

Capacity and Readiness for Implementing Evidence-Based Task-Strengthening Strategies for Hypertension Control in Ghana

A Cross-Sectional Study



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ABSTRACT

Background: Assessing the practice capacity for hypertension management and control within community-based health planning and services system is an important step toward implementing evidence-based interventions to reduce uncontrolled hypertension at the community level.

Objectives: To assess the capacity and readiness of community health workers to implement a task-strengthening strategy for hypertension control (TASSH) at the community level.

Methods: This was a cross-sectional study guided by the Consolidated Framework for Implementation Research conducted among community health workers in 6 contiguous districts within the Brong-Ahafo Region of Ghana. Study variables were described using frequency tables.

Results: A total of 179 community health officers (CHOs) were interviewed. The majority of respondents knew lifestyle-related messages to be provided to their clients such as heart-healthy diets (91.6%, n = 164), physical activity (90.5%, n = 162), and low sodium intake (88.3%, n = 158), but not about other lifestyle-modifying messages such as caffeine reduction (46.4%, n = 83). The majority (79%) of the respondents did not know the names of the first-line hypertension medications. Fifty-one percent of respondents did not know about the blood pressure threshold for initiation of blood pressure management. About 90% of respondents had not been trained on hypertension management. More than 80% are however motivated to implement the TASSH intervention.

Conclusions: The majority of CHOs in this study were aware of lifestyle modifications such as diet modifications and increase in physical activity. However, their knowledge was limited in the blood pressure threshold for initiating treatment and in the knowledge of first-line hypertension medication, irrespective of the number of years practiced. Training on hypertension is also low. However, CHOs are motivated to control hypertension at the community level. Community-level interventions such as TASSH can leverage on their motivation to demonstrate an impact on hypertension control.

Hypertension (HTN) is a major public health concern since it affects populations globally [1–3]. HTN is a risk factor for development of cardiovascular disease (CVD), which was responsible for 17.7 million deaths worldwide in 2015 [4]. The African region has the highest prevalence of HTN, with 46% of adults ≥ 25 years of age being hypertensive [1]. One impediment to optimum HTN control in sub-Saharan Africa is the shortage of health care workers [5–7]. There is a crucial need for strategies that help reduce the burden of HTN in Ghana, particularly community-based strategies targeting prevention, case identification, and control. One such strategy is a task-shifting of primary care duties from physicians to nonphysician health care providers [7].

A task-shifting strategy at the primary care level may mitigate the barriers to optimal HTN control in sub-Saharan Africa, where countries face a human resources crisis in their health systems [7]. To maximize the efficient use of resources, health care tasks are shifted from higher-trained health workers to less trained health workers. This strategy is reported to be cost effective [8]. Evidence suggests that patients with HTN can be cared for by nonphysician health care providers [9] such as community health officers, who diagnose and provide adequate counseling on healthy lifestyle to patients [7]. In Ghana, community-based health planning and services (CHPS) program provide a platform to implement HTN management [10].

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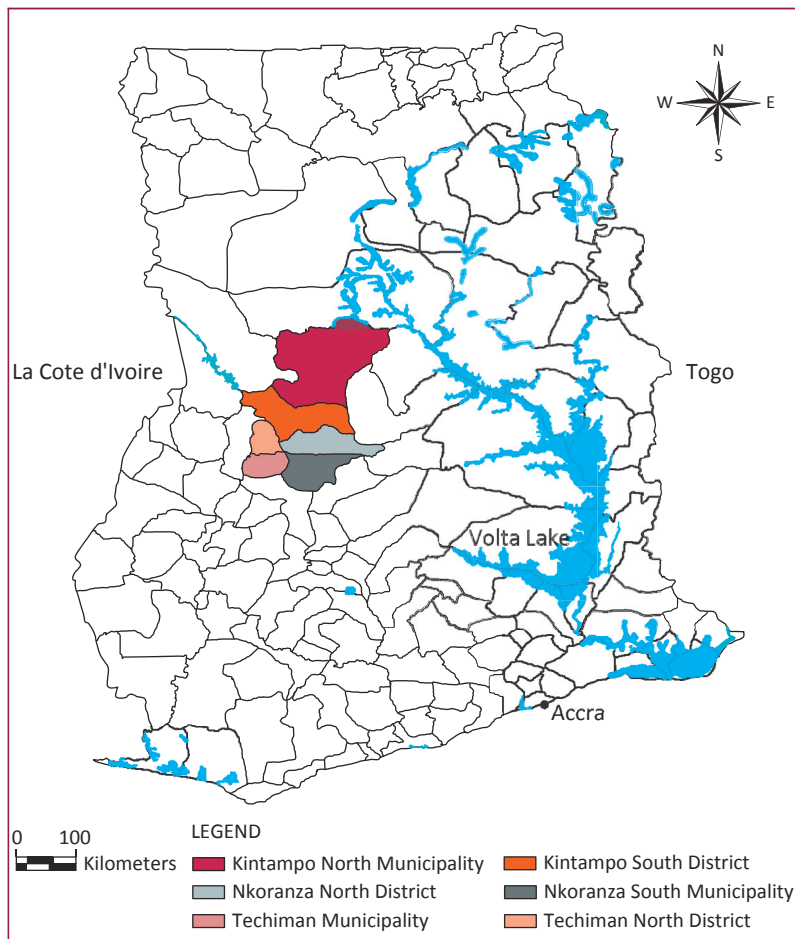


