Perceived Knowledge Gap of Public Health Officer in Ethiopia

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Research

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Abstract

Background: Ethiopia has been training health officers as non-physician clinicians to meet the urgent public health service needs including preventive and health promotion as well as curative services. However, to date there is a lack of evidence of whether the curriculum content of the program meets the needs of the community. The purpose of this study was to explore the perception among health officers on whether the curriculum prepared them with what they need to know for practice when deployed to district hospitals and rural health centers

Method: A qualitative research design was used to explore health officer's perceptions on the curriculum for clinical practice. The study was conducted in Dale district, Sidama region, southern Ethiopia. Data collection was done using semi-structured interview guide with open ended questions. The interview guide were developed using the first author's experience as a health officer who recently graduated the program. All public health officers training graduates in the Dale districts, included in the study. Data analysis was done following a thematic analysis approach. The data was analyzed using ATLAS.ti qualitative data analysis software.

Result: The study revealed a major curriculum-related gap which contributed to the perceived knowledge gap of public health officers. The main gap identified was the disproportional time allocation for very crucial courses of basic sciences and clinical practice during training. In addition the curriculum lacked a strict monitoring system of its implementation.

Conclusion: Based on the result most participants believed the course content of the curriculum was very strong and crucial for public health officers. Some weakness of the curriculum were also identified which created the perceived knowledge gap of public health officers. The main weakness in the curriculum was that some of the courses were not proportionally allocated with adequate time for course contents like that of basic science and clinical courses.

Background

Many developing nations have a history of health-care provision by individuals who are not trained as physicians but who are capable of many of the diagnostic and clinical functions of medical doctors. These types of health workers are known as health officers, clinical officers, physician assistants, nurse practitioners, or nurse clinicians.(1) In Ethiopia health officer training began in 1954 EC, and was the first degree in health professional training at the then College of Public Health located in Gonder which is in the north west of Ethiopia.(2)

The college was established to meet the need for health professionals to work in rural communities. The rationale for development of non-physician clinician (NPC) programs was the sub-Saharan region disease burden, which accounts of 24% of the globe, and the critical shortage of the health professionals which accounts 4% of the global health work force.(3) In addition, NPC programs were believed to solve shortage of physicians and to address poorly served regions. 78.775% of Ethiopian population situated in

rural settings (4). Training and employing NPCs are less costly than physicians. And crucially, NPCs tends to stay in rural longer and in greater number than physicians. (3)

To mitigate chronic health worker force shortage, some countries, including Ethiopia train non physician clinicians under different names to perform functions normally carried out by Doctors. Training mid-level health workers by task shifting is recommended by world health organization. Studies have found the NPCs can carry out diagnostic, clinical and simple surgical procedures.(5)

In Ethiopia the program began with a four year post high school training program with a unique curriculum that incorporated clinical skills and public health activities to meet the urgent needs of the country. The program is designed in aim to train health professionals in a shorter amount of time and less cost than the training of physicians. NPCs are health workers with post-secondary health care training who undertake tasks, such as, clinical or diagnostic functions. They are being used, particularly in rural and remote areas where the gaps are higher in health professionals with higher qualification. (6)

Although the training to become a health officer has theoretical, knowledge and practical clinical skills, there is lack evidence of whether the curriculum content meets the needs of health officers when they are deployed to district hospitals and rural health centers. The study is therefore aimed to explore any perceived knowledge gap among public health officers in relation to curriculum and its implementation.

Method

Setting

The study was conducted between March and November 2016, with eligible health officers at Dale district, Sidama region, southern Ethiopia. Based on the 2007 census conducted by the central statistical agency ,CSA, the Dale district/Woreda has a total population of 242,658 and 12.517% of its population are urban dwellers.(7) In Dale district there are 10 health centers and a total of 13 public health officers.

Study design

A qualitative study was done using the Kirkpatrick model for evaluating learner's outcomes in the training program. Its major contributions to educational evaluation are the clarity of its focus on program outcomes and its clear description of outcomes beyond simple learner satisfaction.(8) The study was done with the research question: What were the perceived strengths and weaknesses of the health officer curriculum in preparing health officers for the real clinical environment?

Sampling and recruitment

In Dale district, there are one general hospital and 10 health centers. Four of the Health officers selected from the Yirgalem general hospital and the rest eight are from six nearby health centers using purposive sampling technique. We considered the number of health centers, the number of public health officers and the accessibility of these centers with regards to transportation and its distance from the city of

Yirgalem. The health centers with public health officers who had less than six-months of experience were not included in the study.

