

Original Research Article

Utilization of community health volunteers in identification of hypertension cases in Kajiado county, Kenya

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ABSTRACT

Background: Hypertension, despite being preventable and manageable contributes greatly to global morbidity and mortality. Community health volunteers (CHVs) provide various health services, however their utilization in hypertension identification has neither been explored nor emphasized. We aimed to determine the sociodemographic characteristics of CHVs and their knowledge level in hypertension identification in Kajiado county, Kenya.

Methods: This was a cross-sectional study with a mixed- methods approach. Using multi-stage sampling, we recruited 226 CHVs who were active in the past 6 months and gave informed consent. Researcher administered questionnaires and key informant interviews were used for data collection. Data analysis was conducted using the statistical package of social science version 23 and content thematic analysis for quantitative and qualitative data respectively.

Results: The likelihood of screening was higher among the middle age (41-50 years) ($p=0.031$). CHVs had poor knowledge (93.4%) and only 34.1% had attended a hypertension specific training. A strong statistical difference was found between ever-received hypertension training and knowledge level ($p=0.000$, 95% CI). The likelihood of screening was higher among those trained ($p=0.005$, 95% CI and those with knowledge of signs and symptoms ($p<0.001$, 95% CI). The odds of hypertension identification were 3.74 times higher among CHVs who knew hypertension signs and symptoms.

Conclusions: Overall, CHVs had poor hypertension knowledge. The likelihood of hypertension identification was higher in CHVs with good knowledge of hypertension. Further studies should be conducted to assess the impact of CHVs utilization in hypertension on health outcomes.

Keywords: Community health volunteers, Hypertension, Identification

INTRODUCTION

Non-communicable diseases (NCDs) are chronic and persist over a long duration. According to Shukri et al, hypertension contributes greatly to cardiovascular diseases and is the number one cause of morbidity and mortality in the world.¹ It is a continually increasing burden globally responsible for more than 10 million deaths each year.² Kenya too is going through an epidemiological transition

characterised by a reduction in morbidity and mortality as a result of communicable conditions, and an increase in the burden of NCDs.³ According to a survey, conducted in Kenya, hypertension prevalence is high among adults with little awareness and unacceptably low levels of treatment and control.⁴ The STEPwise approach to surveillance (STEPS) survey 2015 revealed that close to a quarter of Kenyans have hypertension. In those individuals

previously diagnosed only 12% were on treatment, and only 4% had achieved control.⁵

Poor blood pressure control can be attributed to both health system and patient-related factors.⁶ Recent studies have indicated that CHVs can promote hypertension care and blood pressure (BP) regulation as they bridge the gap between the health system and the patients. CHVs are volunteers who have undertaken basic training and are capable of providing preventive, promotional and rehabilitation care. Evidence depicts a positive impact when CHVs are incorporated into hypertension programs. It has been recommended that the health system should devise mechanisms to encourage preventive measures through controlling risk factors, because preventive care is more cost effective than curative care.⁷

Reliance on CHVs for health care has been increasing, especially in resource-limited areas across Africa. Their roles are better understood in the areas of communicable diseases such as HIV infection, Tuberculosis and Malaria; however, little is known about their role in non-communicable diseases. It is evident that CHVs can contribute significantly to most health services; prevention and identification of hypertension included.^{8,9}

A study in South Africa indicates that CHVs have various roles in the management of NCDs such as health advisors and educators, rehabilitators and support group facilitators. At community level they also screen and refer patients while helping them navigate the formal system.¹⁰ These multiple roles are modelled by the health system expectations and in response to community needs.¹¹

Hypertension, even though it bears a genetic predisposition, is largely associated with lifestyle factors that can be modifiable. The greatest gains in the successful control of the hypertension epidemic begin with its prevention, followed by early detection and proper management.¹² Lack of awareness on the disease and poor control in those identified remains a major challenge in Kenya.² Home visits by CHVs reduce the number of trips made by the patients to the hospital reducing the cost while educating and screening the people at the community.

