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Factors hindering hypertension control: perspectives of front-line health professionals in rural Ghana

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ABSTRACT

Objective: Hypertension (HTN) control remains a major public health challenge in sub-Saharan Africa (SSA). Health professionals influence patient adherence and self-management practices for HTN particularly in rural and lower socio-economic communities in SSA. Contextual evidence on the reasons for the suboptimal control of HTN in clinical settings is crucial to improving health delivery practices for HTN and preventing HTN related-complications.
Study design: A cross-sectional qualitative study.
Methods: Semistructured interviews were conducted among 40 purposively sampled front-line health professionals in seven health facilities in northern Ghana. Data were analysed using a thematic approach through pre-identified and evolving themes.
Results: We identified three key themes underlying the poor HTN control. First, health professionals' barriers included communication difficulties, poor collaboration and referrals among health professionals and limited training on HTN and other non-communicable diseases (NCDs). Secondly, health system–related barriers included limited health personnel, drug shortages, inadequate facilities and equipment and challenges with National Health Insurance (NHIS). The third theme was patient-related barriers including non-adherence, use of traditional treatments, sociocultural factors and lack of appreciation.
Conclusion: A holistic public health approach, which builds upon health professionals' capacities, harnesses and integrates into existing health policy and systems structures and empowers and collaborates with communities could contribute to improving HTN control in rural settings. Health policymakers need to consider the sociocultural, economic and geographical characteristics in such settings, which influence health service delivery practices in designing and implementing HTN interventions. There is also a need for health policy to integrate NCD training and management of multiple and comorbid conditions into the training curriculum of health training institutions to build health professionals capacity to facilitate the uptake of evidence-based NCD interventions and manage the double burden of diseases.

Introduction

Hypertension (HTN) is an important modifiable risk factor for cardiovascular diseases (CVDs) accounting for an estimated nine million deaths annually.[1–3] With a 46% prevalence reported in African adults aged 25 years and older in 2008, HTN is an important public health problem in Africa[4,5] with its poor control partly attributed to weak health systems.

In Ghana, HTN is the fifth commonest cause of outpatient morbidity nationally.[6] A recent study in southern Ghana showed

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that of a 28.3% overall HTN prevalence, 7.4% were aware of their condition, 4% were on antihypertensive medications and only 3.5% had their blood pressure (BP) adequately controlled.[8] The increasing high burden of HTN is thought to be aggravated by the globalisation of unhealthy lifestyles and the increasing prevalence of obesity.[9,10] For instance, a World Health Organization report indicates that among adults aged 18 years and older, 10% were obese and 20% were physical inactive in 2016.[11] In line with international treatment guidelines,[12] the most common antihypertensive prescribed for the management of primary HTN include calcium channel blocker and diuretics,[13] yet antihypertensive medication shortages have been documented to persist.[14,15] The situation is compounded by the lack of national guidelines on HTN treatment and inadequately equipped health system functionally operating at the national, regional, district, subdistrict and community levels.[16]

Research on non-communicable diseases (NCDs) has been conducted in the urbanised southern and coastal parts of Ghana using mainly quantitative tools[17] with scant evidence from the more rural northern parts of Ghana. A study reported a 19.3% BP prevalence in a rural community in northern Ghana[18] with reports showing HTN as among the top five causes of morbidity over the past decade.[19,20] Recent studies in the rural community in northern Ghana also show differences between lay representations and biomedical understanding of HTN and its treatment[21] and strong beliefs in the use of traditional remedies and medicines to cure HTN.[22] Northern Ghana further has unique socio-economic and cultural contexts that could influence patient health behaviour and practices for chronic conditions. It is largely rural, records the lowest literacy and the highest poverty rates nationally with accompanying high levels of malnutrition, infectious diseases, limited access to healthcare services and acute shortages of health professionals.[19,20,23,24] The dispersed nature of settlements and poor infrastructure further hinder access to health care.[19,20,23] With over 32.4% of people in northern Ghana being overweight or obese,[9] the prevalence of NCDs is expected to increase with the associated high costs of accessing chronic disease health care further entrenching poverty.[25,26] Within such rural and lower socio-economic settings, where prevailing and layered on traditional and cultural practices influence patients' adherence to medication and recommended behavioural modifications,[22] health professionals play crucial roles in patient education and healthcare delivery. Given that HTN control is crucial in preventing HTN-related complications such as stroke and coronary heart diseases,[27,28] contextual evidence is needed to inform health service delivery practices within such settings towards achieving population level impact. This study therefore explores front-line health professionals' perceptions on the reasons for the poor control of HTN in rural northern Ghana.