FIGURE 1. Map of Ghana highlighting the 6 districts surveyed.

The CHPS program of the Ghana Health Service is a useful platform to deliver task-shifting strategy targeted at addressing noncommunicable diseases (NCDs) [11]. However, the capacity of primary health care level health workers for HTN management has not been explored. Our aim was to assess the capacity of the CHPS zones to implement evidence-based HTN management at the community level in preparation for the uptake of the task-strengthening strategy for hypertension control (TASSH) project in Ghana. Health workers, mainly community health officers (CHOs), man these zones and are essential stakeholders useful for the implementation of these strategies.

The uptake of TASSH implementation project is a National Institutes of Health and National Heart, Lung, and Blood Institute (Project #: 1U01HL138638-01) sponsored project aimed at identifying the adoption and sustainability of TASSH at CHPS zones. This project uses the Consolidated Framework for Implementation Research (CFIR) to engage stakeholders within the Ghana Health Service, the Ministry of Health, and CHOs at the CHPS zones to identify ways to adopt and sustain TASSH.

METHODS

Study design

This was a cross sectional, quantitative study conducted from February to March 2018. This design is relatively quick and easy approach because it does not involve extensive follow-up of the study participants [12]. The design is useful for descriptive analysis and generating a hypothesis. However, associations identified may be difficult to interpret and it is liable to bias, due to low response, and sometimes misclassification, due to recall bias [12].

Setting

The study was conducted in CHPS zones in 6 contiguous administrative units within the Brong-Ahafo Region, namely Kintampo North Municipality, Kintampo South District, Nkoranza North District, Nkoranza South Municipality, Techiman North District, and Techiman Municipality. The study area has a total of 179 CHPS zones that serve a total population of 626,495. The setting is predominantly rural and multiethnic and the population mostly engages in subsistent farming [13]. The primary care level (referred to as level A) of health care is at the community level and operated mostly by community health nurses [14]. The next level is health center (referred to as level B), where middle-level health professionals (physician assistants, midwives, nurses, and laboratory and dispensary technicians) are responsible for providing health care. [14]. The district hospital is at level C, where senior-level health professional such as physicians, anesthetists, senior nurses or midwives, pharmacists, and laboratory technologists handle the health care delivery at these facilities. Patients presenting at the lower level with any condition that is beyond the capacity of that level are referred to the next level for management [14]. In terms of HTN management, the level A facilities are mandated to screen for HTN at the community level and refer to the level B for management. However, health care providers at level A can provide lifestyle modification counseling to their clients. Figure 1 is a map highlighting the 6 districts surveyed.

Identification of CHPS zones

A list of all CHPS zones was acquired from the Regional Health Directorate of Health Services for all the study area. Each health management team in the study area was contacted and approval was sought from them. Subsequently, the health worker in charge of the CHPS zones was interviewed after written informed consent was obtained.

