Community beliefs about tuberculosis in Ghana: Implications for the end tuberculosis global agenda

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Globally, the agenda is to end tuberculosis (TB) by 2030. The emic (local) perspective about causes, signs and symptoms, and management of the disease has implications in service utilization and health-seeking. This research paper examines the local beliefs about TB and how this affects case detection and treatment. The analysis triangulates data from eight focus group discussions (N = 72), 15 in-depth interviews (IDI)s with patients with TB, and four traditional healers. TB described locally as Korongkpong, korongpilah (in Dagaare), and Kusibine (in Sissalla) is believed to be caused by curses, bewitchment, breaking local taboos, and a sin against the gods. The ethnosemantics depict TB as a condition of the lungs which presents with severe cough, caused by spiritual factors with fatal health outcome. In that regard, traditional medicine to exorcise the spirit is required before modern medicine can be effective. Initial symptoms such as cough and fever of TB are often self-managed and later traditional remedies sought. Furthermore, some of the signs are misconstrued for conditions such as asthma and whooping cough. The worldview of the community also dictates that these conditions have spiritual aetiologic factors and should be managed as such. This health-seeking pattern results in

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Dr. Philip Teg-Nefaah Tabong is a lecturer and a health systems researcher. His research interests are in social and behavioural aspects of communicable and non-communicable diseases. Embedded in the aetiology of these conditions are social drivers. My research focuses on: bridging the nexus between modern science and socio-cultural beliefs, perceptions and worldview of people; identifying how social and behavioural factors serve as drivers in exposure to risk, health seeking behaviour and health outcomes; characterization of socio-cultural drivers in emerging and re-merging infection diseases; and developing community-based interventions to reduce risk, and improve health seeking. The current study is part of my larger study to document the socio-cultural and health systems factors affecting tuberculosis (TB) case detection and treatment in the Upper West Region of Ghana. This project aims to reduce the burden of TB in the region and accelerate Ghana towards achieving Sustainable Development Goal 3.

PUBLIC INTEREST STATEMENT
Pulmonary tuberculosis is a common lung condition of public health concern. Despite the availability of effective medicine to treat the condition, many people still die from the condition. These deaths are largely due to late diagnosis and non-adherence to treatment. Though a biomedical condition with effective treatment, the worldview of community members on tuberculosis can negatively affect efforts to detect and treat infected individuals to break the chain of transmission. In our study, we used qualitative research methodology to document these local beliefs and how they hinder early case detection and treatment. We established that local perceptions of the causes of tuberculosis affected community approach to its management. The local terms used to describe the condition had spiritual connotations. Furthermore, we established that the ethno-semantics for tuberculosis need to be incorporated into the design of health promotion activities on TB to propel the country towards achieving Sustainable Development Goal 3.
delays in receiving appropriate treatment. As an infectious disease, the delays in health-seeking will hinder progress towards achieving the end TB global agenda. Incorporating local beliefs into the design of interventions and social and behavioural change communication strategies can help improve case detection and treatment.

Subjects: Health & Society; Health Conditions; Public Health Policy and Practice

Keywords: tuberculosis; local beliefs; causes; signs and symptoms; management; Upper West Region; Ghana

1. Introduction

Tuberculosis (TB) is an infectious disease caused by a bacterium. The bacterium comprises a complex of various types of organisms which include *M. tuberculosis*, *M. bovis*, *M. africanum*, *M. microti*, and *M. canetti* (Varaine & Rich, 2014). All these micro-organisms can cause TB in human but the majority of pulmonary TB cases are caused by *M. tuberculosis* (CDC, 2013). However, in Africa, TB caused by *M. africanum* is also common (CDC, 2013). In Ghana, a study found that the majority (97.6%) of TB cases are caused by *M. tuberculosis* whilst 2.4% are caused by *M. africanum* (Addo et al., 2017). Pulmonary TB is mainly transmitted through droplets and airborne routes. Patients with pulmonary tuberculosis will often present with pulmonary symptoms like productive cough, haemoptysis (coughing out blood), chest pain, and shortness of breath. They may also present with constitutional symptoms such as fever (temperature >38.5°C), poor appetite, weight loss (more than 1.5 kg in a month), night sweats, and anorexia (Knochel, 2009).