Data collection

Data collection was done using in-depth interview and semi-structured interview guide were used to conduct the interviews. The interviews were conducted by the first authors (BA) who pose questions in a natural and conversational manner. The investigators listen attentively to participants’ response and asked follow-up questions and probes based on responses. The interview was conducted face-to-face and, recorded and lasted approximately 30 minutes.

Data analysis

Data analysis started with translation from Amharic to English during the transcription process. A thematic approach was used to categorize the information and to discuss the result under specific topics. Thematic analysis is a method for identifying, analyzing and reporting patterns

(Themes) within data. (9)

The purpose of thematic analysis is to identify patterns across the transcripts. BA identified codes and created themes using an inductive approach to data analysis. In other words, the coding and theme development was drawn from the data without any existing concepts or ideas. First, BA became familiar with the data by reading and re-reading the transcripts. The translation from Amharic to English also helped with the familiarization process. Second, BA generated codes that identified important aspects of the data that were related to the research question. Third, BA examined the codes that were generated and collated the data into themes. Lastly BA reviewed the themes he created with the last author (SS) to further refine the themes and to determine whether the themes were able to convey a “story” of the data.

Result

This research was conducted to explore the perceived knowledge gap that public health officers identify when transitioning from training to clinical practice. Twelve participants were interviewed with almost equal representation of men and women.

Table: 1 Characteristic of the study participants, perceived knowledge gap of public health officers, Sidama Region, Dale district, No.2016

S/n	Participants	Sex		Types of facility		Year of experience	
		Male	Female	Hospital	Health center	[6 month- 2] year	>2 year
1	Participant	7	5	4	8	6	6

Three themes are emerged from the interview data. These themes encompass the curriculum related gap which results for the perceived knowledge gap of public health officer were they transition from training into clinical practice.

The three themes that were identified from the health officers' experience include: (1). overall strength and weakness of the curriculum, (2).time constraints of training program and; (3). the quality of teaching and evaluation.

General strengths and weakness of the curriculum.

All the study participants provided their perspectives regarding the strength and weakness of the overall curriculum. The majority of the participants believed that the course content of the curriculum was very strong and crucial for public health officers. The curriculum was believed to be aligned with the reality, that health officers are the primary health professionals who assist with the encounter health problems of rural populations in Ethiopia.

One of the study participants focused on the public health aspect of the curriculum as its strength. *"The strength of the curriculum can be told with three categories of content as, the first one is common courses: As for me all the common courses are fundamental and help you somewhere in your health professional life, the second one is public health courses: Public health courses are very essential to know the distribution of disease, its intervention mechanism and to do health researches and finally the clinical courses: all the clinical attachments are helpful but in particular surgical skill still ease my job"*(Male, PHO, Buwabadagalo, 3 years experience).

However, several participants also discussed the weakness of the curriculum. These weaknesses were developed as a result of going into clinical practice and then realizing at the moment, that there were significant knowledge gaps between training and practice. For example

"In the health officers curriculum the course contents in both pre-clinical and clinical are not discussed deep enough, so that, we cannot grab more knowledge. I remember some of my instructors use to say 'if you know this, it is enough in your level' but after I become a practitioner in clinical environment I realized that it was not enough. So in general I can say that the curriculum does not equipped me with adequate knowledge of both basic and clinical sciences"

(Female, PHO, Goida health center, 2 and half year experience).

In summary, the strength of the curriculum included its strong course content, especially teaching of biostatistics, epidemiology, research and population development courses beside clinical courses. And also the curriculum was designed in a way that produced professionals who were able to manage health centers and health sector offices.

Regarding the weakness some study participants stated that the curriculum did not provide enough emphasis on basic science courses, lacked clear boundary and scope of practice with other health professionals, and also some lectures lacked the application of theory to clinical practice.

Time Constraints in training program

Concerning time allocation in the curriculum, most study participants share the common ideas regarding course credit hour allocation. Some of the participants believe that the four major clinical courses are under considered in terms of credit hours and which results in the perceived knowledge gap of public health officers. One of the participants stated his opinion regarding under considered courses in terms of credit hour like *"the major courses: internal medicine, pediatrics, surgery and gynecology are given only by 7 credit hours during clinical year one."*

We had very short time in each ward. There was no enough time to grab more knowledge and clinical skill". (Male, PHO, masinkala health center, 2 year experience).

