International Journal of Community Medicine and Public Health
Ondieki AO et al. Int J Community Med Public Health. 2021 Sep;8(9):4245-4254
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20213211

Original Research Article

Prevalence and socio-demographic factors associated with hypertension among rural and urban population of Kisii County, Kenya

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Received: 18 July 2021
Accepted: 02 August 2021

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ABSTRACT

Background: Hypertension (HTN) is a major cause of morbidity and mortality worldwide. 9.4 out of the 20 million cardiovascular deaths are due to HTN. HTN has often been described to be more prevalent in urban areas. However, there has been an epidemiologic transition from urban to rural areas which often go unreported or underreported. This gap therefore called for a study to compare the prevalence of HTN burden and assess how socio-demographic factors contribute to HTN development among the rural and urban population.
Methods: This study methodology focused on HTN among residents aged 30-69 years, from urban and rural population of Nyaribari Chache sub county, Kisii County, Kenya using a descriptive cross sectional study in which 490 respondents were interviewed. Sampling involved a random sampling technique which entailed household selection. Data was analysed using statistical package for social scientists (SPSS) version 21.
Results: The prevalence of HTN for the sampled population was 44.668%. The prevalence of HTN was 44.134% in rural and 43.598% in urban areas. Rural population were more at risk of developing HTN than urban (OR=1.135 and RR=1.072). On general health, those who had ever been told that they had hypertension ($p<0.000$), ever been told that they had hypertension for the past 12 months ($p=0.000$) and those who were currently taking hypertension medication ($p=0.026$) were statistically significant variables.
Conclusions: The study concludes that residents in rural population have higher prevalence of hypertension. Further, female respondents, those who are currently married, completed primary school education and were self-employed reported to have a higher prevalence of hypertension.

Keywords: Hypertension, Prevalence, Urban, Rural, Socio-demographic, Kisii

INTRODUCTION

HTN is defined by the WHO as a systolic and diastolic blood pressure equal to or above 140 and 90 mmHg respectively or someone one who is under hypertensive medication.[1] However, recent guidelines based on the American heart association and the American college of cardiology taskforce on clinical practice define hypertension as a systolic and diastolic blood pressure equal to or above 130 and 80 mmHg respectively.[2]

Globally, the mortality rate is estimated to be 9.4 million deaths out of 20 million deaths from cardiovascular diseases.[1] It is estimated that more than 80% of these deaths occur in developing countries and the rising cases of cardiovascular diseases in Sub-Saharan Africa have been attributed to undiagnosed, untreated and inadequately treated HTN.[3] These categories make morbidity and mortality high because individuals are not able to prevent risk factors to its development.

Additionally, in Kenya, HTN has been identified to be the major contributor to increased non communicable diseases (NCDs) in the country. The prevalence however varies based on various population residences.[4] Limited information is however available on urban and rural representation and prevalence. Knowing this is vital, since the prevalence, control and prevention measures vary from one region to another.

There is gradual developing evidence of continually increasing global burden of HTN. This has resulted in a global action to reduce the related morbidity, mortality and disability. In Sub-Saharan Africa, as the burden of hypertension increases, the available resources for treatment keep diminishing and hence not able to meet the demand from the diseased.

Although there has been increasing focus to tackle hypertension, there still lacks clear indicators and strategies targeted for different populations making up these low and middle income settings.[5] Additionally, little information is available on the prevalence of HTN in both urban and rural areas. Also, very limited studies have been done to compare the prevalence and risk factors in rural and urban areas.[6] In order to have specific, targeted prevention and curative measures, there is a need to identify rural-urban differences in the prevalence or disease burden. This study was therefore determined to investigate the prevalence and socio-demographic factors associated with HTN as a comparison of urban and rural population in order to design appropriate interventions specific for each population.