In Kajiado County, Ongosi et al found the crude prevalence of hypertension to be 72.7% (80.6% in men and 63.8% in women). The age-standardized prevalence of hypertension was also slightly higher (26.2%) than the national hypertension prevalence average of 24.5%.¹³

Despite Kajiado having such high prevalence of elevated blood pressure (72.7%), a disturbingly high proportion (46.7%) has never had their blood pressure checked.¹³ Even worse, only 34.7% of those found to be hypertensive knew of their condition, an indication that most of the patients did not seek screening and treatment. Similar findings are depicted in the national Stepwise survey as aforementioned.⁵

The study aimed to determine the CHVs socio-demographic characteristics and to assess their level of knowledge in hypertension identification.

METHODS

This was a cross-sectional study with a mixed method approach. The study was conducted by interviewing the CHVs on their activities in regards to hypertension identification. Data was collected using researcher administered questionnaires which minimized the non-response rate and increased uniformity in how questions were answered. The questionnaire covered sections on demography, knowledge, and activities carried out by CHVs. Questions on knowledge entailed training on hypertension, source of knowledge on the disease, signs and symptoms of hypertension, causes/risk factors and ways of identifying hypertension cases. A correct answer was given 1 score and 0 score for wrong answer. The score varied from 0-16 points and was classified into 3 levels as follows using Bloom's cut off point: high level/good knowledge (80-100), moderate level (60-80%), and low levels/poor knowledge (less than 59%).

A key informant guide was used to collect data from relevant health care personnel (Ministry of Health-Subcounty officer, the community health strategy co-ordinator, community health officers, community health assistants, facility in charges and representatives from non-governmental organizations (NGOs) working with CHVs in the area).

The study was conducted in Kajiado county, Loitokitok Sub County in Kenya. Loitokitok has five wards namely; Rombo, Kuku, Kimana, Entonet and Imbirikani/Eselenkei. It is served largely by Loitokitok sub-county Hospital as the referral centre. This facility is supported by government health centres and dispensaries, privately owned facilities and various NGOs across the sub-county. The data was collected in March and April 2022. The target population was all the active CHVs (involved in designated community work and reporting to the respective link facility in the past 6 months) in a community unit that was attached to a link facility from the five wards and had agreed to sign an informed consent form.

Multi-stage sampling was used to select the sample size of 226 CHVs. All the 5 wards in Loitokitok sub-county were included. The second stage was the Link facilities through purposive sampling of facilities with active community units (CU) (1 sub-county hospital, 7 health centres and 5 dispensaries); a total of 15 CUs were included. Systematic random sampling was used to select active CHVs whereby every 2nd person was included in the study. Participants in the KIIs were selected using purposive sampling of health care workers who worked with CHVs. There is not much data documented on the utilization of CHVs in hypertension identification in Loitokitok and not every facility had an active community unit. Owing to this, the results are less generalized and may not represent CHV

utilization in the whole county but obtained a baseline for further research.

The quantitative data collected was entered, coded, cleaned and captured using statistical package for the social sciences (SPSS) version 23. Descriptive statistics were computed to generate frequencies; Pearson Chi square and multivariate logistic regression was used to get the association between categorical variables. The qualitative data gathered was transcribed, coded and analyzed using content thematic analysis then presented in a narrative.

Ethical approval was obtained from the Kenyatta University Ethics Review Committee. Permission to conduct the study was sought from the National Commission for Science, Technology and Innovation (NACOSTI), Kajiado county Office of Public Health and MOH- Loitoktok Sub-county.

RESULTS

Socio-demographic characteristics of the study respondents

The total respondents were 226, 154 (68.1%) were female while 72 (31.9%) were male. The majority 75 (33.2%)

were middle age (41-50 years); 79.2% of the respondents were married. Most of the respondents 191 (84.5%) had been to school with 49.6% having attended primary school; 30.5% secondary school and 4.4% had tertiary education. Only 15.5% had no formal training but had the ability to read and write. Of the total respondents; 57.1% were self-employed, 38.0% were unemployed and 4.9% were employed in various informal sectors. The majority (56.2%) had been working as CHVs for more than 9 years with 32.7% having served for between 5-9 years. The majority (80.5%) reported that their work was purely voluntary with only 19.5% reporting to have received a monthly stipend from an NGO up until May 2022 when the NGOs stopped supporting them since this was based on the project being conducted and donor funding. None of the CHVs reported to have gotten any stipend from the government (Table 1). There is a strong association between age and hypertension screening with the likelihood of screening being higher among the middle age group (41-50 years) ($p < 0.031$, 95% CI).