The study participants also gave their opinion on basic science courses and time allocated to them. Since the basic sciences are the foundation for the clinical courses more emphasis should be given than on the curriculum.

One of the participants stated that: *"All the basic science courses are under considered. As the name indicates they are the base for other clinical courses. Unless you have them adequately, you won't make a difference as clinicians"* (Female, PHO, Goida health center, 2 and half year experience).

On the other hand very few study participants mentioned that there are some course which given much time than it deserve. One of the participants states that: *"some of the common courses like both writing and communicative English, civics and information technology are over considered"* (Male, PHO, Megara health center, 3 years experience).

According to the study majority of the participants believe, that the time allocated for basic science courses and the four major clinical courses, which is internal medicine, surgery, gynecology and pediatrics are not proportional with the course contents and this paved the way on the perceived knowledge gap of public health officer. And the few has different ideas and believes that there are some common courses which are over considered in terms of credit hours.

Quality of teaching and evaluation

Concerning this theme the study participant expressed the way they thought during the four year program. They have mentioned different types of teaching and evaluation methods. As the participant mentioned different teachers use different types of teaching methods which is suitable for them to complete the courses in the given time. For example, lectures were described as a

“double edged”; participants disliked the use of lectures because they were boring but at the same time appreciated.

One of the participants stated that: *“Most of the pre clinical time passed with boring lectures and it was one way presentation from the instructor; Even Anatomy was given by lectures because there was lack of demonstration rooms, like absences of cadaver. But since clinical year one, the teaching methods become very interesting, Interactive and helpful to grab more knowledge and clinical skills. These methods were bedside teaching, ward round teaching and presenting seminars”* (Female, PHO, Yirgalem health center, 4 years of experience).

Some participants liked the use of lectures because the lectures “saved” students from experiencing humiliation by the teacher, which was common during more interactive sessions. In fact, the use of humiliation was a common teaching strategy. As this participant stated: *“Some of the instructors uses lecture and describes everything for us and I like that. The other method is round and it is very scary because some of the teachers teach by humiliating students in front of their peer friends and I hate it!”* (Female, PHO, yirgalem medical college, 2 years of experience).

Health officer discussed their concerns with how they were evaluated during the training program. Although almost all of the evaluation methods were very objective. Many participants felt like the teachers could manipulate the objective evaluation to punish the students for their wrong doing. For example one of the participants stated that: *“Most of the instructors evaluate us according to the course outline they gave us before starting the course. They use different kinds of assessment method, from all the methods quiz helped us to be alert and prepared every time. Also there are different kinds of assessment methods were used like written exam, case report and oral exam. I think the oral exam sometimes depends on the mood of the examiner”* (Male, PHO, buwabadagalo health center, 3 years of experience).

Some of the participants also mentioned that some instructors manipulate the objective of evaluation by using the tools to punish students for their wrong doing.

Participant from Bera health centers *“I have noticed some instructors tries to have their revenge through exam for conflicts with students”* (Male, PHO, Bera health center, 3 years of experience).

Most of the participants mentioned certain aspects of the evaluation to be objective, such as quizzes, which were perceived by most to be very helpful towards motivating them to read and understand the material. However, it was also stated by most participants that there existed instructors who used the assessment tools as a weapon to punish the students.

Discussion

In most Asia and some African countries training programs for non-physician clinicians distinguished between those recruited registered and experienced nurses and those directly from secondary school. The

experienced trainee only receives one year classroom teaching and six month practical training. The trainee joined the program directly from secondary school receive three years of training, with additional year of internship.(10)

The finding of research is also similar that, the public health officers join the department through the assignment done by ministry of education based on their Higher education entrance exam result and their choice.

Most of the participant in our study believed that the curriculum was strong due to its course contents and its inclusion of research and population development knowledge. These aspects of the curriculum were believed to enables public health officers to manage health centers and health offices. Finally the curriculum and the program are important because they create opportunities to increase health professionals who can work at health centers which in turn result in reducing hospital load.

The result of this study showed that the curriculum enabled the trainees to be competent public health officers to undertake promotive, preventive, curative services. This is in line with one of the objective of the curriculum.