Study instrument and data collection

Guided by the CFIR [15], a semistructured questionnaire was developed. CFIR is a concept that combines constructs expected to influence the implementation of evidence-based interventions. There are 5 major domains: intervention characteristics, outer setting, inner setting, characteristics of individuals involved, and the implementation process

[15,16]. The questionnaire adapted standardized questionnaires for the assessments of health systems performance such as the World Health Organization Service Availability and Readiness Assessment Tool for the assessment of capacity to prevent and manage major NCDs within primary care. The Service Availability and Readiness Assessment survey is developed to generate a set of core variables on key inputs and outputs of the health system, which can be used to measure progress in health system strengthening over time [17]. This survey included questions referral services, human resources, equipment, and diagnostic tests and medicines [18]. Also, the questionnaire covered demographics, organizational characteristics, assessment of hypertensive patients, health care provider HTN management characteristics, and constructs for the CFIR (open-ended questions on facilitators and barriers to adopting TASSH). The questionnaire was designed on a validated Research Electronic Data Capture project as a web-based application [19]. Data collection was done using the Research Electronic Data Capture project installed on an Android tablets. Each interview lasted an average of 1 h. Inconsistency checks were added to ensure that data capture was accurate. At the end of each day, data collected was synced unto the server for further data management.

Data analysis

Data analysis was conducted using Stata version 14 (StataCorp, College Station, TX). Frequencies were generated and reported as tables. The association between respondent's characteristics namely education, training, and years of HTN management and responses to BP threshold for initiation of HTN treatment was explored using the chi-square or Fisher exact test (p values at 0.05) where applicable.

Ethics statement

Ethical approval for the main study was obtained from the Institutional Ethics Committee of Kintampo Health Research Centre (KHRCIEC/2017-23), Kwame Nkrumah University of Science and Technology Community for Human and Population Research (CHPRE/AP/418/17), and the Ghana Health Service Ethics Committee (GHSERC004/08/17). Written informed consent was obtained from all the community health nurses that were interviewed for this phase of the project.

RESULTS

Demographic and other characteristics of respondents

The demographic characteristics of the respondents are summarized in Table 1. A total of 121 (67.60%) of the total respondents were women. The average age of the respondents was 30.11 ± 4.26 years. The majority of the respondents (83.80%) were trained as CHOs.

TABLE 1. Demographic characteristics of respondents (N = 179)

Sex	
Male	58 (32.4)
Female	121 (67.6)
Age, yrs	30.1 ± 4.2
Education	
Certificate	169 (94.4)
Diploma	8 (4.5)
Bachelor's degree	2 (1.1)
Training	
Nursing/midwife	14 (7.8)
CHO	150 (83.8)
Others*	15 (8.4)
Years of HTN management [†]	
≤1	42 (23.5)
2–5 yrs	95 (53.1)
>5	40 (22.4)

Values are n (%) or mean ± SD.
 *Others include enrolled nurses and other community health workers such as field technicians.
 †Two missing records.

Coverage of the CHPS zones

Each CHPS zone includes an average population of 3,456 living in an average of 3 communities. Seventy-eight (43.58%) of the CHPS zones visited have CHPS compounds. In each CHPS zone, an average of about 170 patients per month and an average of 7 hypertensive patients per month were attended to by CHOs.

TABLE 2. Summary of organizational characteristics, logistic availability, and other characteristics

Knowledge of lifestyle-related information	
Heart-healthy diet	164 (91.6)
Reduce coffee or caffeine	83 (46.4)
Physical activity	162 (90.5)
Low sodium intake	158 (88.3)
No tobacco product	113 (63.1)
Other	101 (56.4)
Knowledge of BP threshold for initiation of treatment	
Systolic ≥ 140 mm Hg	88 (49.2)
Diastolic ≥ 90 mm Hg	92 (51.4)
Knowledge of first-line hypertension treatment	
Don't know	141 (78.7)
Nifedipine	34 (18.9)
Bendroflumethiazide	2 (1.1)
Lisinopril	1 (0.5)
Methyldopa	1 (0.5)

Values are n (%).
 BP, blood pressure.

TABLE 3. Years of experience and knowledge of BP threshold for initiation of treatment

Years of HTN management	Systolic		Diastolic	
	Accurate	Inaccurate	Accurate	Inaccurate
≤1 yr (n = 42)	18 (42.9)	24 (57.1)	28 (66.7)	14 (33.3)
2–5 yrs (n = 95)	46 (48.4)	49 (51.6)	44 (46.3)	51 (53.7)
>5 yrs (n = 40)	24 (60.0)	16 (40.0)	26 (65.0)	14 (35.0)

Values are n (%). The breakdown of years of experience and the BP threshold for the initiation of treatment. For respondents who had a year or less experience majority of them (57.1%) did not know the accurate threshold for the initiation of treatment. Also, respondents who had more than 5 yrs' experience provided the accurate threshold for the initiation of treatment. BP, blood pressure; HTN, hypertension.

