

**NEWPORT INTERNATIONAL JOURNAL OF RESEARCH IN
MEDICAL SCIENCES (NIJRMS)
Volume 4 Issue 1 2023**

Factors Influencing Adherence to Antihypertensive Drugs at Jinja Regional Referral Hospital, Uganda

Kansiime Pauline

**Faculty of Clinical Medicine and Dentistry Kampala
International University Western Campus Uganda.**

ABSTRACT

Hypertension is a primary cause of early adult mortality globally and one of the most important risk factors for cardiovascular disease. Only 33 to 66 % of individuals with hypertension in low- and middle-income countries like Uganda take antihypertensive medications regularly. Because of non-adherence to their medications, over three-quarters of hypertension patients are unable to attain ideal blood pressure management. Patient-related variables, socioeconomic factors, condition-related factors, therapy-related factors, and healthcare team-related factors are all examples of barriers to medication adherence. In this study, we aimed to establish the factors influencing adherence to antihypertensive drugs among patients attending Jinja Regional Referral Hospital (JRRH,) Uganda. We carried out a descriptive cross-sectional study among adults attending the chronic illness clinic of JRRH in Jinja as the source of information and the study population. Most of the participants (43%) revealed that they do exercises regularly to control high bloodpressure, 32% eat a healthy diet, and 26% limit the amount of alcohol they drink, 12% quit smoking. The study concluded that as age increases the prevalence of hypertension also increases with it. The age group of 70 years and above was almost two times more likely to be hypertensive as compared to the 50–59 Years age group. The study recommended that patients who have suffered complications due to non-adherence could be requested to voluntarily share their experiences. Print and audiovisual media would be very helpful in the dissemination of information.

Keywords: Hypertension, Cardiovascular disease, Antihypertensive medications, High blood pressure.

INTRODUCTION

Hypertension is described as having insistent, raised systolic blood pressure of 140 mmHg or more, or diastolic blood pressure of 90 mmHg or more. Uncured or sub-optimally treated hypertension might lead to increased danger of morbidity and mortality because of cardiovascular, renal diseases, or cerebrovascular [1-3]. Hypertension disturbs close to a billion individuals globally [4]. Non-adherence to antihypertensive drugs causes hypertension-related morbidity and death. Hypertension is one of the most important risk factors for cardiovascular disease and a leading cause of premature adult deaths worldwide [5,6]. Uncontrolled hypertension causes 50% of the total coronary heart disease (CHD) deaths globally [7]. Cardiovascular diseases (CVD) remain a significant health problem in lower and middle-income countries (LMICs) including Uganda [8,9]. Among patients with hypertension in LMICs, only between 33 and 66% of them are currently receiving antihypertensive medicines [10]. This prevalence and mortality level demand strengthening and

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

scale-up of health care systems in LMICs, to prevent, manage, and control hypertension, to improve health outcomes in the future. As a result, it helps achieve the sustainable development goal (SDG), aiming to reduce premature mortality from non-communicable diseases (NCDs) by one-third from current levels by 2030 [11]. This includes strategies to optimize adherence to antihypertensive therapy [12]. Almost three-quarters of hypertensive patients could not achieve optimal blood pressure control because of drug non-adherence [13]. The percentage of non-adherence levels is higher in Asia (43.5%) and Africa (62.5%) than in Europe (36.6%) and America (36.6%) [14]. Barriers to medication adherence consist of multiple factors including patient-related factors, social/economic-related factors, condition-related factors, therapy-related factors, and healthcare team-related factors [15]. The majority of factors affecting non-adherence to antihypertensive medication are social and economic factors in low- and middle-income countries [12].

In the 19th and 20th centuries, before effective pharmacological treatment for hypertension became possible, three treatment modalities were used, all with numerous side effects: strict sodium restriction (for example the rice diet [16], sympathectomy (surgical ablation of parts of the sympathetic nervous system), and pyrogen therapy (injection of substances that caused a fever, indirectly reducing blood pressure) [17]. The first chemical for hypertension, sodium thiocyanate, was used in 1900 but had many side effects and was unpopular [16]. Several other agents were developed after the Second World War; the most popular were tetramethylammonium chloride, hexamethonium, hydralazine, and reserpine (derived from the medicinal plant *Rauwolfia serpentina*). None of these were well tolerated. A major breakthrough was achieved with the discovery of the first well-tolerated orally available agents. The first was chlorothiazide, the first thiazide diuretic and developed from the antibiotic sulfanilamide, which became available in 1958 [16]. Subsequently, beta-blockers, calcium channel blockers, angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers, and renin inhibitors were developed as antihypertensive agents [17].