The level of knowledge of CHVs on identification of hypertension

The overall CHV knowledge level on hypertension was poor as assessed by the Bloom's cut off point. (Table 2).

Table 1: Chi square test of association between demographic characteristics and screening of hypertension in the community.

Variables	Do you screen		Significant at $p < 0.05$
	No, N (%)	Yes, N (%)	
Age (years)			
21-30	20 (57.31)	15 (42.9)	$\chi^2 = 8.9$, $df = 1$, $p = 0.031$
31-40	24 (33.8)	47 (66.2)	
41-50	23 (30.7)	52 (69.3)	
>50	13 (28.9)	32 (71.1)	
Gender			
Male	28 (38.9)	44 (61.1)	Fishers exact test, $p = 0.459$
Female	52 (33.8)	102 (66.2)	
Level of education			
No formal education (can read and write)	11 (31.4)	24 (68.6)	$\chi^2 = 1.51$, $df = 3$, $p = 0.681$
Primary	41 (36.6)	71 (63.4)	
Secondary	26 (37.7)	43 (62.3)	
Tertiary	2 (20)	8 (80)	
Marital status			
Married	67 (37.4)	112 (62.6)	$\chi^2 = 5.39$, $df = 3$, $p = 0.145$
Single	6 (28.6)	15 (71.4)	
Divorced	4 (57.1)	3 (42.9)	
Widowed	3 (15.8)	16 (84.2)	
Employment			
Self-employed	46 (35.7)	83 (64.3)	$\chi^2 = 0.337$, $df = 2$, $p = 0.845$
Employed	3 (27.3)	8 (72.7)	
Unemployed	31 (36)	55 (64)	
Years of work experience			
<1	2 (50)	2 (50)	$\chi^2 = 4.01$, $df = 4$, $p = 0.404$
1-4	7 (33.3)	14 (66.7)	
5-9	22 (29.7)	52 (70.3)	

Continued.

Variables	Do you screen		Significant at p<0.05
	No, N (%)	Yes, N (%)	
>9	49 (39.5)	78 (60.5)	
Remuneration			
Voluntary	59 (32.4)	123 (67.6)	Fishers exact test, p=0.078
Monthly stipend by NGOs	21 (47.7)	23 (52.3)	

Table 2: The overall CHV knowledge levels on hypertension identification.

Knowledge	Frequency	Percentage (%)
Good	3	1.3
Moderate	12	5.3
Poor	211	93.4

A strong statistical difference between ever-received training on hypertension and knowledge levels was found with the likelihood of having good knowledge being recorded among those who received training. None of those who had never attended training had good knowledge (p=0.000, 95% CI) (Table 3).

Table 3: Chi square test to test association between ever been trained on hypertension and knowledge level.

Ever been trained	Knowledge level, N (%)			P value
	Poor	Moderate	Good	
Yes	62 (29.4)	12 (100)	3 (100)	0.000*
No	149 (70.6)	0	0	

*Statistically significant

All CHVs had completed the basic module training as required. However, only 34.1% had attended a CHV training specifically for hypertension with 65.9% reporting that they had never attended a training on hypertension. Of those trained 40.2% had been trained in facility sessions by MOH staff and the majority (59.8%) had been trained by NGOs (Table 4).

There was a strong association between ever attended hypertension training and hypertension screening with the likelihood of screening being higher among those who were trained (p<0.005, 95% CI) and even higher among those trained by NGOs (p<0.008, 95% CI).

The likelihood of screening was significantly higher among those with knowledge on hypertension: who knew/perceived hypertension to be a serious killer disease (p<0.033, 95% CI); who knew hypertension is not curable but is managed with treatment and lifestyle adjustments (p<0.005, 95% CI) and knew the signs and symptoms (p<0.001, 95% CI). The number of CHVs who used the signs and symptoms as a method to identify hypertensive cases was significantly higher than use of BP machines (p<0.000, 95% CI) (Table 5).