There has been a marked increase in HTN in developing countries.[7] Hypertension is also projected to cause a morbidity effect to 1.25 billion globally by 2025.[8] Various studies including that done in India indicate that prevalence of HTN varies from one region to another and meta-analysis done described its prevalence to be 25% and 10% in urban and rural areas respectively.[9] Additionally, studies conducted from 1991 to 2011 indicated that rural and urban hypertension prevalence range from 13.9 to 46.3% in urban areas and 4.5 to 58.8% in rural areas, indicating a transition from the meta-analysis and common description.[10] Another study in India indicated a higher prevalence of urban areas compared to rural areas, however, the rural prevalence is catching up with the urban prevalence.

In Kenya, a study done on assessing the prevalence of hypertension between rural and urban population indicated a higher prevalence in rural compared to urban population.[11] In contrast, a study done in Nakuru County indicated a higher prevalence in urban compared to the rural population of 57% and 47% respectively.[12] This was also seen in a study done in Webuye, a predominantly rural region with a lower prevalence of 4.9%.[13] This was attributed to the effects of urbanization for instance lifestyle changes, diet and other behavioural patterns and stress which narrows the gap between rural and urban areas.

Until the recent past, there has been little focus on reporting and monitoring increase of risk factors to HTN.[11] A proper surveillance and monitoring system is highly recommended for effective control of this condition. There is a gap in the availability of local data on the prevalence of HTN despite the general trends indicating the increase nationally and globally.[14]

Little is known regarding the prevalence and risk factors, especially in the rural and urban setting. More studies are needed to compare the prevalence of HTN and their associated socio-demographic factors in rural and urban areas in Kisii County and ultimately the entire country.

HTN surveillance is vital and a hallmark for the health of the population in order to ensure mortality and morbidity is reduced. However, there lacks data or the available data is of low quality especially in a low resource setting and in low and middle-income countries.[15] Additionally, from the largest descriptive epidemiological study, the global burden of diseases, there is an indication of low data quality for the majority of LMICs from 1980-2016.[16]

In Kenya, surveys such as the Kenya global adult tobacco survey, and the recent NCDI commission report survey have been resourceful in the surveillance of this disease in the country on predisposing factors but not on specific risk factors in the different populations.[17]

Surveillance on HTN in Kenya first began in 1989 where the NCD component was added in the 2014 Kenya demographic health survey (DHS). This program was first run in 1998 by various countries and it included aspects of monitoring blood pressure.[18] This entailed self-reported HTN.[19]

METHODS

Study area

The study was conducted in a rural and urban population of Nyaribari Chache sub county located in Kisii County, Kenya. Kisii is located at latitude and longitude of 34.7796°E and 0.6773°S respectively. The study focused on five sub-locations of Nyaribari Chache: Nyaura, Kiamabundu, Nyanchwa, Nyamware and Boronyi randomly selected for data collection. The study adopted a cross-sectional study design.

The study population consisted of residents aged 30-69 years of age in Nyaribari Chache sub county, Kisii County, Kenya. Those in the study population who gave informed consent and were between thirty and sixty nine years of age were included in the study. Those in the study population, who did not give informed consent, were cognitively impaired were excluded from the study.

Nyaribari Chache, sub county was purposively sampled because it indicated an increasing upsurge of HTN prevalence had the key characteristics of urban and rural areas, vital for the study. The five sub-locations (Nyaura, Kiamabundu, Nyanchwa, Nyamware and Boronyi), the households and the respondents were randomly selected using simple random sampling.

The study adopted the formula of Fischer et al 2003.[20] A minimum of 384 respondents was required. The research adopted 420 households as sample size that resulted in 497 respondents. The proportionate probability was adopted to calculate the respondents according to the selected sub-locations. Nyaura had a population of 17756, Kiamabundu had 3893 residents, Nyanchwa had 5415 residents, Nyamware had 9203 residents and Boronyi had 5690 residents. The total number of population in the selected sub-locations was 41957. In this study, 177 households were targeted in Nyaura, 40 in Kiamabundu, 54 in Nyanchwa, 92 in Nyamware and 57 in Boronyi.