Some local residents in low-income countries rely on herbs for the management of hypertension and related diseases. Scientific evidence of the anti-hypertensive and cardioprotective potentials of some plants abounds [18-21]. Uncontrolled hypertension is still a big medical and psychosocial problem in developed as well as developing countries like Uganda. Even if the risk factors, prevention, and control mechanisms are well familiar, the negative outcomes resulting from the disease will possibly continue for many years. This makes the disease the biggest and most terrible social and health-related challenge [22]. A study conducted in Nsambya and Mulago National Referral Hospital revealed that about 77 % of the study participants were poorly adhering to medication [23]. There is no available data about the adherence to anti-hypertensive drugs in Jinja. Therefore, this calls for an effort to investigate these critical factors influencing adherence to anti-hypertensive drugs. In this regard, this study was aimed at exploring the factors influencing adherence to anti-hypertensive drugs at Jinja Regional Referral Hospital in Jinja, Uganda.

METHODOLOGY

Study design

A descriptive study method was used. It involved the use of quantitative data and qualitative collection. Survey questionnaires were administered to Hypertensive clinic attendees on exit after receiving the services at the Clinic.

Area of Study

The study was conducted at JRRH located in Jinja Municipal Council, Jinja district in Uganda. Jinja lies in southeastern Uganda, approximately 54 miles (87 km), by road, east of Kampala.

Study population

All adult hypertensive patients who attended the chronic illness clinic of JRRH in Jinja were the source of information and the study population.

Inclusion criteria

Hypertensive patients aged ≥ 18 years who took antihypertensive medications for at least for a month and consent was included in the study.

Exclusion criteria

Hypertensive patients attending JRRH who did not consent to my study, newly diagnosed patients with diabetes (less than one month), Individuals who were not capable of hearing and speaking and had known mental disorders or serious illness.

Sample size determination.

The sample size was determined using the Kish-Leslie (1965) formula:

$n = z^2 p (1-p) / E^2$; Where n = Estimated minimum sample size required P= Proportion of a characteristic in a sample (32.0%)

$Z = 1.96$ (for 95% Confidence Interval) $e =$ Margin of error set at 5% $n = 1.96^2 \times 0.32 (1 - 0.32)$

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

0.05²

n = 334.

Sampling procedures

A Simple random sampling method was used to get respondents to avoid bias. Small pieces of papers were written on numbers from 1 to 10 and whoever picks an even number and consents were allowed to participate in the study.

Data collection

The data collection involved a face-to-face interview using a structured questionnaire.

Data analysis

Data analysis was conducted using SPSS statistical software. Exploratory data techniques were used at the initial stage of analysis and cover the structure of data and identify outliers or unusual entered values. Quantitative data was coded and processed using SPSS version 22.0. Descriptive statistics such as frequencies was used to summarize, organize and simplify the data that was collected. Quantitative data was presented using frequency tables.

Ethical consideration

- i. A research proposal was submitted and approved, a letter of introduction was obtained from the Dean School of Clinical Medicine and Dentistry and endorsed by IREC Kampala International University, Western Campus which was taken to the district health officer(DHO) and a copy to the hospital director.
- ii. Informed consent was sought from each respondent (the consent forms were attached), participation was voluntary & participants' decisions and information were respected.
- iii. Privacy and confidentiality were observed throughout the course of the study

RESULTS

Table 1: Socio-demographics of the respondents

Age	Frequency	Percentage
34-38	14	4.2
49-53	35	10.5
54-58	50	15.0
59-64	54	16.2
65-69	88	26.3
69 and above	93	27.8
Total	334	100
Marital status		
Single	15	4.5
Married	200	59.9
Divorced	119	35.6
Total	334	100
Religion		
Catholic	120	35.9
Protestant	140	41.9
Islam	60	17.9
Other Religion	14	4.2
Total	334	100
Level of education		
Primary level	215	64.4
Secondary level	100	29.9
Tertiary institution	19	5.9
Total	334	100

Most of the participants were between the ages of 69 and above (27.8%) while few were between 34-38 (4.2%). This

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

implied that the majority of participants were old enough to give valid findings. Most of the participants were married (59.9%) unlike 4.5% of participants who were single. The findings implied that participants who were involved in the study were married. Most of the respondents were protestants (41.9%) followed by Catholics (35.9%), Muslims (17.9%) and other religions 4.2%. For the case of education level, most of the respondents had attained primary level (64.4%), Secondary level (29.9%), Tertiary institution (5.9%) and none of the respondents had not attained education.