The World Health Organization (WHO) has indicated that about three million people die of TB yearly, with a majority of these deaths occurring in developing countries. Eighty percent of the TB deaths globally are among people within the most economic and productive age (WHO, 2012). The African Region has 28% of the world’s cases and the most severe burden relative to population: 281 cases for every 100,000 people, more than double the global average of 133 (WHO, 2015b). In Ghana, an estimated 44,000 new TB cases were reported in 2014 which translates to 165 newly infected people per 100,000 population. This makes Ghana one of the high TB incidence rate countries in the world in reference to an incidence rate of ≥40 per 100,000 in the world (WHO, 2015b).

From 2016, the global agenda is to end TB and this was adopted in May, 2014 during the World Health Assembly and incorporated into Sustainable Development Goal (SDG) three (World Bank Group, 2016). Therefore, countries are expected to work towards reducing the number of TB deaths to 90% by the end of 2030 (compared with 2015 levels), and also reduce new cases by 80% (WHO, 2015a). In a study conducted in one of the districts (Sissala West) in the Upper West region, it was reported that patients with TB exist in the community even though no cases were detected by the health system (Ahorlu & Bonsu, 2013).

Transmission of infectious diseases relies on three conditions: sources of infection, routes of transmission, and susceptible hosts (Colvin et al., 2014). For Ghana to be able to eliminate TB as envisioned in the sustainable development goals (SDGs), bottlenecks to case detection need to be addressed because the treatment success rate is above 86% which has exceeded the global target (NTP, 2014). This indicates that once the cases are detected, they will be treated successfully. In addition, interventions that either prevent cases or lead to early detection of cases have been found to have the biggest impact on TB control regardless of underlying epidemiologic characteristics of the setting (Oxlade et al., 2015).

The main strategy for TB treatment globally is the directly observed treatment short-course (DOTS). This strategy relies mainly on case detection and treatment with multiple antimicrobial
drugs. Despite the increased investment in DOTS, it has been reported that TB control in the world faces two main challenges; delay in diagnosis of tuberculosis suspects and non-completion of treatment as a result of high default rates (Qureshi et al., 2008). For example, in the year 2014, 6 million new cases of TB were reported to WHO which is two-thirds (63%) less than the 9.6 million people estimated to have been infected and developed the condition in that same year (WHO, 2015a). This means that about 37% of new cases were not detected and treated. In 2018, out of the 10 million new cases, only 7 million were detected and reported (WHO, 2019). These undetected TB cases in the community serve as reservoirs for high transmission within the community (Pronyk et al., 2001; WHO, 2007).

A review of medical reports of patients with TB showed a delay in health seeking to hospitals (Amenuvegbe et al., 2016). These delays may be due to local beliefs and health seeking patterns especially in settings with alternative and competing medical care providers (medical pluralism). The emic perspective (local beliefs) about the causes of a condition is essential as it has implications in service utilization and health-seeking. Medical anthropologists are of the view that understanding the local worldviews of causes of a condition and illness is required for appropriate interventions (Blumhagen, 1980; Nichter, 1994). Many individuals, especially those from non-Western cultures, have been reported to have a holistic concept of health and disease that entails a spiritual aspect of disease causation (Kendler, 2008) and affects the management of the condition (Nukunya, 2009). This local concept of illness with respect to TB remains unexplored though critical in the drive to achieve the global agenda of ending TB by 2030. The aim of the study was to explore the local (emic) perspective of causes, signs and symptoms, and management of tuberculosis and its implications for the end tuberculosis global agenda in the UWR of Ghana.

2. Methods and materials

2.1. Ethical approval
The proposal for this study was reviewed and approved by the Ghana Health Service Ethics Review Committee (GHS-ERC 17/11/2015). All participants signed an informed consent form before participation.

2.2. Study area
This study was conducted in four districts in the Upper West Region of Ghana. These districts include: Wa Central Municipality, Wa East, Wa West, and Jirapa. The selection of the districts was based on the dominance of the four ethnic groups in the region (Waala, Dagaaba, Sissala, and Lobi). The Wa Central Municipality is dominated by the indigenous Waala ethnic group and is the district with the regional capital. The Wa West on the other hand is also inhabited by the Lobis whilst the Wa East has Sissala ethnic group. Jirapa Municipality is also dominated by the Dagaaba ethnic group.