Data was collected using an adapted version of the WHO STEPwise approach to non-communicable disease and risk factors surveillance from 1 July to 31 August 2020 and keyed in for analysis using statistical package for social science (SPSS) version 21. A comparison was done for the two distinct study populations and within each population using Chi-square analysis for categorical data. Data from the study population was expressed as percentages to determine point prevalence of hypertension. A statistically significant association was at a p value which was set at less than or equal to 0.05.

Blood pressure was measured three times, after a resting period during the exercise and using automated and validated blood pressure equipment (OMRON M6 Comfort; OMRON Corporation). The average of the second and third measurement was used for analysis.

Classification of HTN was determined by the seventh (7th) Joint National committee on detection, evaluation and treatment of HTN. Those found to be hypertensive were referred for medical management at the nearby public facility and educated on managing HTN in order to promote self-management of HTN. Respondents not able to read and understand were read for the questions step by step and the research assistants wrote the responses.

Ethical clearance was obtained from Kenyatta university ethics review committee (KUERC) and research permit from National commission of science, technology, and innovation (NACOSTI) before we began the study data collection. Additional permit and clearance were sought from the department of health, county commissioner and ministry of education, Kisii County. Written and signed informed consent was obtained from respondents before the study began who were also explained on the purpose of the study.

RESULTS

Prevalence of HTN among study population of Kisii County

HTN cases were determined based on the seventh (7th) Joint National committee on detection, evaluation and treatment of HTN.[2]

The study therefore classified normal blood pressure with systolic of <120 and diastolic of <80, elevated blood pressure of systolic pressure of 120-129 and diastolic pressure of <80, HTN stage one (1) of systolic pressure of 130-139 or a diastolic pressure of 80-89, HTN stage two (2) with a systolic pressure of >140 or diastolic pressure of >90 and hypertensive crisis with a systolic pressure of >180 and/or diastolic of >120.

106 (32.3%) and 60 (35.5%) respondents had normal blood pressure in urban and rural areas respectively. Those who were diagnosed with elevated blood pressure were 79 (24.1%) and 30 (17.8%) in urban and rural areas respectively. Generally, there were more normal cases than hypertensive cases of HTN stage 1, stage 2 and hypertension crisis in both populations. HTN prevalence was slightly more in rural than in urban areas.

Generally, most respondents were categorized as having normal blood pressure and least cases were those categorized among the high blood pressure (HTN) stage 2. Higher cases were also reported for those who were in hypertensive crisis stage, these were advised to consult their doctors or visit the referral hospital immediately (Table 1) (Figure 2 and 3).

Generally, the prevalence of HTN for the sampled population was 44.668%. The prevalence of HTN in urban areas was 43.598% while in rural slightly higher with the prevalence was 44.134%.

In rural areas, those who were hypertensive were highest among the following hypertension classifications, stage one (1) HTN followed by hypertensive crisis and finally stage 2 HTN; 30 (17.8%), 29 (17.1%) and 20 (11.8%) respectively. 90 (53.3%) out of 169 respondents in rural areas had normal blood pressure at the time of the study. Among urban residents, it was highest among the following hypertensive groups; hypertension stage 1, hypertensive crisis and finally hypertension stage 2; 57 (17.4%), 56 (17.1%) and 30 (9.1%) respectively.

In overall, a total of 497 respondents both from urban and rural population were recruited to take part in the current study as outlined in Table 1. Mean age of study participants was 47 (±12) years; 46 (±12) years in urban and 48 (±12) for rural populations.

Majority of the respondents were female; urban (58.2%) and rural (62.1%). Most of the respondents were currently married (77.5% in urban and in rural). A larger proportion

of study participants (37.5% in urban and 36.7% in rural) had only completed primary school education while the least (7.9% in urban and 7.7% in rural) had no formal schooling. By the time the study was conducted, majority (77.1% in urban and 65.7% in rural) of the respondents were self-employed majorly farming of tea plantation. Monthly income for the respondents ranged from 7,000 to above 100,000. Those who earned between 0-7000 were the majority (34.5% in urban and 48.5% in rural) as shown in Table 2.