Table 2: Patients' related factors

Social cultural factors	Frequency	Percentage
When were you diagnosed with hypertension?		
>6 months ago	130	38.9
6 months to 1 year	100	29.9
1 to 3 years	56	16.8
3 years and above	48	14.4
Total	334	100
Do you have any other chronic condition except hypertension?		
Yes	280	84
No	54	16
Total	334	100
Are you taking any other medication?		
Yes	250	74.8
No	84	25.2
Total	75	100

Patients were asked about the period they were last diagnosed with hypertension, the majority (38.9%) had been diagnosed lesser than 6 months ago, (29.9%) were diagnosed 6 months to 1 year, 16.8% had been diagnosed 1 to 3 years unlike 14.4% had diagnosed 3 years and above. (84%) had other chronic conditions except hypertension unlike (16%) did not have any. (74.8%) had other medications unlike 25.2% did not have.

Table 3: Knowledge about Hypertension and hypertensive medication

	Frequency	Percentage
Do you know about high blood pressure?		
Yes	300	89.8
No	34	10.2
Total	334	100
Tell me the normal levels of blood pressure		

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

A systolic pressure of less than 120 and a diastolic pressure of less than 80.	188	56.3
A systolic pressure of less than 130 and a diastolic pressure of less than 90	80	23.9
A systolic pressure of less than 140 and a diastolic pressure of less than 100.	66	19.8
TOTAL	334	100
Some of the signs of high blood pressure		
Severe headaches.	80	23.9
Nosebleed.	66	19.8
Fatigue or confusion.	75	19.7
Vision problems.	23	6.9
Chest pain.	60	17.9
Difficulty breathing.	30	8.9
TOTAL	334	100

The majority of participants knew about high blood pressure constituting (89.8%) unlike 10.2% did not know about high blood pressure. Most of the participants 56.8% argued that a systolic pressure of less than 120 and a diastolic pressure of less than 80. Was the normal levels of blood pressure, 23% cited a systolic pressure of less than 130 and a diastolic pressure of less than 90 unlike 19.8% cited a systolic pressure of less than 130 and a diastolic pressure of less than 90. The findings implied that the majority of respondents knew the normal levels of blood pressure since it was a systolic pressure of less than 120 and a diastolic pressure of less than 80. Of most of the participants, 23.9% cited severe headaches as a sign of high blood pressure, followed by 19.7% cited fatigue or confusion, and 19.8% cited nosebleeds unlike a few cited difficulty breathing.