Capacity

Knowledge of HTN. The majority of respondents were aware that lifestyle-related messages should be provided to their clients, including messages on heart healthy diets (91.6%, n = 164), physical activity (90.5%, n = 162), and low sodium intake (88.3%, n = 158). Moreover, 46.4% (n = 83) knew about caffeine reduction as a lifestyle modifying messages. The majority (78.77%) of the respondents did not know the names of the first-line HTN medications. More than one-half of the respondents did not know about the BP threshold for initiation of BP treatment. Eighty-eight (49.16%) respondents mentioned ≥ 140 mm Hg as the systolic threshold and 92 (51.40%) mentioned ≥ 90 mm Hg as the diastolic threshold for initiation of treatment. Knowledge of the threshold for initiation of treatment was low, irrespective of the number of years worked (Table 2), for about 79% of respondents did not know the first line of treatment for HTN (Table 2).

Practices of HTN management. Respondents refer hypertensive patients identified in the CHPS zones to health centers where physician assistants located (37.4%,

n = 67) or to the district-level hospitals where there are medical doctors (54.7%, n = 98). Fifty-four percent (n = 96) of respondents never or rarely check blood pressure (BP) of their clients, although all of the respondents have a BP-measuring device (50% of respondents had digital BP measuring device). Educational support had been provided to CHOs through workshops or in-service training (12.9%, n = 23) or through provision of educational resources (10.6%, n = 19) (Table 3).

Readiness

Organizational context for HTN management. Eighty-seven (48.60%) of the respondents reported that the CHPS zones had goals for HTN management and control. Seventy-four (41.34%) reported that HTN treatment is a top priority. Educational support for HTN treatment was, however, low (Table 4).

CFIR constructs. Table 5 shows the responses of the CFIR constructs. Generally, there were high levels of receptivity for the proposed task-strengthening strategies for HTN control. About 84% of the respondents were of the opinion that there is a strong need for the proposed intervention. Also, 73% of the total respondents indicated that the TASSH fits ongoing existing work processes and practices.

Resources, confidence, and preparedness for intervention. A total of 162 (90.50%) respondents indicated that the CHPS zones have sufficient resources to implement the TASSH. About 83% of all respondents indicated that they have high confidence and are highly prepared to implement the proposed study intervention (Table 6).

DISCUSSION

This study demonstrated the capacity of CHPS zones and their health care providers for managing HTN at the community level. The study result show that most of the respondents knew about lifestyle modifications such as diet modifications and increase in physical activity. However, their knowledge was limited in the BP threshold for initiating treatment and in the knowledge of first-line HTN medication, irrespective of the number of years practiced. However, respondents were confident and willing to accept task strengthening strategies to control HTN at the community level.

Training has been identified as one of the most important contributors to successful performance of health workers [20]. Over 90% of the CHOs had not received any in service training on HTN and is likely to be the reason for the low knowledge of level of BP threshold for initiation of treatment. This finding indicates a gap in training for health workers although the Ghana National Policy for the prevention and control of chronic NCDs highlights training of health workers and developing of human resources capacity as strategic approaches for strengthening the management of

TABLE 4. Organizational context for HTN management

Statement	Yes Answer
Evidence-based practice for HTN management	
Goals for HTN management and control	87 (48.6)
Importance of HTN treatment	83 (46.4)
HTN treatment is top priority	74 (41.3)
Educational support for HTN treatment	
Conferences/seminars or workshops	11 (6.2)
In-service training	12 (6.7)
Educational resources or materials	19 (10.6)
Selection for openness	
Facility favors providers who are adaptable to the guideline for HTN treatment	34 (19.0)
Facility favors providers who are flexible to the guideline for HTN treatment	31 (17.3)
Facility favors providers who are open to new types of intervention for HTN management and control	48 (26.8)

Values are n (%).
HTN, hypertension.