Additionally, all the respondents were Kisii of which 328 and 169 were sampled from urban and rural population respectively.

A bivariate analysis on socio-demographic characteristics of respondents found out that the village of residence (p=0.001) and estimated monthly income (p=0.004) were statistically significant variables to HTN development. Sex of respondents (p=0.743), residence (p=0.504), marital status (p=0.220), level of education (p=0.230) and main work status (p=0.061) were not statistically significant.

Table 1: HTN categories characteristics among the respondents.

Blood pressure category (systolic/diastolic count, mmHg)	Urban	Urban (%)	Rural	Rural (%)	Total
Normal blood pressure (<120 or <80)	106	32.3	60	35.5	166
Elevated blood pressure (120-129 or <80)	79	24.1	30	17.8	109
Hypertension stage 1 (130-139 or 80-89)	57	17.4	30	17.8	87
Hypertension stage 2 (>140 or >90)	30	9.1	20	11.8	50
Hypertensive crisis (>180 or >120)	56	17.1	29	17.2	85

Table 2: Socio-demographic characteristics of the study population in Kisii County.

Socio-demographics		Urban		Rural	
		Frequency	(%)	Frequency	(%)
Residence		328	65.8	169	34.2
Age (in years)	30-34	63	19.3	28	16.5
	35-39	64	19.3	25	15.3
	40-44	38	11.6	15	8.8
	45-49	36	11	26	15.3
	50-54	39	11.9	15	8.8
	55-59	27	8.3	26	15.3
	60-64	33	10.1	12	7.1
	65-69	28	8.6	22	12.9
Village	Nyaura	162	49.4	50	29.6
	Kiamabundu	37	11.3	16	9.5
	Nyanchwa	58	17.7	12	7.1
	Nyamware	42	12.8	58	34.3
	Boronyi	29	8.8	33	19.5
Sex	Male	137	41.8	64	37.9
	Female	191	58.2	105	62.1
Marital status	Never married	35	10.7	20	11.8
	Currently married	261	79.6	131	77.5
	Separated	10	3	5	3.0
	Divorced	10	3	0	0
	Widowed	12	3.7	13	7.7
Highest education level	No formal schooling	26	7.9	13	7.7
	Less than primary school	74	22.6	40	23.7
	Primary school completed	123	37.5	62	36.7
	Secondary school completed	76	23.2	40	23.7
	College/university completed	29	8.8	14	8.3
Main working status over last 12 months	Government employee	16	4.9	8	4.7
	Self employed	253	77.1	111	65.7
	Unemployed (able to work)	59	18.0	50	29.6
Estimated range of monthly income	0-7,000	113	34.5	82	48.5
	7,000-20,000	81	24.7	43	25.4
	20,000-100,000	14	4.3	11	6.5
	Refused to respond	120	36.6	33	19.5

Table 3: Bivariate analysis on socio-demographic characteristics.

Variables	Category	Presence of HTN		Chi square, Fisher's exact test and Pearson's r
		Yes (%)	No (%)	
Sex	Male	88 (39.6)	113 (41.1)	χ^2=0.107; p=0.743; df=1
	Female	134 (60.4)	162 (58.9)	
Residence	Urban	143 (64.4)	185 (67.3)	P=0.504; df=1; χ^2=0.447; OR=1.135 rural; RR=1.072 rural
	Rural	79 (35.6)	90 (32.7)	
Village	Nyaura	87 (39.2)	125 (45.5)	χ^2=17.791; p=0.001; df=4
	Kiamabundu	21 (9.5)	32 (11.6)	
	Nyanchwa	22 (9.9)	48 (17.5)	
	Nyamware	53 (23.9)	47 (17.1)	
	Boronyi	39 (17.6)	23 (8.4)	
Marital status	Never married	18 (8.1)	37 (13.3)	χ^2=5.727; p=0.220; df=4
	Currently married	177 (79.7)	211 (78.2)	
	Separated	7 (3.2)	8 (2.9)	
	Divorced	5 (2.3)	5 (1.8)	
	Widowed	15 (6.8)	10 (3.6)	
Level of education	No formal schooling	20 (9.0)	19 (6.9)	χ^2=5.611; p=0.230; df=4
	Less than primary school	57 (25.70)	57 (20.7)	
	Primary school completed	73 (32.9)	112 (40.7)	
	Secondary school completed	56 (25.2)	60 (21.8)	
	College/university completed	16 (7.2)	27 (9.8)	
Main work status	Government employee	13 (5.9)	11 (4.0)	χ^2=5.558; p=0.061; df=2
	Self employed	151 (68.0)	213 (77.5)	
	Unemployed (able to work)	58 (26.1)	51 (18.5)	
Estimated monthly income	0-7,000	105 (47.3)	90 (32.7)	P=0.004; df=3; χ^2=13.362
	7,000-20,000	42 (18.9)	82 (29.8)	
	20,000-100,000	12 (5.4)	13 (4.7)	
	Refused to respond	63 (28.4)	90 (32.7)	