All respondents had some knowledge on the risk factors with 89.7% associating hypertension with stress, 52.7% with old age, 39.3% with obesity, 37.5% with unhealthy diet. Other risk factors mention were alcohol and tobacco, genetics, lack of physical activity, pregnancy and underlying conditions at 26.3%, 16.5%, 12.5%, 7.6% and 4.0% respectively (Figure 1).

Table 4: Level of training and knowledge of CHVs on hypertension.

Variable	Frequency	Percentage
Ever attended a training for CHVs on hypertension		
Yes	77	34.1
No	149	65.9
Training organization		
NGOs	46	59.8
MOH facility staff	31	40.2
Suffer from hypertension		
Yes	15	6.7
No	207	91.6
I did but got cured	1	0.4
I don't know	3	1.3
Seriousness of hypertension/killer disease		
Very serious	198	87.6
Somewhat serious	26	11.5
Not very serious	2	0.9
Knowledge on the signs and symptoms		
Yes	182	80.5
No	44	19.5
Is hypertension infectious		
Yes	6	2.7
No	220	97.3
HTN curable		
Yes	21	9.3
No	12	5.3
Managed by treatment and lifestyle changes	193	85.4
Is hypertension common		
Yes	173	76.5
No	53	23.5
HTN identification ways		
Using a blood pressure machine	50	22.1
Through signs and symptoms	128	56.7
I refer any sick person	48	21.2

Among the respondents, 88.6% knew at least one sign/symptom of hypertension with 19.5% lacking knowledge on signs and symptoms. The majority (97.3%) confirmed that hypertension was a non-communicable disease and was thus not infectious with 85.4% stating that hypertension cannot be cured but only managed by treatment and lifestyle changes. On hypertension case identification methods; 22.1% of the respondents had a blood pressure machine at their disposal and the know-how to use it for screening purposes but 56.6% used only signs and symptoms in their screening and 21.2% referred any sick person since they were not very versed with the signs and symptoms (Figure 2).

Majority of the respondents (99.6%) reported that they had a role in identification of hypertension cases in the community and carried activities such as educating,

sensitizing, screening, referral, follow up and defaulter tracing as shown in Figure 3.

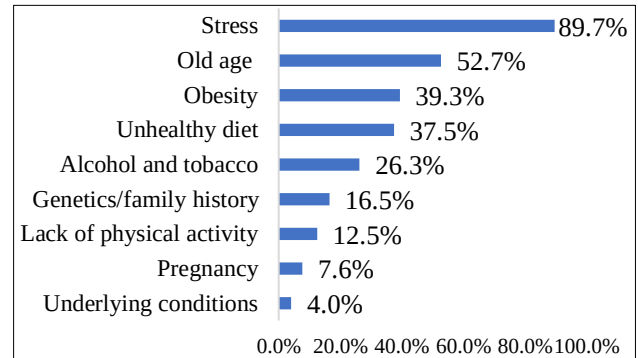


Figure 1: Risk factors for hypertension stated by CHVs.

Table 5: Chi square test of association between knowledge and screening of hypertension in the community.

Variables	Do you screen		Significant at p<0.05
	No, N (%)	Yes, N (%)	
Ever attended a training for CHVs on hypertension			
No	63 (42.3)	87 (58)	Fishers exact test, p=0.005
Yes	17 (22.4)	59 (77.6)	
Training organization			
NGOs	10 (21.7)	36 (78.3)	$\chi^2=9.73$, df=2, p=0.008
MOH facility staff	7 (22.6)	24 (77.4)	
Suffer from hypertension			
No	70 (33.8)	137 (66.2)	$\chi^2=7.08$, df=3, p=0.069
Yes	7 (46.7)	8 (53.3)	
I did but got cured	0	1 (100)	
I don't know	3 (100)	0	
Seriousness of hypertension/killer disease			
Very serious	65 (32.7)	134 (67.3)	$\chi^2=6.85$, df=2, p=0.033
Somewhat serious	15 (57.7)	11 (42.3)	
Not very serious	0	1 (100)	
Knowledge on the signs and symptoms			
No	31 (70.5)	13 (29.5)	$\chi^2=29.36$, df=1, p=0.001
Yes	49 (26.9)	133 (73.1)	
Is hypertension infectious			
No	77 (35)	143 (65)	Fishers exact test, p=0.668
Yes	3 (50)	3 (50)	
HTN curable			
No	1 (8.3)	11 (91.7)	$\chi^2=10.41$, df=2, p=0.005
Yes	13 (61.9)	8 (38.1)	
Managed by treatment and lifestyle changes	66 (34.2)	127 (65.8)	
Is hypertension common			
No	24 (45.3)	29 (54.7)	Fishers exact test, p=0.101
Yes	56 (32.4)	117 (67.6)	
HTN identification ways			
Through signs and symptoms	42 (32.8)	86 (67.2)	$\chi^2=32.87$, df=2, p=0.000
Using a blood pressure machine	6 (12)	44 (88)	
I refer any sick person	32 (66.7)	16 (33.3)	