Methods

Study design

This study is part of a larger multisite cross-sectional qualitative study, which explored the factors for the low rates of HTN control among African population living in different contexts. Initial study questions, which guided the overall study design and data collection were developed using a grounded theory approach.[29,30] As part of the multisite study, between April and May 2017, we conducted 40 semistructured interviews among purposively sampled health professionals directly involved in health care for persons with HTN at the primary, secondary and tertiary levels of health care in the upper East Region (UER) and Northern Region (NR) of Ghana. This study was conducted in accordance with the consolidated criteria for reporting qualitative research as shown in Supplementary File 1.[31] As a sample size of 20–30 interviews in qualitative studies permits data saturation where the key themes are addressed and additional interviews do not add new themes,[31–36] a sample size of 40 was sufficient to reach data saturation in this study.

Methodology

The regional hospitals in the UER and NR and the only tertiary hospital for northern Ghana were selected because they are the main secondary and tertiary referral levels for health care for HTN and its related complications in the study area. Four health centres in the two regions were selected because health centres are the first level of health care (district level) for HTN and other NCDs. Health facilities were selected in collaboration with a representative from each regional health directorates and based on operational HTN clinic days, district health centre level and outpatient department attendance. Participant selection criteria included: professionals actively providing health care for patients with HTN for at least two years after training; had at least a certificate or diploma in health care; working directly with people with HTN and willingness to be interviewed. No member of the research team had any connection with the respondents, so the participant selection criterion was applied in collaboration with the facility in-charges (heads/administrators of the health facility) and heads of the HTN clinics. The first author was introduced to potential study participants by the facility in-charge or head of the HTN clinic in each site, who she contacted through a representative from the regional health directorate. No participant declined to take part in the study. All interviews were conducted in English by the first author who is an experienced qualitative researcher with contextual research experience in northern Ghana, using a topic guide developed by the authors based on their experience conducting HTN and NCD research in southern Ghana and Africa[6,14,15,27,37–45] in a private location within the health facility identified by the participant, usually, a staff office room or a consulting room at participant's convenience. Interviews lasted between 30 and 65 min and were digitally recorded after both verbal and written consent was sort from participants.

Two research assistants transcribed the interviews verbatim into Microsoft Word documents, which were reviewed by the first author to ensure accuracy. Reviewed transcripts were coded and analysed using an inductive thematic approach in QRS NVivo 11 pro by the first author. The first author generated the initial coding framework using pre-identified themes derived from HTN and NCD literature in Ghana[15,21,40,45,46] with emerging themes developed based on the socio-economic and cultural contexts of the study area,[19,20] which were reviewed with the second and third authors before active data coding. The revised coding framework was further reviewed with the third and last authors who have extensive experience conducting HTN and NCD research in Ghana. Quotations were grouped under codes based on the three broad themes; health professional barriers; health system barriers and patient-related barriers.

Results

A majority of study participants were enrolled nurses, men and had a first degree as shown in Table 1.

Prevalence of NCDs

Study participants reported HTN and diabetes as the most prevalent and often comorbid NCDs in their communities, which they attributed to improved diagnosis and access to health services.

Table 1
Characteristics of study participants and health facilities.

Characteristic	Teaching hospital (1) (tertiary level)	Regional hospitals (2) (secondary level)	Health centres (4) (primary level)	Total
A. Type of health professional				
Medical doctors/ physicians	1	2		3
Prescriber/ physician assistant		2	4	6
Medical herbalists		2	1	3
Staff nurses	2	4	4	10
Enrolled nurses		5	6	11
Dietician		2		2
Pharmacists		2	1	3
Health information officers	1	1		2
Total	4	20	16	40
B. Sex				
Males	26			
Female	14			
C. Level of education				
Certificate/diploma	13			
First degree	23			
Masters	4			
D. Age range (years)	28–52			
E. No. of years of working experience (post training)	2–15 years			

They added that several factors contribute to the poor control of HTN in their communities.