It also enhances the trainee's skills, knowledge and attitude towards the needs of the population and producing health professionals, who can conduct problem solving health research, manage health institutions and health offices. (2)

The result of this research found that some weakness in the curriculum. According to the study, the curriculum does not give much emphasis for basic science courses. The majority trainees believed that inadequacy of knowledge in the basic sciences contributed to less understanding of the major clinical and related courses, which is one of the contributor factors for knowledge gap in public health officer's trainees. A study done in four African countries on curriculum and training need of mid-level health workers has shown that the gaps in clinical skills, particularly related to the major causes of disease burden in Africa(maternal and child mortality, infectious diseases, trauma and violence) and newer challenges (HIV/ AIDS and emerging chronic diseases) are significant and need to be addressed (11) and in related study done in Kenya showed the stakeholders felt that the quality of the curricula and classroom delivery does not prepare students adequately for clinical practice in the real environment.(12)

The curriculum lack clear boundary and scope of practice, redundancy of courses which is given through high school like civic, basic to computer. It is also identified that some lecture lack practical sessions in the simulated environment. For example some lectures in anatomy should be supported by models and mannequins in the skill development lab.

The result of this study revealed that most of clinical and basic science courses are under considered in terms of credit hour. Mostly public health officers works at the front line of health arena at district hospital and health centers. For this reason most participants believe that under consideration of the above courses contributes for the perceived knowledge gap among public health officers. A curriculum

must have a balance between theoretical and practical components of the course and also it should have a structure indicating composition, adequate time for course duration and sequence of courses with capacity to adequately prepare students for clinical training. (12)

Regarding the curriculum modification or parts, the majority of participants found to agree on that, the curriculum should focus to make health officers clinicians by giving more time for clinical courses and practical sessions. On the contrary a few participants suggested that the public health officers should be public health experts rather than clinicians.

This could be achieved by redesigning the curriculum to give more time and practical attachments for public health courses. But the objective of the curriculum differs from these findings and incorporates both clinical and public health aspects. As stated in the curriculum the objective of the program is to produce competent Public Health professionals who undertake promotive, preventive, curative and rehabilitative services including management and implementation of PHC services compatible to the needs of the population (2)

Concerning the teaching methods lectures found to be boring for some participants as it is only one way presentation in most of the cases. There are few participants stated that lecture method is very helpful for covering the course contents at the given time.

Other teaching methods which are used in the clinical year 1 and 2 are very interesting which are, round teaching, bedside teaching, morning sessions and so on are very engaging students for the teaching learning process. Almost all the teaching methods mentioned in this study found in the curriculum. Skills very crucial for health professionals like history taking, physical examination, patient communication and professionalism are best learned in clinical setting with clinical teaching strategies. (13)

The study found that all the evaluation methods in the curriculum were very strong on assessing whether the students retain the intended course matters or not and these assessments were deemed by most participants as objectively measured. Assessment should be purpose driven. While assessing it is very crucial to know precisely what is going to be measured.(14) But sometimes instructors manipulated the evaluation tools to punish the students for their wrong doing and thus seemed to lack objectivity.

Conclusion

Public health officers offer an invaluable service to meet the health promotion/prevention and even some curative needs to the growing population in Ethiopia. This study demonstrated the tension between the duties and responsibilities of a health officer and whether their training adequately prepares them for work in the community. In theory, health officer training mainly focuses on a public health approach. Public health takes into consideration the perspective of populations (city, district, state, etc.). However, in practice, public health officers in Ethiopia are finding themselves doing more curative/clinical work. As a result, the population health curriculum was perceived by several participants as lacking in important clinical areas, such as internal medicine, pediatrics, surgery and gynecology. Although the theoretical

intent of producing public health officers is to offer public health experts to communities, in practice, many public health officers do engage in some clinical work at district hospitals and health centres. The results of this research demonstrates a need to re-examine the curriculum to improve health officers' knowledge and skills so as to better equip them for what to expect as health professionals in the community.

Abbreviations

NPC: non-physician clinician

PHO: Public health officer

HIV: Human immunodeficiency virus

AIDS: Acquired immunodeficiency syndrome

PHC: primary health care

Declarations

Author's contribution

BA conceived the study; collected data, performed data analysis, interpreted data and drafted a manuscript. SS critically reviewed the manuscript for important intellectual content. Both authors read and approved the final manuscript.

Ethics approval and consent to participate

Ethical clearance was obtained from institutional review board of Addis Ababa University

Consent for publication

Not applicable

Availability and data material

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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