Some of the complications of high blood pressure

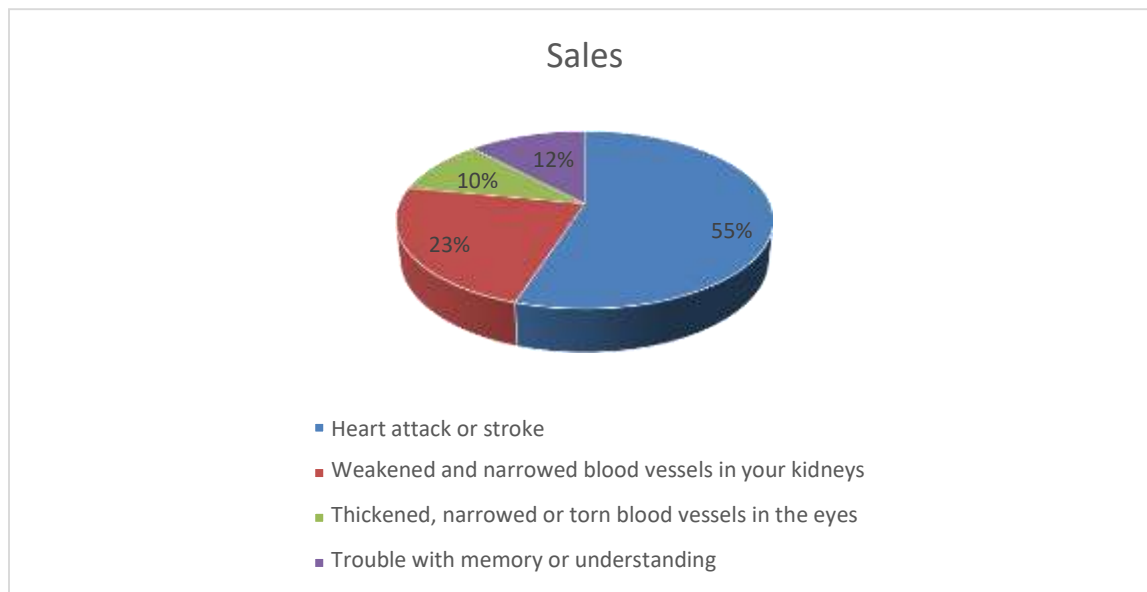


Figure 1: some of the complications of high blood pressure

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

Most of the participants (55%) cited heart attack, (23%) cited weakened and narrowed blood vessels in the kidneys, (10%) cited thickened, narrowed or torn blood vessels in the eyes while few reviewed trouble with memory or understanding of the individual. In an interview with some doctors, they argued that high blood pressure, or hypertension, is a major health problem that is common in older adults. Your body's network of blood vessels, known as the vascular system, changes with age. Arteries get stiffer, causing blood pressure to go up. This can be true even for people who have heart-healthy habits and feel just fine. High blood pressure, sometimes called "the silent killer," often does not cause signs of illness that you can see or feel. Though it affects nearly half of all adults, many may not even be aware they have it. Patients with hypertensive blood pressure were asked about ways they deal with it. Responses were summarized in Figure 2 below.

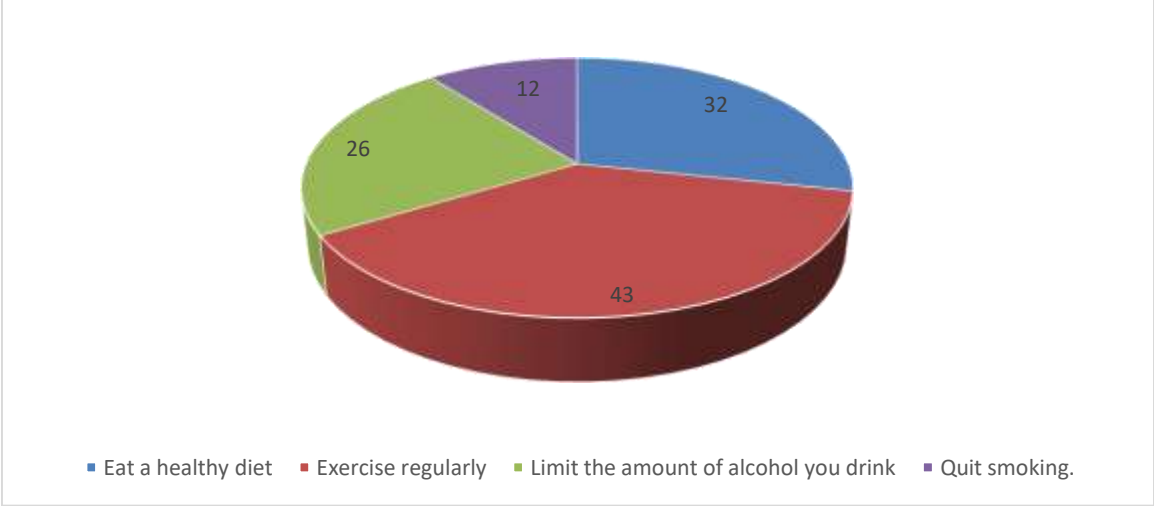


Figure 2: ways to deal with high blood pressure

Most of participants (43%) revealed that they do exercises regularly to control high blood pressure, 32% eat healthy diet, and 26% limit amount of alcohol they drink unlike 12% quitted smoking Knowledge on the benefits of high blood pressure treatment.

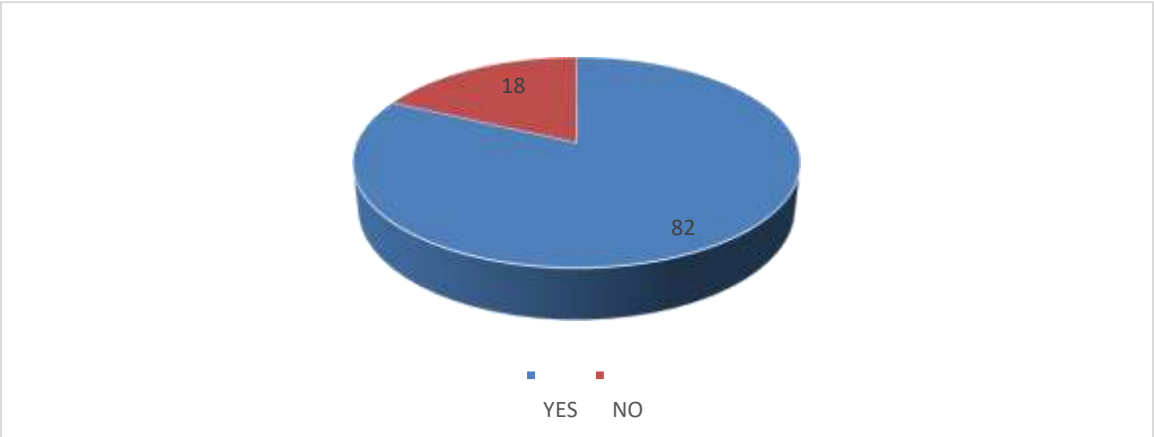


Figure 3: knowledge on the benefits of high blood pressure treatment

82% new the benefits of high blood pressure treatment unlike 12% did not know. And the benefits were highlighted in Figure 4.