Table 4: HTN and general health characteristics of the respondents.

Characteristics		Urban		Rural	
		Frequency (N)	%	Frequency (N)	%
Ever had blood pressure measured	Yes	116	35.4	77	45.6
	No	212	64.6	92	54.4
Ever been told that you have hypertension?	Yes	43	13.1	27	16.0
	No	285	86.9	142	84.0
Taken any drugs for HTN prescribed by a doctor	Yes	32	9.8	11	6.5
	No	296	90.2	158	93.5
Currently taking herbal or traditional remedy for raised blood pressure	Yes	24	7.3	0	0.0
	No	304	92.7	169	100.0

Table 5: Bivariate analysis on health behaviour.

Analysis		HTN prevalence		Chi square test and df
Variables	**Category**	**Yes**	**No**	
Ever been told that you have HTN?	Yes	51 (23.0)	19 (6.9)	χ^2=26.195; df=1; p=0.000*
	No	171 (77.0)	256 (93.1)	
Taken any HTN drugs prescribed by	Yes	33 (14.9)	10 (3.7)	χ^2=19.596; df=1;

Continued.

Analysis		HTN prevalence		Chi square test
a doctor	No	189 (85.1)	265 (96.4)	p=0.000*
Ever seen a traditional healer for BP medication	Yes	12 (5.4)	9 (3.3)	χ^2=1.381; df=1; p=0.240
	No	210 (94.6)	266 (96.7)	
Currently taking herbal BP medication	Yes	16 (7.2)	8 (2.9)	χ^2=4.938; df=1; p=0.026*
	No	206 (92.8)	267 (97.1)	
Go for routine check up	Yes	49 (22.1)	55 (20.0)	χ^2=0.319; df=1; p=0.572
	No	173 (77.9)	220 (80.0)	

Table 6: Multivariate logistic regression analysis for predictors of hypertension.

Variables	Category	Yes (%)	No (%)	Odds ratio and relative risk
Residence of respondents	Urban	143 (64.4)	185 (67.3)	OR=1.135 rural, 0.881 urban; RR=1.072 rural, 0.933 urban
	Rural	79 (35.6)	90 (32.7)	

Table 7: Bivariate analysis on residence of respondents.

Presence of high blood pressure				Chi square, odds ratio and relative risk
Residence	**Yes (%)**	**No (%)**	**Total (residence)**	
Urban	143 (64.4)	185 (67.3)	328	P=0.504, χ^2=0.447, df=1, OR=1.135 rural, 0.881 urban RR=1.072 rural, 0.933 urban
Rural	79 (35.6)	90 (32.7)	169	
Total (hypertensive)	222 (100)	275 (100)	497	

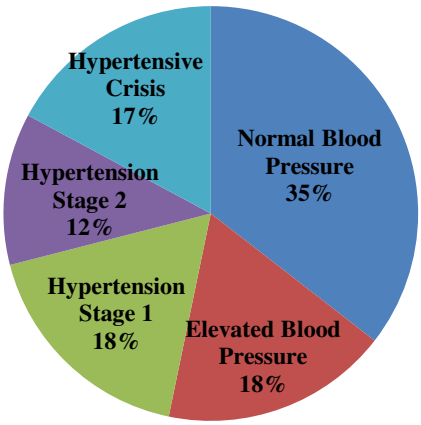

Figure 1: Percentage of HTN categories among rural residents.