Hypertension screening among the public was highly recommended by 64.5% of the respondents with 61.5% confirming that they had checked their blood pressure in the recent 6 months. 92.9% had given health education on hypertension in the recent 6 months; 49.6% in individual one on one sessions and 43.4% in group sessions. 98.7% of the CHVs had referred patients for check up to the nearest facility, 41.2% did follow up on referred patients, newly diagnosed patients and those living with hypertension.

Table 6: The role of CHVs in the identification of hypertension.

Variable	Frequency	Percentage
CHV work motivation		
Personal satisfaction	39	17.3
Love helping my people	121	53.5
To improve livelihood	66	29.2
Myths		
Curse	173	79.4
Witchcraft	145	66.5
Rich people disease	69	31.7
Role in HTN identification		
Yes	225	99.6
No	1	0.4
Recommended screening of hypertension		
Yes	146	64.6
No	89	35.4
Ever screened for HTN (months)		
Never	23	10.2
<6	139	61.5
>6	64	28.3
Health education past 6 months		
Yes	210	92.9
No	16	7.1
Health education past 6 months		
None given	16	7.1
Individual	112	49.6
Group session	98	43.4
Currently screen for HTN		
Yes	146	64.2
No	80	35.4
Referred someone with signs and symptoms		
Yes	223	98.7
No	3	1.3
Follow up on HTN patients		
Yes	93	41.2
No	133	58.8
Defaulter tracing of HTN patients		
Yes	90	39.8
No	136	60.2

Only 39.8% reported to carrying out defaulter tracing for clients who were no longer adhering to their scheduled appointments. Only 7.1% had not conducted any health education. 64.2% had conducted screening in the past 6

months and 98.7% reported they had referred at least one person to the link facility for further screening or blood pressure check-up (Table 6).

It was also clear from the qualitative data that CHVs are engaged in a number of activities majorly communicable diseases including HIV/AIDs, water and sanitation (WASH), livelihoods and family planning. Non communicable diseases were yet to pick up the pace. In addition, NGOs remain the major drivers of activities in the area.

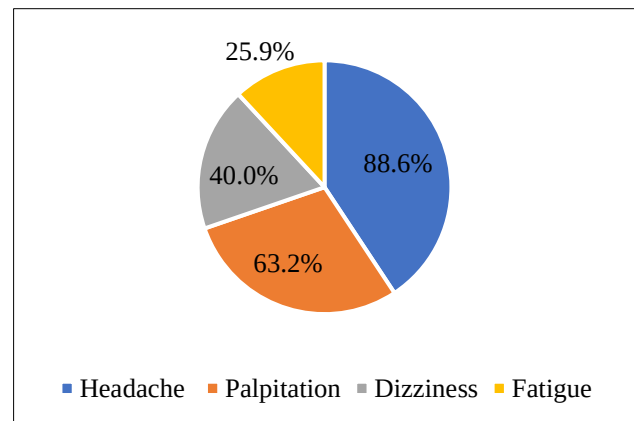


Figure 2: Signs and symptoms of hypertension.