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

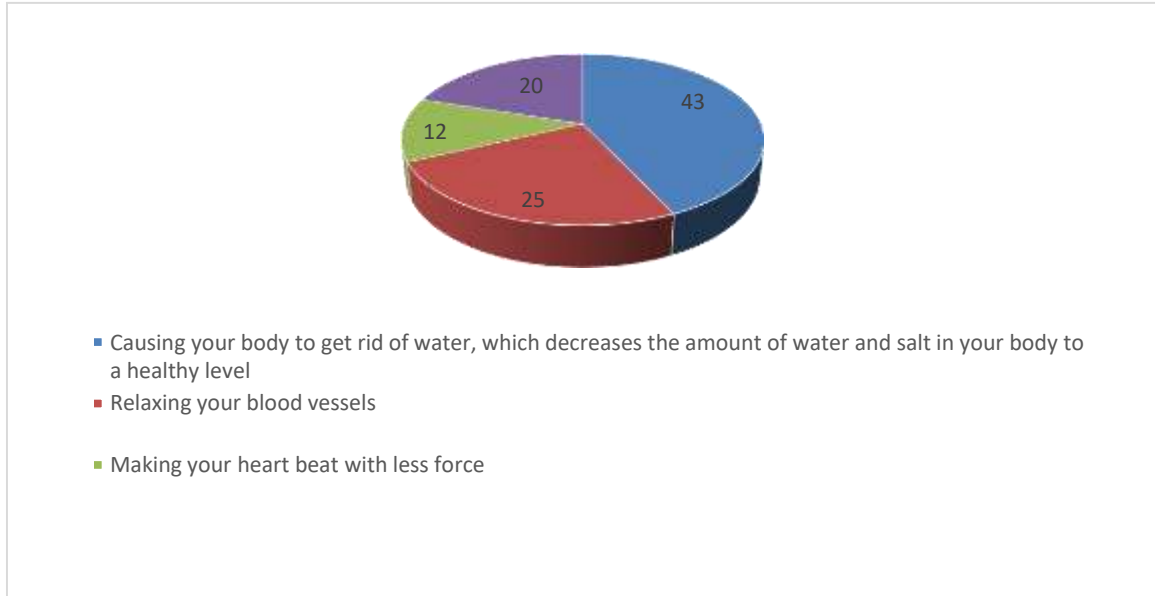


Figure 4: The benefits of high blood pressure treatment

Most of the participants (43%) argued that high blood pressure treatment Causes the body to get rid of water, which decreases the amount of water and salt in your body to a healthy level, 25% showed that treatment of high blood pressure helps to relax blood vessels, 12% showed that treatment makes the heart beat with less force while 12% agreed that it Blocks the nerve activity that can restrict your blood vessels. In an interview with one doctor, she argued that treatment to at least current guideline standards for BP (<150/90 mm Hg) substantially improves health outcomes in older adults. There is less consistent evidence, largely from 1 trial targeting SBP less than 120 mm Hg, that lower BP targets are beneficial for high-risk patients. Lower BP targets did not increase falls or cognitive decline but are associated with hypotension, syncope, and greater medication burden.

Respondents were asked how they felt after taking medication. The results were summarized in figure 5.