> *"Hypertension and diabetes are high because on the clinic days OPD is crowded… we are diagnosing more now… there are many problems." IDI-Staff nurse-02*

Health professional barriers

These include barriers that may or may not be directly related to participants' professional training.

Communication difficulties

Communication difficulties in translating HTN to people in the local languages (Dagbani or Gurune) was attributed to the lack of a local word or group of words explaining HTN in the local language(s) which reportedly contributed to patient and community misconceptions regarding HTN. Some participants reported an inability to speak the local languages and relying on lower cadre health workers such as enrolled nurses or patient's relatives to facilitate communication with patients. These, they felt, hinders their ability to directly address patient concerns privately and obstructs patient education on HTN for adequate self-management as there is a potential for key information to be omitted and/or misinterpreted during translation.

> *"We find it difficult explaining it in our local languages. What is BP in our language? What will you say? "Your blood is going up?" This blood that is flowing in the veins? So, when we tell them that they have BP, they think that they have too much venous blood which is not the case." IDI-Enrolled Nurse- 04*

> *"Sometimes the person like the men would want to tell you something and then [er] the discomfort, they have to go through speaking through nurses or relatives… if you want to make a sentence in Dagbani, you have to describe and it opens the door for a lot of misinterpretations... a patient will be saying one thing then the nurse understood it to be another thing… if you don't speak the language, you have to use the patient's relative and they might not give the right information." IDI-Medical herbalist -13*

Poor collaboration and referrals among health professionals

> *"The reality is that, the training the people with certificates from the nursing training school get is not adequate. They are taught just surfaces [basics on NCDs] and most of them fail to learn on the job. And so, you realize that they cannot even interpret vital signs…it's very difficult for them to interpret vital signs…." HW-M-10*

> *"Maybe expertise and skills perhaps in properly diagnosing the condition and maybe giving the right medication or right mix of medications… because the physician assistants, some, you see the prescriptions and its worrying actually…we don't have a physician specialist in the whole region." HP-F-04*

Participants reported a poor collaboration among health professionals involved in healthcare delivery for HTN which results in limited healthcare support provided to patients to facilitate patients self-manage HTN such as professional support for behavioural modifications, which is important not only for HTN control but also for preventing HTN-related complications.

> *"Referral systems that are not too good…prescribers will want to do our job until such a time where things are getting out of hand before they are sent to us… by the time they [patients] get to us, they have been given some information that is not accurate and patients will believe what doctor says more than what we say because doctors are like "gods" here." IDI-dietician-05*

> *"We don't work together…a person has DM and hypertension but when they come, they will only treat the HTN and leave the DM…so how will it work?" IDI-Enrolled nurse-04*

Limited training on HTN

Several participants reported not receiving any training on HTN specifically and NCDs in general because after health training school resulting in their low capacity to manage HTN and comorbid or multiple conditions. They attributed their limited training on HTN to the liminal position of NCDs within the health system, which they explained focuses heavily on communicable diseases.

> *"Most of the nurses that are in the hypertensive clinic are enrolled nurses [lower cadre health workers]. The level of their training… their curriculum doesn't really go deep into these things…the BP ranges and their implications, they don't know…I have cases, a patient will have fever and they will be treating and it wouldn't go, not knowing hypertension is there." IDI-Staff nurse-12*

> *"I haven't had any refresher training on NCDs… the training in the training schools don't cover these diseases. They are taught just surfaces and most of them fail to learn on the job…. they cannot even identify pregnant women who are in danger [have HTN]. " IDI-Physician assistant- 10*

Health system barriers

These included barriers within the working environment that hinder healthcare service delivery practices.

Limited health personnel and specialists

Participants indicated that the shortage of health professionals in the regions results in extra workload for existing health professionals and results in shorter provider-patient interaction time, which hinders patient understanding of their condition and their ability to effectively self-manage HTN.