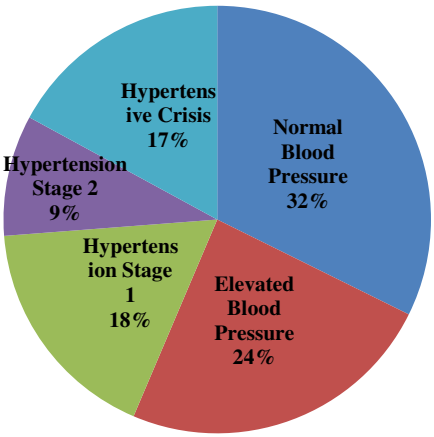

Figure 2: Percentage of HTN categories among urban residents.

HTN cases were slightly lower than those who were diagnosed and reported to be normal. Of the hypertensive cases, there were more female 134 (60.4%) than male respondents, 88 (39.9%) who had HTN. HTN was more prevalent among the currently married respondents 177 (79.7%) and regarding the level of education, those who had completed primary school education had the highest prevalence of HTN 73 (32.9%) of all respondents as shown in the Table 3.

64.6% of the respondents in urban and 54.4% in rural areas had never been measured blood pressure at the time of the interview. Similarly, majority of the respondents 86.9% in urban and 84% in rural areas had never been told to be having hypertension at the time of conducting the study as described in Table 4.

Bivariate analysis on general health indicated that those who had ever been told that they had hypertension (p<0.000), taken any HTN drugs prescribed by a doctor (p=0.000) and those who were currently taking herbal HTN medication (p=0.026) were statistically significant. Ever seen any traditional healer for blood pressure medication (p=0.240) and going for routine check-up (p=0.572) were not statistically significant variables for HTN. 171 (77.0%) who had never been told before that they had HTN were diagnosed with HTN for the first time during the study.

Only 51 (23.0%) of the respondents who had ever been told they had blood pressure were diagnosed with HTN. Of those who responded and had HTN, only 33 (14.9%) reported to be under medication. 189 (85.1%) were not under medication yet found to have hypertensive.

Regarding routine check-up, 49 (22.1%) had HTN, those who did not go for routine check-up, a larger percentage of the respondents 173 (77.9%), had HTN as shown in the Table 5.

Multivariate logistic regression analysis for predictors of HTN

Residence of respondents, sex and routine HTN check-up were the significant predictors of HTN identified from a multivariate logistic regression as shown in Table 6.

Rural residents were 1.144 times more likely of developing HTN than urban residents. Similarly, the residents in rural areas were at 1.092 more risk of developing HTN than those in urban areas as shown in Table 7.

DISCUSSION

Prevalence of HTN

Findings from this study revealed high prevalence of 44.134% among rural population in Kisii County than the urban (43.598%) population with a general prevalence of 44.668% among adults aged 29 to 69 years based on the classification of the seventh joint national committee on detection, evaluation and treatment of HTN.[2]

This also agreed with previous findings, which revealed that the prevalence of HTN ranged from 19% to 48%.[21] However, other studies done by have reported a lower prevalence compared to prevalence reported in this study.[22-24]

The higher rural prevalence was consistent with studies in Southern Nigeria which demonstrated a higher prevalence of HTN in rural than urban societies.[25] In their study, they found 44.3% prevalence of HTN in the rural community compared to 27.5% in the urban (p<0.001). This was in contrast with finding reported in Ghana showing a higher prevalence in urban than rural.[26] Similar prevalence studies have also indicated a higher prevalence in urban compared to rural areas.[27,28]