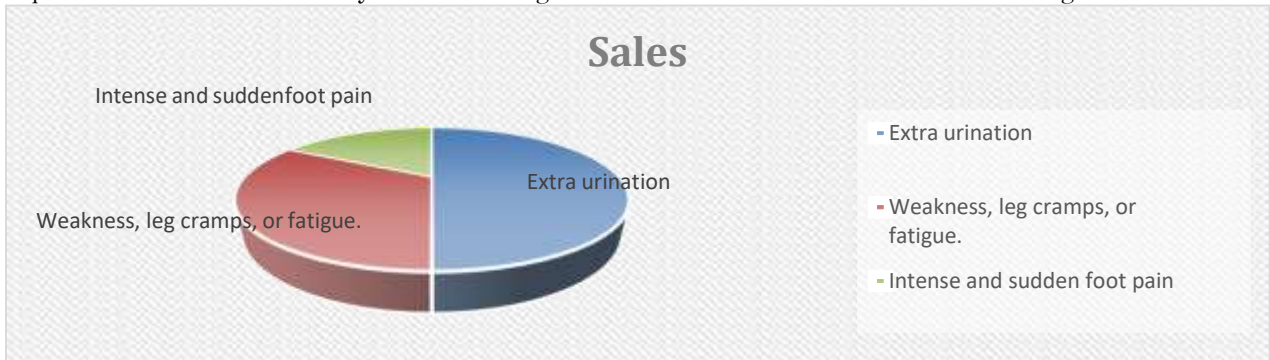


Figure 5: Feelings after taking high blood pressure medication

After medication some of the patients felt extra urination, other had Weakness, leg cramps, or fatigue unlike few had intense and sudden foot pain, which is a symptom of gout and this was rare.

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

Table 4: Health care system related factors

How do you find your Physician?	Frequency	Percentage
Helpful	14	4.2
Has time for me	35	10.5
I trust him/her	88	26.3
Understanding	93	27.8
Total	334	100
Do you agree with your physician about your symptoms?		
YES	215	64.4
NO	119	35.6
Total	334	100
Do you find it easy to refill your medications?		
YES	120	35.9
NO	214	41.9
Total	334	100
What medications are you receiving?		
Nifedipine	36	10.8
Amlodipine	100	29.9
Bendro	77	23.1
Furosemide	80	23.9
Labetalol	41	12.3
Total	334	100

Most of the participants showed that their physicians were understanding the situation (27.8%), (26.3%) trusted their physicians, and (10.5%) had time for them unlike 4.2% revealed that physicians were helpful. Most (41.9%) of the participants did not find it easy to refill their medications unlike (35%) who found it easy. Most of the participants (29.9%) had got amlodipine medication, and 23.9% had got furosemide unlike few of 10.8% had got nifedipine.

DISCUSSION

Most of the participants were between the ages of 44-48 (27.8%) while few were between 18-22 (4.2%). The findings are similar to a study in Turkey that found a gradual decrease in antihypertensive medication adherence with ageing. Poor antihypertensive medication adherence was found in patients under the age of 48 and it increased among other age groups as the age range increased (age ranges 50-59, 60-69, 70-79), 75.8% poor adherence in 33 patients aged older than 80 years was found [24]. Ageing contributes to a decline in psychomotor abilities. In addition, patients' health condition is impacted during ageing. For example, there are some health issues such as vision and cognitive impairments (dementia or Alzheimer's disease) that are more common in aged individuals. Consequently, the decrease in self-reliance related to these issues explained the reason for decreased antihypertensive medication taking in aged individuals. From the study findings, 82% knew the benefits of high blood pressure treatment, unlike 12% who did not know. The findings are in contrast with a study conducted in Northwest Ethiopia that reported that hypertensive patients who had good knowledge about hypertension and its treatment were nine times as likely to adhere to their medication therapy as compared to patients who had poor knowledge. So it is important to provide patients with knowledge about their disease and its treatment [25]. Most of the participants showed that their physicians were understanding the situation (27.8%), (26.3%) trusted their physicians, and (10.5%) had time for them unlike 4.2% revealed that physicians were helpful. Most (41.9%) of the participants did not find it easy to refill their medications unlike (35%) found it easy. The findings are in relation to another study that found that collaborative communication between patients and physicians is a significant predictor of enhancing medication adherence [26].

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

Conclusions

Adherence to taking medication was measured by taking antihypertensive drugs in individuals. Healthy diet, exercise, and timely visits to health services for routine control can increase treatment outcomes of hypertension. It was further concluded that as age increases the prevalence of hypertension also increases with it. The age group of 70 years and above was almost two times more likely to be hypertensive as compared to the 50–59 years age group. Poor medication refill adherence is a significant predictor of stroke and death in patients with hypertension and remains a significant problem in Blacks, who suffer disproportionately from hypertension and experience poorer blood pressure control and cardiovascular outcomes than whites.

Recommendations

We recommend the implementation of education campaigns to increase awareness about the risk factors, natural history, complications and treatment of hypertension. Global events, such as World Hypertension Day, could be used as a forum to highlight these issues. Patient support groups can be employed to help the non-adherent. Patients who have suffered complications due to non-adherence could be requested to voluntarily share their experiences. Print and audiovisual media would be very helpful in the dissemination of information. Physicians have to pay special attention to patient education and counselling when treating hypertensive patients.