TABLE 5. Summary of Consolidated Framework for Implementation Research constructs

Variable	None	Low	Moderate	High
General level of receptivity in the organization to implement this intervention	3 (1.7)	0 (0.0)	41 (22.9)	135 (75.4)
Strong need for intervention	0 (0.0)	1 (0.56)	28 (15.6)	150 (83.8)
Is intervention essential to meet the needs of individuals served by your organization	0 (0.0)	0 (0.0)	18 (10.1)	161 (89.9)
Level of enthusiasm for this intervention	0 (0.0)	1 (0.56)	25 (14.0)	153 (85.5)
Level of fitness of intervention with your and organizational values and norms	0 (0.0)	3 (1.68)	45 (25.1)	131 (73.2)
Level of fitness of intervention with existing work processes and practices	0 (0.0)	3 (1.7)	45 (25.1)	131 (73.2)
Intervention replacing or complementing current program or processes	10 (5.59)	5 (2.79)	45 (25.14)	119 (66.48)

Values are n (%).

noncommunicable conditions [21]. In terms of training, the disadvantage of having to wait a minimum of 5 years before furthering your education has reduced knowledge, as evidenced in our study [22]. It is important to ensure frequent training to enhance the capacity of the health workers with new knowledge in the field of HTN, where treatment practices may change over time.

However, our finding is similar to a study carried out in Uganda in which only 1 of 24 health facilities had been trained in HTN management over a 1-year period [23]. It is likely that the capacity of the CHOs will be enhanced to identify and support newly identified HTN as has been found by Abegunde et al. [24]. In their study, Abegunde et al. demonstrated the impact of training Non-Physician Health Workers on reliable and efficient assessment and management of cardiovascular risk within a primary health care setting. The training is also likely to motivate CHOs as they assume their HTN management duties.

We identified some key strengths of the health facilities that were at present not providing services for management

of HTN, such as a high level of receptiveness and a high level of enthusiasm toward managing HTN. This is quite important, as illustrated in a study in Tanzania that highlighted the importance of these attributes and other factors such as a continuous supply of basic logistics in the management of HTN and other NCDs [25]. Therefore, there is the need to maintain these strengths identified among the health workers while catering for other needs such as the supply of basic logistics and training.

The TASSH project seeks to use the community volunteers to identify, counsel, and refer identified patients to the next level of health care. We found that the CHOs are highly receptive to the intervention, believe a strong need to address the problem of HTN, and are enthusiastic about ensuring control of HTN. The TASSH project will build on this strength to demonstrate their impact on management and control of HTN with patients living in the Brong-Ahafo Region.

Study Limitations and strengths

Although this was carried out in CHPS zones in 6 districts in the Brong-Ahafo Region, this is not representative of all health facilities in the country. In addition to that, this was mainly a descriptive study and did not test any hypothesis. However, to the best of our knowledge, this is the first study of its kind carried out specifically on the capacity for HTN management within CHPS zones in Ghana and presents key information on the capacity of CHPS zones to manage HTN in the region. The study was carried in collaboration with the Ghana Health Service and the Brong-Ahafo Regional health directorate and it is expected that it would affect policies and practices within the region.

CONCLUSIONS

The majority of CHOs in this study were knowledgeable about lifestyle modifications such as diet modifications and physical activity. However, their knowledge was limited in the BP threshold for initiating treatment and provision of first-line HTN medications, irrespective of the number of years practiced. Training on HTN is also low, although CHOs are motivated to control HTN at the community level. Community-level interventions such as TASSH can

TABLE 6. Sufficient resources, confidence, and preparedness for intervention

Description	Yes Answer
Sufficient resources to implement this intervention	162 (90.5)
Confidence in implementation of intervention	
Low	1 (0.5)
Moderate	30 (16.8)
High	148 (82.7)
Preparedness to use intervention	
Low	—
Moderate	31 (17.3)
High	148 (82.7)

Values are n (%). The majority of the respondents (90.5%) suggested that their zones have adequate resources to be able to undertake this intervention. Furthermore, 82.7% of the respondent reported that they have high levels of confidence to implement the study intervention. Majority of the respondents reported that they are highly prepared to undertake this intervention at their respective CHPS zones.

leverage on their motivation to demonstrate an impact on HTN control in the Brong-Ahafo Region, which has the potential to be scaled up nationally throughout Ghana.

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