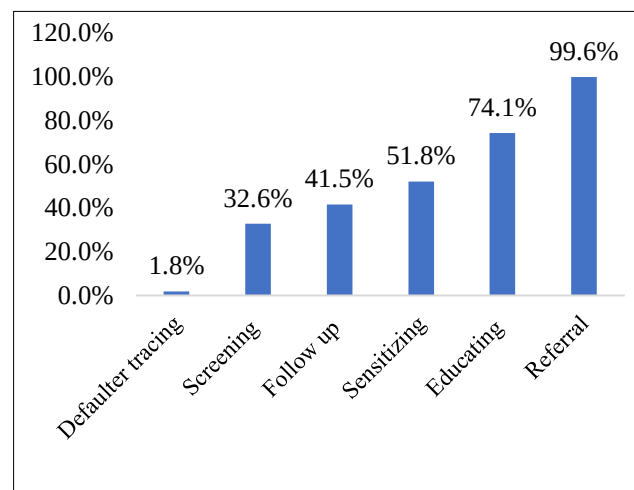


Figure 3: Role of CHVs on hypertension identification in the community.

“They do get trainings but hypertension they have not been trained; mostly they have been trained and are most involved in family planning, antenatal, immunization, TB, HIV, trachoma, nutrition and malezi bora, COVID” (health facility in-charge).

“As the community health volunteers were working within the community, we realized that it is something that has always been coming up. Every time they do a household visitation we would hear someone say when I went to the hospital I was told that my blood pressure is very high, so

that is why we said no why don't we do this rather than waiting for them to go to the facilities why don't we do the training on the same and empower the CHVs so that at least people would be knowing at the grass route level before they reach the dispensary" (NGO representative).

Multiple logistic regression in our final model found that the odds of identifying hypertensive persons in the community was 3.74 times higher among those who knew the signs and symptoms of hypertension compared to those who did not know as shown in Table 7.

Table 7: Logistic regression model on the likelihood of hypertension identification by CHVs.

Independent variables in model	B	df	Sig	OR	95% CI for OR	
					Lower	Upper
Age (in years)		3				
21-30	19.77	1	0.167	-	0.346	1.97
31-40	18.52	1	0.632	-	0.322	1.724
41-50	-17.96	1	0.301	-	0.336	1.800
>50 (ref)						
Religion		3				
None	17.57	1	0.534	-	0.387	1.69
Catholic	18.92	1	0.245	-	0.589	1.84
Protestant	20.21	1	0.053	-	0.336	1.89
Muslim (ref)						
Training organization		2				
OBK	-17.57	1	0.266	-	0.298	1.456
Amref Kenya	-19.74	1	0.108	-	0.287	1.376
MOH (ref)						
Hypertension severity		2				
Very serious	-19.32	1	0.457	-	0.367	1.785
Somewhat serious	-37.49	1	0.097	-	0.389	1.875
Not very serious (ref)						
Knowledge of signs and symptoms	-1.442	1	<0.001*	3.74	2.018	6.932
Hypertension identification method		2				
Signs and symptoms	22.14	1	0.074	-	0.289	1.986
BP checks using machines	17.24	1	0.372	-	0.567	1.564
I refer any sick person (ref)						

*Statistically significant

DISCUSSION

CHVs' socio-demographic characteristics

All CHVs in the study were able to read and write and most had some basic formal education. This is in accordance with the Kenya Community Health Policy 2020–2025, which indicates that CHVs should be chosen based on the fact that they reside within the communities they serve, they can speak the local languages, can read and write and understands that their role is unremunerated.¹⁴

Majority were middle age, female, had been CHVs for >4 years and their role was voluntary in nature with exception of a few who on specific instances received a monthly stipend from a donor/NGO. This is also as depicted by Agarwal and Abuya, with CHVs been mostly female with high attrition rates due to the voluntary nature of their role.¹⁵ This was the finding as well with CHVs starting out in large numbers but gradually reducing with time. They were mostly self-employed mainly involved in small scale business and agriculture or doing odd jobs to sustain themselves. Striking a balance between volunteer work

and other economic and social demands of life such as child care, household chores, community functions and work makes their work really challenging.^{16,17} The vast majority (96%) of CHVs in a study in South Africa were female, with a mean age of 35 years had some secondary schooling and working for 4 years or more. Similar to a study in Nepal who have only female CHVs with a median age 41.3 years, can read and write and 45% of them have completed primary education.¹⁸

In a different study in India the average age of CHVs is between 25 and 34 years with males slightly more than females. The majority are married and able to read and write. Most of them had no working experience concerning health before and had been volunteers for more than 2 years.¹⁷