REFERENCES

1. Aja, P. M., Nwuguru, M. E., Okorie, U. C., Alum, E. U. and Offor, C. E. Effect of Decoction Extract of *Whitfieldia lateritia* on Lipid Profiles in Hypercholesterolemic Albino Rats. *Global Veterinaria*. 2015; 14(3): 448-452. DOI: 10.5829/idosi.gv.2015.14.03.93130.
2. Obeagu, E. I., Chijioke, U. O., & Ekelozie, I. S. Hypertension a great threat to human life. *Int. J. Adv. Res. Biol. Sci.* 2018; 5(10): 159-161.
3. Birungi, J., Kivuyo, S., Garrib, A., Mugenyi, L., Mutungi, G., Namakoola, I., ... & Jaffar, S. Integrating health services for HIV infection, diabetes and hypertension in sub-Saharan Africa: a cohort study. *BMJ open*. 2021; 11(11): e053412.
4. Bhadoria, A. S., Kasar, P. K., Toppo, N. A., Bhadoria, P. Prevalence of hypertension and associated cardiovascular risk factors in Central India. *J Family Community Med.* 2014; 29-38.
5. Adonu, C. C., Ugwu, O. P., Bawa, A., Ossai, E. C., & Nwaka, A. C. Intrinsic blood coagulation studies in patients suffering from both diabetes and hypertension. *Int J Pharm Med Bio Sci.* 2013; 2(2): 36-45.
6. Agbafor, K. N., Onuoha, S. C., Ominyi, M. C., Orinya, O. F., Ezeani, N. and Alum, E. U. Antidiabetic, Hypolipidemic and Antiathrogenic Properties of Leaf Extracts of *Ageratum conyzoides* in Streptozotocin-Induced diabetic rats. *International Journal of Current Microbiology and Applied Sciences*, 2015; 4 (11): 816-824. <http://www.ijcmas.com>.
7. James, P. A., Oparil, S., Carter, B. L., Cushman, W. C., Dennison-Himmelfarb, C., Handler, J., et al. 2014 Evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). *JAMA*. 2014 Feb 5;311(5):507-20. doi: 10.1001/jama.2013.284427. Erratum in: *JAMA*. 2014 May 7;311(17):1809. PMID: 24352797.
8. Uti, D. E., Igile, G. O., Omang, W. A., Umoru, G. U., Udeozor, P. A., Obeten, U. N., Ogbonna, O. N., Ibiam U. A., Alum, E. U., Ohunene, O. R., Chukwufumnanya, M. J., Oplekwu, R. I. and Obio, W. A. Anti-Diabetic Potentials of Vernonioid E Saponin; A Biochemical Study. *Natural Volatiles and Essential Oils*, 2021; 8(4): 14234-14254.
9. Aja, P M., Chiadikaobi, C D., Agu, P C., Ale, B A., Ani, O G., Ekpono, E U. et al. Cucumeropsis mannii seed oil ameliorates Bisphenol-A-induced adipokines dysfunctions and dyslipidemia. *Food Sci Nutr.* 2023 Feb 18;11(6):2642-2653. doi: 10.1002/fsn3.3271. PMID: 37324904; PMCID: PMC10261814.
10. Irazola, V. E., Gutierrez, L., Bloomfield, G., Carrillo-Larco, R. M., Dorairaj, P., Gaziano, T., et al. Hypertension Prevalence, Awareness, Treatment, and Control in Selected LMIC Communities: Results From the NHLBI/UHG Network of Centers of Excellence for Chronic Diseases. *Glob Heart.* 2016 Mar;11(1):47-59. doi: 10.1016/j.ghheart.2015.12.008. PMID: 27102022; PMCID: PMC4843831.
11. World Health Organisation (WHO). Millennium development goals sustainable Development Goals Chapter 6. Noncommunicable diseases, 200-250, 2015.
12. Nielsen, J. Ø., Shrestha, A. D., Neupane, D., Kallestrup, P. Non-adherence to anti-hypertensive medication in low- and middle-income countries: a systematic review and meta-analysis of 92443 subjects. *J Hum Hypertens.* 2017 Jan;31(1):14-21. doi: 10.1038/jhh.2016.31. Epub 2016 Jun 16. PMID: 27306087.
13. Burnier M. Drug adherence in hypertension. *Pharmacol Res.* 2017; 142–149.
14. Abegaz, T. M., Shehab, A., Gebreyohannes, E. A., Bhagavathula, A. S., Elnour, A. A. Nonadherence to antihypertensive drugs: A systematic review and meta-analysis. *Medicine (Baltimore)*. 2017 Jan;96(4):e5641. doi: 10.1097/MD.0000000000005641. PMID: 28121920; PMCID: PMC5287944.
15. Van der Laan, D. M., Elders, P.J.M., Boons, C.C.L.M. Factors associated with antihypertensivemedication non-adherence. *J Hum Hypertens.* 2017; 687–694.