These studies done in Sub-Saharan Africa indicated difference in prevalence between urban and rural population which could be a reflection of differences in lifestyles for instance physical activity and dietary patterns in these populations.[4,29,30]

In both urban and rural areas, most of the respondents had normal blood pressure. Comparatively, the study was contrary with one done elsewhere in India and Mali which indicated a higher prevalence in urban areas compared to rural areas.[9,31]

Socio-demographic characteristics

Majority of the respondents were female in both urban and rural population; urban (58.2%) and rural (62.1%). Hypertension was also found to be more prevalent among female (60.4%) than male (39.6%). This was contrary to other studies which indicated that male reported more cases of HTN than females.[28,32,33] A possible explanation of the disparity in prevalence among the gender could be the high population density and better health seeking behaviour among women thus a good knowledge about their HTN status.[23,34]

Increasing age had been found to be a single predictor of hypertension.[35,36] This was an important cause of morbidity and mortality worldwide, in this study, hypertension was seen to increase with age both in urban and rural population with mean age of study participants being 47 (±12) years; 46 (±12) years in urban and 48 (±12) for rural populations.

This was in line with other studies including those conducted by Priya et al who stated that as one grows old, there was a likelihood of increasing stiffness of the aorta and arterial walls increasing pressure of blood flow and thus hypertension.[23,32,37-39]

A larger proportion of study participants had only completed primary school education (37.5% in urban and 36.7% in rural). Those who had low literacy level reported high prevalence of hypertension. Similar study done in Uganda indicated a low awareness on hypertension among participants. This results in high burden of undiagnosed and uncontrolled high blood pressure.[40]

This could be due to high level of literacy or education imparted more information that enabled one make better judgment regarding HTN and make healthier lifestyle choices.

These lower levels of education resulted in less awareness of the risk and protective factors for HTN and therefore individuals may be more likely to engage in unhealthy lifestyles.

Additionally, by the time the study was conducted, majority of the respondents (77.1% in urban and 65.7% in rural) were self-employed majorly farming of tea plantation and highest prevalence of HTN was among those who had the least income of at most KShs. 7,000 a day. As compared to Hendriks et al the study findings indicated that there was a higher likelihood of those with low income per month to have a higher prevalence of hypertension.[4] This was majorly attributed to an overall low earning which subjected the respondents to a less ability to afford routine purchase of more expensive foods such as vegetables and fruits.

The residence of respondents played a key role in relation to HTN development where, rural populations had a relative risk of 1.072 and subsequently an OR of 1.135 more likely to develop HTN than those residing in urban areas. This was in line with other studies done by Mathenge et al which indicated an increasing prevalence in rural area.[12] Despite this finding, there were other contrary studies carried out by the ministry of health, Kenya which indicated an increase in hypertension cases among urban areas.[11] This could mean that preventive measures put in place in rural areas could be diminishing with time. Another possible explanation on increasing prevalence in rural areas could be change of lifestyle with uptake of urban lifestyles including dietary intake.

CONCLUSION

The study concludes that in Kisii County, residents in rural population have highest prevalence of HTN. Further, HTN stage 1, hypertensive crisis and hypertensive stage 2 is the order of hypertensive cases in urban and rural areas from highest to the lowest. In overall, those with normal blood pressure are more than those with the three classifications of HTN. Further, female respondents from the study population have higher prevalence than male. Additionally, those who are currently married also report to have a higher prevalence of HTN. From the study, it is evident that those who had completed primary school education and were self-employed formed the majority of those who had highest rates of HTN.

There should be a program focusing on prevention, early detection and management practices of HTN to rural residents, those currently married and have completed primary education in order to avert the increasing prevalence of HTN.

ACKNOWLEDGEMENTS

We as authors give our special thanks to Kenyatta university, department of community health and epidemiology and the community members who participated in the research.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Ondieki AO, Kimani HM, Kahiga TM. Prevalence and socio-demographic factors associated with hypertension among rural and urban population of Kisii County, Kenya. Int J Community Med Public Health 2021;8:4245-54.