> *"Because of the inadequate human resource at times we find it difficult to do all that [patient education], which puts a lot of constrains on us here…you see the number of people in front of you and you start probably reducing the time spent, contact time with your clients." IDI-Medical herbalist-01*

> *"We don't have many pharmacists at the facilities so making sure that the patients get the right information is a challenge....I am the only one here and I cannot see all patients." IDI-Pharmacist-07*

> *"it all boils down to the prescriber - patient ratio, because in a hot clinic day…you see not less than 30 to 40 patients within that 4-5 hours that I spend here…nurses too are not enough and the crowds are there so before a patient will even walk in, the drug is written for the patient…You ask, "Are the drugs finished"? "yes" I only sign and I give the folder to you" IDI-Physician assistant- 13*

Inadequate infrastructure and equipment

Participants reported that the inadequate working environment, equipment and lack of maintenance for equipment influence the quality of healthcare services available for patients. They explained that while this hinders patient privacy and distracts service provision, the few BP monitoring devices for HTN clinics are mostly manually operated, poorly maintained and frequently broke down. Working with manual devices on large numbers of patients was also reported as physically exhausting for health professionals resulting in potential errors in measurements. The lack of laboratory facilities for conducting further medical tests such as kidney tests reportedly forces patients to pay out of pocket for private laboratory services, further putting a financial strain on patients.

> *"Some of the protocols like leaflets we don't have and we cannot develop some … sitting space, chairs are not there... the place is not demarcated so the noise is too much… it interferes with your hearing and can make you give a different BP value [laughing]…the BP apparatus is manual and we have two but the clients are maybe more than 100 so they spoil easily… Lab [laboratory] test is not in the insurance so we don't do it here… the person has to go out [private laboratories] and pay for it…. they don't have so they end up not doing it… they wouldn't even come back here "IDI-Enrolled nurse- 01*

Drug shortages and the National Health Insurance Scheme

Participants indicated frequent shortages of both antihypertensive medications and approved herbal medicines for controlling HTN in public pharmacies. While patients reportedly have to pay out of pocket for antihypertensive medications at private pharmacies, which contributed to their medication non-adherence, patients using herbal medicines were prescribed antihypertensive medications. The shortages of antihypertensive medications at facility pharmacies was attributed to the inability of the NHIS to reimburse health facilities for services provided in a timely manner, whereas the shortages in herbal medicines were attributed to shorter expiry dates and delays in procurement. The inability of the NHIS to reimburse health facilities' costs timely hinders health facilities ability to procure antihypertensive medications and results in limited access to medication for patients. They added that the NHIS further places restrictions on prescriptions and availability depending on facility level and restricts drug pricing, which makes it difficult for health facilities to procure drugs regarded by health professionals as having fewer side-effects. Participants explained that, prescription patterns and type of health facility (primary, secondary or tertiary) determines the type and availability of antihypertensive medication within the facility. When patients are reportedly diagnosed to need specific antihypertensive medications or develop complications, they must incur additional transport and opportunity costs to access health services care at the next referral level which contributes to medication non-adherence.

> *"We sometimes run short of antihypertensive drugs so when patients come, you write for them to go and buy so if the patient does not have the money, it means that particular month or week the patient might not take the medicine… the scheme is finding difficulty reimbursing facilities … health care facilities don't have the means to procure medicines from the regional medical store or the open market because for about a year, they have not paid us so can we keep on crediting the medicines? No! We write prescriptions for them to buy and they get angry at us." IDI- Physician Assistant-08*

> *"Our medicines [herbal] are not covered by the insurance so patients have to buy from us… they don't like the antihypertensive because of the side effects so if the insurance covers our medicines they would take them …sometimes too, by the time we request and the medicines [herbal] reach here, they are expired because they have shorter expiry dates… oh we prescribe the antihypertensive for them like that until our medicines come." IDI-Medical Herbalist- 04*

Patient-related barriers

These include barriers associated with patient behaviour, attitudes and practices.

Non-adherence to health professionals' recommendations

Patients with HTN reportedly found it difficult to understand and accept their illness as a chronic disease requiring lifelong treatment causing them to poorly adhere to HTN treatment provided by health professionals. Medication side-effects such as sexual weakness and nausea also reportedly caused patients with HTN to be non-adherent to medication with limited provider-patient interaction time making it difficult to address patient concerns to facilitate adherence to treatment.