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

16. Esunge, P. M. From blood pressure to hypertension: the history of research. *J R Soc Med.* 1991 Oct;84(10):621. doi: 10.1177/014107689108401019. PMID: 1744849; PMCID: PMC1295564.
17. Dustan, H. P., Roccella, E. J., Garrison, H. H. Controlling hypertension. A research success story. *Arch Intern Med.* 1996 Sep 23;156(17):1926-35. PMID: 8823146.
18. Ofor, C. E., Anyanwu, E., Alum, E. U. and C. Egwu. Effect of Ethanol Leaf-Extract of *Ocimum basilicum* on Plasma Cholesterol Level of Albino Rats. *International Journal of Pharmacy and Medical Sciences*, 2013; **3 (2)**: 11-13. DOI: 10.5829/idosi.ijpms.2013.3.2.1101. Page 34
19. Ezeani N.N., Edwin N., Alum E.U., Orji O.U., Ugwu Okechukwu P. C. Effect of Ethanol Leaf Extract of *Ocimum gratissimum* (Scent Leaf) on Lipid Profile of Alloxan-Induced Diabetic Rats. *International Digital Organization for Scientific Research Journal of Experimental Sciences*, 2017; **2 (1)**: 164-179. www.idosr.org
20. Ezeani N.N., Alum E.U., Orji O.U., Edwin N. The Effect of Ethanol Leaf Extract of *Pterocarpus santalinoids* (Ntrukpa) on the Lipid Profile of Alloxan-Induced Diabetic Albino Rats. *International Digital Organization for Scientific Research Journal of Scientific Research*, 2017; **2 (2)**: 175-189. www.idosr.org.
21. Ugwu, O. P.C., Alum, E. U., Obeagu, E. I., Okon, M. B., Aja, P. M., Samson, A. O., Amusa, M. O. and Adepoju, A. O. Effect of Ethanol leaf extract of *Chromolaena odorata* on lipid profile of streptozotocin induced diabetic wistar albino rats. *IAA Journal of Biological Sciences*, 2023; **10(1)**:109-117. www.iaajournals.org
22. Jaffar, S., Ramaiya, K., Karekezi, C., Sewankambo, N., Katahoire, A. R., Kraef, C., ... & Smith, P. G. Controlling diabetes and hypertension in sub-Saharan Africa: lessons from HIV programmes. *The Lancet.* 2021; 398(10306): 1111-1113.
23. Mugwano, I., Kaddumukasa, M., Mugenyi, L., Kayima, J., Ddumba, E., Sajatovic, M., et al. Poor drug adherence and lack of awareness of hypertension among hypertensive stroke patients in Kampala, Uganda: a cross sectional study. *BMC Res Notes.* 2016 Jan 2;9:3. doi: 10.1186/s13104-015-1830-4. PMID: 26725042; PMCID: PMC4698320.
24. Karakurt, P., Kaşıkçı, M. Factors affecting medication adherence in patients with hypertension. *J Vasc Nurs.* 2012 Dec;30(4):118-26. doi: 10.1016/j.jvn.2012.04.002. PMID: 23127428.
25. Teshome, D. F., Bekele, K. B., Habitu, Y. A., Gelagay, A. A. Medication adherence and its associated factors among hypertensive patients attending the Debre Tabor General Hospital, northwest Ethiopia. *Integr Blood Press Control.* 2017 Jun 16;10:1-7. doi: 10.2147/IBPC.S128914. PMID: 28670137; PMCID: PMC5482403.
26. Ogedegbe, G., Schoenthaler, A. A systematic review of the effects of home blood pressure monitoring on medication adherence. *J Clin Hypertens (Greenwich).* 2006 Mar;8(3):174-80. doi: 10.1111/j.1524-6175.2006.04872.x. PMID: 16522994; PMCID: PMC8109348.

Kansiime Pauline (2023). Factors Influencing Adherence to Antihypertensive Drugs at Jinja Regional Referral Hospital, Uganda. NEWPORT INTERNATIONAL JOURNAL OF RESEARCH IN MEDICAL SCIENCES (NIJRMS) 4(1): 25-34

Kansiime

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited