religion, monthly income, experienced side effects of medications, enrolled on NHIS and medication adherence had a significant association with knowledge on hypertension. Hence being a married individual increases your knowledge level due to the support received from partners.

In the present study, Having high knowledge level increases the odds of being adherent to medication which is consistent with similar

findings from Pakistan and Gaza which reported that patients who were aware of their diseases and treatments had a better adherence compared to those who did not (38). However, in contrast to this finding, studies from some developed world indicated no association between knowledge levels and adherence.^(39, 40)

Our study also revealed a lower odds of knowledge among respondents being enrolled on the National Health Insurance Scheme (NHIS). This might be due to the fact that free access to healthcare services and drugs promote the health-seeking attitude of patients and in turn increases the daily number of patients visiting their physician. These higher numbers cause an extreme burden over the few doctors and this decreases the quality consultation time for patients hence the lower knowledge levels.

Finally, there was lower odds of knowledge level among respondents who did not experience any side effect of their medication. This may be simply because the absence of side effects of medication ensures continuity of therapy, hence creates no anxiety in patients to query health professionals for adequate and appropriate knowledge on their treatment.

Conclusion

High level of knowledge on hypertension is a significant independent contributing factor to medication adherence. Other factors included marital status, religion, monthly income, side effects, being enrolled on NHIS and medication adherence.

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