> *"You talk to them, don't eat salt… alcoholic drinks, some of them tell you that I can't stop... They don't take it [medication] and when it becomes critical, they begin to take …others will just collect, go and dump it and tell you that when they swallow….so they want to vomit or they cannot perform [sexual weakness] so they stop taking… they don't follow simple advice." IDI-Staff nurse-04*

> *"People do not accept that this is a chronic condition and they have to take medication for the rest of their lives. Others too think taking medicine all the time will make them develop other sickness… they comeback in bad shape...they just don't listen when we talk "IDI-Physician assistant -03*

Use of alternative treatments and sociocultural factors

The use of alternative treatments such as herbal medicines, traditional remedies, together with spiritual cures because of the patient disbelief in diagnosis was commonly attributed to age-old use of herbal medicines and herbal advertisements in the media promising a cure for HTN.

"Some go on radio to market their products and say, their herbal product can cure the disease. Who doesn't want that? They take herbal concoctions they believe will cure them….that their fathers were using them and they didn't have this sickness." IDI—Enrolled-nurse-01

Participants explained that while joggling/running was not considered an acceptable social norm, the chewing of kolanuts and snuffing tobacco are acceptable social practices associated with ageing within their communities, which contributed to the poor control of HTN. They added that the consumption of alcoholic beverages is considered an integral part of cultural and social events, whereas the use of traditional remedies purported to promote good health were common age-old practices in their communities. These, they reported, hinders patients' adherence to medication and behavioural modifications required for HTN control with patients with HTN experienced stress associated with their economic and social responsibilities contributing to the poor control of HTN.

"If you say exercise people will laugh at you because they don't do that here… patients have a lot of stress…poverty so someone will take our medicines (herbal teas) and be thinking about school fees or something…..the culture here, alcohol is used at all programs… wedding or funerals so people drink a lot" IDI-Medical herbalist-06

Financial constraints

Financial constraints resulting from poverty in the region was commonly reported as a key barrier to accessing health care for HTN. They explained that aside the transport costs that patients incur travelling from their communities to the nearest referral centre where HTN care is provided, patients are also often required to pay out of pocket for health services not covered by the NHIS and pay for medication at private pharmacies during drug shortages at the health facilities which several patients are unable to pay.

"Sometimes you give them a request to do further tests because though insurance [NHIS] takes care of HTN, it does not take care of all the tests. That will deter them from coming because they don't have money so they did not do the tests… it is not in the insurance [medical tests not covered], so we don't do it here [health facility]" IDI-Medical herbalist-01

"Some people live about 20 kilometers away and they would have to take a car to come and pick the medicines here because the CHIPs compounds don't provide services for HTN…even some of the health centers don't have HTN clinics and the patient is poor so how will he pay the transport and get here and we write and say he should buy and he will buy? With what?" IDI-Pharmacist-02

Lack of appreciation

Participants reported that the lack of recognition from patients and health officials for the services that they provide despite their challenges, which they reported demotivates them. They explained that the shortages of health professionals increase their workloads providing services for large crowds of patients and often resulted in shorter provider-patient interaction time, which coupled with long queues and waiting times for patients contributes to patient irritability and frequently leading to disagreements with health professionals. These, they contend, do not provide a conducive environment for provider-patient interaction.

"It is always crowded and the place where the folders are is congested… some will come first and if they see that they've given somebody who came late, a folder, they start insulting us…I am the only one here and you are angry and insulting me. I wouldn't waste time on you. "IDI-Enrolled nurse-03

"Nobody will say thank you. "Oh you people are doing well" or just once a while the big people [health officials] should gather us say good things about us. It's kind of a motivation…if you joke, some [patients] will even insult you because they kept long here " IDI-Physician Asssitant-11

Discussion

This study provides in-depth insights on front-line health professionals working at primary, secondary and tertiary levels of health care in rural and low socio-economic communities' perceptions regarding the factors contributing to the poor control of HTN in northern Ghana. Interestingly, both medical herbalists and other health providers experienced similar barriers.

Given that northern Ghana has the highest illiteracy rates in the country,[19,20,24] communication difficulties particularly in local language translations have important implications for HTN control as it potentially hinders accurate diagnosis, impedes education of patients with HTN and facilitates misconceptions surrounding HTN. Indeed, within the African region, several studies,[47–49] although not all,[50] have found literacy levels of patients with HTN as a significant influencer on HTN knowledge, medication adherence and subsequently HTN control outcomes.[47–50] Evidence further shows that health workers' communication in patients' language could positively influence health outcomes.[51–55] Using lower level health workers, relatives or adhoc interpreters for communicating with patients could lead to misinformation and/or errors during translation[53,56,57] and facilitate misconceptions.[21] It potentially impedes patient's access to HTN information, which influences their self-management practices and invades patient privacy and comfort, particularly as male patients with HTN may not feel comfortable discussing their concerns regarding side-effects using an interpreter or in the presence of a relative. The Ghana Health Service (GHS) should consider language skills of health professionals or provide language training before posting to facilitate provider-patient communication in the local language(s). The situation is compounded by the lack of an accurate local word or set of words translating HTN and HTN information, in the local languages, which contributes to the community perception that HTN is excess blood in the body and/or heart.[21] Accurate and appropriate choice of terminology for HTN in the local language is crucial for developing effective health communication interventions[51,54] to promote healthy behaviour and improve HTN awareness and control. This will require collaborating with other disciplines such as linguistics and traditional leaders to determine the accurate terminology for HTN in the local language(s). To further enhance provider-patient interaction surrounding HTN and its treatment, integrated teams of health professionals could develop learning aids including the use of storyboards and/or pictures.

In addition, poor collaboration among health professionals, limited training on HTN and health system barriers have been reported as key reasons for the poor control of NCDs in other studies in Africa and southern Ghana.[6,38,43–45,58,59] However, the situation appears aggravated in rural northern Ghana because northern Ghana has acute shortages of health personnel and the poorest doctor-patient ratios nationally[19,20] even at the tertiary level in northern Ghana and the lowest socio-economic status.[24] Although pharmacists could potentially contribute to enhancing HTN patients knowledge and self-management practices as found in other African countries,[60] the shortage of pharmacists in northern Ghana is even more acute than the shortages of other health professional

cadres such as staff and/or enrolled nurses. The GHS could offer more incentives to draw health professionals to northern Ghana to reduce the health worker shortages, which would reduce the workload of health professionals and facilitate better provider-patient interaction. While task shifting care for HTN to lower level providers such as community health nurses has been suggested for increasing access to health services,[61] front-line health professionals in rural areas have limited capacity to identify and manage HTN and HTN-related complications. Given that early detection and clinical care are a key focus of the national NCD policy,[62] trainings on HTN and the management of multiple and comorbid conditions to improve health professionals' capacity is urgently needed while integrating HTN and NCD healthcare delivery practices into the health training curriculums in health training institutions would be a more sustainable strategy.

The study findings on the role of the NHIS in making healthcare services accessible for patients with HTN in rural settings emphasises the unique situation in northern Ghana where poverty is strife, which if left unchecked, has implications for HTN control and HTN-related sequelae. Evidence shows that lower socio-economic communities are more affected by NCDs, which can further entrench poverty due to high costs of health care for NCDs.[25,26,63,64] With the highest poverty and illiteracy rates in Ghana[23,24] and more than 90% of public health facility attendants in 2015 being NHIS insured in northern Ghana,[19,20] the NHIS, which was created as pro-poor initiative, is crucial for improving access to HTN health care. While the poor reimbursements from the NHIS to health facilities has been documented to hinder procurement of needed medical supplies,[19,20] it's exclusion of certain medical tests for HTN further places an enormous financial burden on patients and obstructs early detection and treatment of HTN-related sequelae, putting pressure on an already fragile health system. Patients must incur additional financial and opportunity costs to access limited HTN services and antihypertensive medication due to the widely dispersed nature of their settlements, further steeping an already vulnerable group into poverty and contributing to the poor control of HTN. Recent evidence from the study area shows shortages of antihypertensive medications and cost of medication when not covered by the NHIS as patient-related barriers to HTN control.[65] Other studies in the African region emphasis how transportation costs influence anti-hypertension medication adherence.[49,50] A cue could be taken from South Africa where evidence shows improved access to chronic diseases medication resulting from major strides in drug forecasting and the supply chain at the lower level.[66]