Level of knowledge of CHVs on identification of hypertension

Overall the CHVs had poor knowledge on hypertension similar to the findings by Neupane et al that CHVs in general have little knowledge on hypertension; the risk

factors, causes, signs and symptoms, management and prognosis.¹⁹ CHVs who had ever-received training on hypertension had good knowledge on hypertension as compared to those who had only the basic training. It is important for CHVs to be trained specifically on hypertension to allow them to identify high risk populations through targeted screening. They would then be able to identify patients with elevated blood pressure, link them to care and offer dietary and lifestyle education. In a similar review which demonstrated that CHVs with low levels of formal education can be trained effectively for CVD and risk factor prevention and management.²⁰

A systematic review by Mbuthia et al showed that CHW play diverse roles ranging from preventive, therapeutic and health systems utilization in management of hypertension. Their intervention entailed screening, promotion and monitoring of BP and its control strategies at both at home and community levels.²¹ Trained non-physician health workers can accurately perform cardiovascular risk screening to identify high-risk patients and counsel them on behaviour change.²² Training is vital for those involved in changing other people's health-related behaviours to convince them to adopt healthy behaviours; share accurate, updated information while completing their tasks effectively and maintaining confidentiality.^{23,24}

Research conducted on the training and CHV skills indicate that they are inadequately trained suggesting that training to include differentiating grades of hypertension, aiding patients to create self-care plans and patient referral to appropriate health services is crucial.²⁵

CONCLUSION

There was overall poor knowledge level of hypertension among the CHVs. The CHVs are an untapped resource and once empowered can curb the upward trend of hypertension through primary prevention and identification; improve the prognosis of patients through education, linkage and follow up. Based on the conclusions above the study recommends initial and continuous training on hypertension for all CHVs by the Ministry of health and revision of the CHV manual to include hypertension training. Further studies should be conducted to assess the impact of CHVs involvement in hypertension on health outcomes.

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REFERENCES

1. Shukri FM, Mutua MK, Wamai R, Wekesah F, Haregu T, Juma P, et al. Prevalence, awareness, treatment and control of hypertension and their determinants: Results from a National Survey in Kenya. *BMC Public Health*. 2018;18(S3):1219.
2. Ogola EN, Barasa F, Barasa AL, Gitura BM, Njunguna B, Beaney, et al. Prevalence, May Measurement Month 2017: the results of blood pressure screening of 14 845 individuals in Kenya—Sub-Saharan Africa. *Eur Heart J Supplements*. 2019;21:D71-3.
3. Ministry of Health. Kenya National Strategy for the prevention and control of Non-Communicable Diseases 2015 – 2020. 2015. Available at: <http://guidelines.health.go.ke:8000/media/kenyastrategyforNCDs.pdf>. Accessed on 04 April 2024.
4. Mohamed SF, Mutua MK, Wamai R, Wekesah F, Haregu T, Juma P, et al. Prevalence, awareness, treatment and control of hypertension and their determinants: Results from a national survey in Kenya. *BMC Public Health*. 2018;18(S3):1219.
5. World Health Organization. Noncommunicable diseases. 2022. Available at: <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>. Accessed on 04 April 2024.
6. Mbau L, Harrison R, Kizito W, Timire C, Namusonge T, Muhula S, et al. Case identification, retention and blood pressure control in Kenya. *Public Health Action*. 2022 21;12(2):58-63.
7. Mwa DN. Non-Communicable Diseases In Kenya: economic effects and risk factors. (Doctoral dissertation). 2014. Available at: <http://erepository.uonbi.ac.ke/handle/11295/77585>. Accessed on 04 April 2024.
8. Safary E, Mwandeti M, Matanje B, Beiersmann C, Mtaita C, Shiroya V, et al. Role of community health volunteers in identifying people with elevated blood pressure for diagnosis and monitoring of hypertension in Malawi: A qualitative study. *BMC Cardiovasc Disord*. 2021;21(1):361.
9. Celletti F, Wright A, Palen J, Frehywot S, Markus A, Greenberg A, et al. Can the deployment of community health workers for the delivery of HIV services represent an effective and sustainable response to health workforce shortages? Results of a multicountry study. *AIDS*. 2010;24(Suppl 1):S45-57.
10. Tsolekile LP, Puoane T, Schneider H, Levitt NS, Steyn K. The roles of Community Health Workers in Management of non-communicable diseases in an Urban Township. *Afr J Prim Health Care Fam Med*. 2014;6(1):1-8.
11. Tsolekile LP, Schneider H, Puoane T. The roles, training and knowledge of community health workers

- about diabetes and hypertension in Khayelitsha, Cape Town. *Curationis*. 2018;41(1):1-8.
12. Steven van de V, Akinyi, H, Oti, S, Ademola O, Agyemang, C, Aboderin I, et al. Status report on hypertension in Africa – consultative review for the 6th session of the African Union Conference of Ministers of Health on NCD'SS. *Pan Afr Med J*. 2013;16:38.
 13. Ongosi AN, Wilunda C, Musumari PM, Techasrivichien T, Wang C-W, Ono-Kihara M, et al. Prevalence and risk factors of elevated blood pressure and elevated blood glucose among residents of Kajiado County, Kenya: A population-based cross-sectional survey. *Int J Env Res Public Health*. 2020;17(19):6957.
 14. Kenya Community Health Strategy 2020 – 2025. Division of Community Health Services; Ministry of Health Headquarters. Available at: https://www.health.go.ke/wp-content/uploads/2021/01/Kenya-Community-Health-Strategy-Final-Signed-off_2020-25.pdf. Accessed on 04 April 2024.
 15. Agarwal S, Abuya T. Frontline Health Project and Johns Hopkins Bloomberg School of Public Health. Understanding Community Health Volunteer Incentive Preferences in Kenya. Washington, D.C.: Population Council. 2021.
 16. Lusambili AM, Nyanja N, Chabeda SV, Temmerman M, Nyaga L, Obure J, et al. Community health volunteers' challenges and preferred income generating activities for sustainability: a qualitative case study of rural Kilifi, Kenya. *BMC Health Serv Res*. 2021;21:642.
 17. Aung PL, Silawan T, Rawiworakul T, Min M. Perceived Role and its Enhancing Factors among the Village Health Volunteers Regarding Malaria Control in Rural Myanmar. *Indian J Public Health*. 2018;62(1):10-4.
 18. Tan J, Xu H, Fan Q, Neely O, Doma R, Gundi R, et al. Hypertension Care Coordination and Feasibility of Involving Female Community Health Volunteers in Hypertension Management in Kavre District, Nepal: A Qualitative Study. *Glob Heart*. 2020;15(1):73.
 19. Neupane D, McLachlan CS, Mishra SR, Olsen MH, Perry HB, Karki A. Female community health volunteers to reduce blood pressure: feasible and sustainable? *The Lancet Global Health*. 2018;6(4):E374.
 20. Abdel-All M, Putica B, Praveen D, Joshi R. Effectiveness of community health worker training programmes for cardiovascular disease management in low-income and middle-income countries: a systematic review. *BMJ Open*. 2017;7(11):e015529.
 21. Mbuthia GW, Magutah K, Pellowski J. Approaches and outcomes of community health worker's interventions for hypertension management and control in low-income and middle-income countries: systematic review. *BMJ Public Health*. 2022;12:4.
 22. Vedanthan R, Kamano JH, DeLong AK, Naanyu V, Cynthia A, Bloomfield GS, et al. Community Health Workers Improve Linkage to Hypertension Care in Western Kenya. *J Am Coll Cardiol*. 2019;74(15):1897-906.
 23. Aseyo RE, Mumma J, Scott K, Nelima D, Davis E, Baker KK, et al. Realities and experiences of community health volunteers as agents for behaviour change: evidence from an informal urban settlement in Kisumu, Kenya. *Human Resources Health*. 2018;16(1):53.
 24. Rachlis B, Naanyu V, Wachira J, Genberg B, Koech B, et al. Community Perceptions of Community Health Workers (CHVs) and Their Roles in Management for HIV, Tuberculosis and Hypertension in Western Kenya. *Plos One*. 2016;11(2):e0149412.
 25. Rahmawati R, Bajorek BA. Community Health Worker-Based Program for Elderly People With Hypertension in Indonesia: A Qualitative Study, 2013. *Prev Chronic Dis*. 2015;12:E175.

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