Furthermore, the findings suggest that similar to studies on diabetes in southern Ghana,[41,46] patients' denial of having HTN prompts a cure seeking behaviour using herbal medicines. The numerous advertisements of herbal medicines in the media further heighten patients' belief that HTN is curable. Health professionals there need to improve health education on HTN, collaborate with traditional leaders and prominent individuals to identify and deliver accurate HTN information to improve awareness on HTN and address misconceptions. The National Media Commission and the Traditional Medicine unit of Ghana MoH should also collaborate to identify and regulate herbal medicine advertisements that facilitate misconceptions about HTN.

Finally, the results show that the various identified barriers are underpinned by prevailing sociocultural and structural factors, which largely influence HTN control in northern Ghana. This is contextual evidence to facilitate health delivery practices towards making sustained gains in HTN control in rural areas while contributing key stakeholder barriers to HTN and NCD control in general, which is key evidence needed for effective NCD policy planning and implementation.

Conclusions

We found health professionals' barriers, health system barriers and patient-related barriers as diverse but key reasons for the poor control of HTN in rural northern Ghana, which is key contextual evidence needed to enhance the successful implementation of the national NCD policy in northern Ghana. This study highlights how communication difficulties, sociocultural and structural barriers hinder HTN control within the unique context of a largely rural and lower socio-economic area, which extends current HTN-related literature. Health authorities should collaborate with community leaders to identify appropriate local terminologies for HTN while considering contextual characteristics in adapting and implementing national policy strategies for HTN. Policymakers should consider more sustainable funding sources for the NHIS to facilitate effective service delivery while integrating training on NCDs and management of multiple and comorbid conditions into health training institutions' curriculum to build sustained capacity to facilitate the uptake of evidence-based NCD interventions in resource-poor settings.

Limitations and strengths

The study collected data from a limited number of health professionals, which may not reflect the views of all health professionals in northern Ghana. However, this study was conducted in two regional and four district health facilities and the only tertiary referral hospital in northern Ghana using the same sampling procedure to collect data from health professionals at all levels of health care working directly with patients with HTN so the findings could be valid in similar environments. The study did not have an equal representation of male and female participants because of the acute shortages of health professionals in the study area but we do not anticipate that the sex of the respondents had a large influence because interviewed female and male participants expressed similar views. Moreover, to minimise the risks of bias and enhance study reliability, an interview topic guide, which was developed based on authors research experiences and existing literature on NCDs in Low and Middle Income Countries (LMICs) was consistently used during interviews.

A key strength of this study is that it presents qualitative insights from front-line health professionals working in a largely rural area, directly providing health care for persons with HTN at the primary, secondary and tertiary levels of health care. Further studies should explore barriers experienced by other stakeholders such as patients, communities and policy-related barriers to facilitate a holistic design of comprehensive interventions that aim at improving HTN control in resource-poor settings.

Author statements

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Ethical approval

The study received ethical approval from the Ghana Health Service Ethical Review Services (GHS\ ERC) numbered GHS-ERC 09/01/201 and administrative consent from the regional health directorates of the two regions and facility administrators. Both verbal and written consent was sought from all study participants before data collection.

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Competing interests

The authors declare that they have no competing interests.

Author contributions

G.N.N., L.M., A.d-.G.A. and C.A. conceived the study idea and designed the study proposal. G.N.N. collected the data, reviewed transcripts, coded, analysed, interpreted the results and developed the manuscript. L.M. and Ad.G.A. contributed to refining the study design, designing topic guides for data collection, supervised the first author in data collection and coding, interpreting the results and revising the manuscript. E.B. and C.A. contributed to interpreting, revising and shaping the manuscript. All authors read and approved the final manuscript and are accountable for all aspects of the manuscript.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhe.2019.11.007.

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