2.3. Theoretical underpinnings of the study
Theories provide a guide to research and explain human behaviours (Green, 2000). Therefore, theories are very essential in designing social science research (Venable, 2006). In this study, we adopted the social cognitive theory by Albert Bandura. The social cognitive theory describes the reciprocal relationship between three constructs; cognition/personal, behaviours, and the environment (Bandura, 1999). These factors can act independently but may also interact in a reciprocal manner. The cognitive/personal determinant includes factors such as beliefs about one’s competence; causes of success and failure; and a sense of control, values, and goals. In this study, personal determinants include knowledge, attitude, and beliefs about the causes of tuberculosis and management of the condition. The environmental component includes factors such as the cultural context, exposure to a disease, and social support that may be reinforcing or inhibiting a positive behaviour. The behaviour (or the performance) of the individual includes health-seeking, medication adherence, and coping responses. The social cognitive approach focuses on the
demand side of promoting health (Bandura, 2004), and therefore an important theory to explain the emic system that fosters the type of care one seeks when ill.

2.4. Selection of study participants
The Upper West Region has been classified as rural and urban based on Ghana Statistical Service (GSS) categorization (GSS, 2013). In all the study was conducted in eight different communities (2 among each ethnic group-1 rural, 1 urban) in the region (Figure 1).

At the community level, a purposive sampling procedure was adopted to select the actual participants. In the purposive sampling technique, the researchers choose the sample based on who they think is appropriate for the study (Green & Thorogood, 2004). Patton recognized that the purposive sampling technique is widely used in qualitative research and is appropriate to identify and select information-rich cases for the most effective use of limited resources (Patton, 2002).

The study included community members who were aged 18 years and above. Only indigenes resident in the area for at least five years were included in this study. This was done to ensure participants had foreknowledge about the norms in the community.

2.5. Data collection strategy
We used focus group discussions (FGDs) and in-depth interviews (IDIs) for this study. The FGDs were meant to elicit information on norms with respect to causes of tuberculosis, signs and symptoms, and management of the condition in the various communities. In all, we conducted eight FGDs (N = 72), four female and four male groups, subdivided into urban and rural (Table 1). Local language-Dagaare, Sisali, Waali, and Lobi was used for FGDs conducted in the four areas inhabited by the ethnic groups. During the discussion, moderators provided inputs to guide the conversation. It took between 60–80 minutes to complete a session.

In addition, four traditional healers who were mentioned as providing care for people with tuberculosis were recruited for an in-depth interview. Traditional and folk health care practitioners are experts in the emic perspective about illness behaviour, interpretation, health-seeking, and management (Tabong & Adongo, 2013). This was done to get a better understanding of the procedure that a sick person had to go through and the type of care provided. Finally, we selected 15 TB patients to provide their perspective about the condition and their health-seeking behaviour.

2.6. Data collection tool and procedure
Semi-structured FGD and IDI guides were developed and used for data elicitation. FGD guide elicited normative information on the community perception ad beliefs about various types of
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| Gender       | Rural Community | Urban Community |
|--------------|-----------------|-----------------|
|              | Number of FGDs | Number of Participants | Number of FGDs | Number of Participants |
| Male         | 2               | 17              | 2              | 18              |
| Female       | 2               | 18              | 2              | 19              |
| Total        | 4               | 35              | 4              | 37              |

In-depth interviews

| Expert Interview with traditional healers | 3 (3 Males, 1 Female) |
| Patients with Tuberculosis               | 15 (10 males, 5 females) |

Some coughs and tuberculosis as well as the management strategies adopted. However, the IDI guide focused on the folk medicine aspect of the cough and tuberculosis. So, we asked questions about types of cough, illness, and health-seeking behaviour.

The topic guides were first designed in English and translated to the local languages using a back-to-back strategy. A pilot study was conducted in the Greater Accra region. All the interviews were conducted between March–September, 2016. The lead author conducted all interviews.

During data elicitation, the researcher wrote detailed descriptive field-notes. The notes covered; interviewer-interviewee interaction, non-verbal communication, environment, and reflections from interview content. Generally, field-notes are reported to deepen reflection and understanding of those experiences in the field (Bowling, 2014).

2.7. Data analysis

The qualitative data were audio-taped using a digital voice recorder. After each interview session, the recordings were replayed to participants to listen and to make the necessary additions, subtractions or further clarify points they deemed necessary. Maynard and Purvis (1994) have indicated that participants listening to tapes after interviews is an important step in qualitative data analysis even though this is often overlooked. The taped interviews were then transcribed into Microsoft word. Qualitative researchers are divided on the most appropriate way to transcribe recorded interviews. Whilst some researchers advocate for absolute content in the transcription process, others recommend that some level of editing should be done. However, the editing should be done in such a way to maintain the original meaning of the statement by the respondents (Poland, 1995). Corden and Sainsbury (2006) are of the conviction that editing can greatly improve the readability and flow of the text as well as increase comprehension as normal speech, is often marred with word repetitions and “stops and starts”.

Some editing was done during the transcription of IDIs that were conducted in English to correct grammatical deficiencies as suggested by Poland (Poland, 1995). Analysis of data occurred concurrently with data collection with the aim of ending the study at the point of saturation. QSR NVivo 11 was used for the data analysis. Thematic analysis was adopted in analysing the data. Thematic data analysis process consists of data reduction, display, identifying themes in the data, drawing conclusions, and verifying the entire analysis process to ensure that the conclusions are supported by the data (Guest et al., 2012; Miles & Huberman, 1994).
We developed a codebook prior to data collection. This codebook was revised after data collection to incorporate new ideas from the data. Some of the pre-determined items in the codebook include; beliefs about causes of TB, mode of transmission, signs and symptoms, and management of various types of conditions that present with cough. We coded sections of the transcripts as free nodes and later as tree nodes using the codebook. Whilst doing the coding, memos were written in specific relevant areas. Memoing involves putting down initial ideas, issues, observations, and patterns that can be connected, compared, or contrasted while doing the coding (Bhattacherjee, 2012).

3. Results

3.1. Socio-demographic characteristics of participants
Thirty-five (48.6%) FGD participants were males, 25 (34.7%) had no formal education whilst 12 (16.7%) attained tertiary education (Table 2).

3.2. Local or emic views about causes of cough and tuberculosis
Locally, TB was believed to be caused by both spiritual and physical factors. The belief that TB could be caused by curses or bewitchment emerged well-entrenched in all FGDs. Cough during sex was mentioned as a cause of TB. It was widely held that the cough could be induced by a curse. As a result of the curse, the person will involuntarily cough whilst having sex. Cough during sex is a taboo which attracts a punishment of being inflicted with TB. Some participants shared their views as follows:

| SDC                        | Frequency (n) | Percentage (%) |
|----------------------------|---------------|----------------|
| Gender                     |               |                |
| Male                       | 35            | 48.6           |
| Female                     | 37            | 51.4           |
| Age (years)                |               |                |
| <25 years                  | 13            | 18.1           |
| 25–34                      | 24            | 33.3           |
| 35–44                      | 19            | 26.4           |
| >44 years                  | 16            | 22.2           |
| Educational attainment     |               |                |
| No formal education        | 25            | 34.7           |
| Primary                    | 18            | 25.0           |
| Secondary                  | 17            | 23.6           |
| Tertiary                   | 12            | 16.7           |
| Ethnicity                  |               |                |
| Dagaaba                    | 19            | 26.4           |
| Sissala                    | 20            | 27.8           |
| Lobi                       | 18            | 25.0           |
| Waala                      | 15            | 20.8           |
| Religion                   |               |                |
| Africa Traditional Religion| 18            | 25.0           |
| Christianity               | 36            | 50.0           |
| Islam                      | 18            | 25.0           |
When one cough during sex, you get that condition . . . . It could either be the man or the woman but the one who cough is free but the other person gets infected unless the person cough back (45-years male, FGD, rural).

A person can be cursed to get the korønkpong (Tuberculosis). In such a case, you are cursed to cough during sex and this will make you get it (36-years Old, woman, FGD, urban).

Abuse of alcohol was also mentioned as a local cause of TB. The emic view was that an individual who misbehaves in the community could be cursed to abuse alcohol. Therefore, such people contract TB as a punishment inflicted on them for committing an offense or breaking social norms. This punishment will make the offender cough whilst having sex to be afflicted with korønkpong/Kusibine. This is reported as a common punishment for people who are in the habit of “sleeping with other people’s partners”

In this community, both males and females drink a lot of alcohol and this makes them go about sleeping (having sex) with other people partners. Therefore, you can be cursed to get that condition, so that you cannot sleep with anybody partner again (36-female, FGD, rural).

You see this boy over there (pointing to a man), when he gets up in the morning, he goes around from bar-to-bar drinking. Some months ago, he was influenced by the alcohol and he slept with another man’s wife and has been given the condition korønkpong. Now see how lean he is, he coughs from morning to evening (68-year opinion leaders, FGD, urban).

Sin against the gods, punishment from a deity, witchcraft, and evil-eye were also mentioned as local causes of the condition. Forty-six years male study participant shared his views during an FGD held in a rural setting as follows:

In this community, some people can use their evil eye to give the korøngpilah or korøngk pong. It can also be caused by witchcraft and deity.

Participants claimed that two types of TB exist in the community. The one caused by spiritual factors and another which is caused by a micro-organism and is contagious. The latter, in their opinion, could be transmitted through the activities of houseflies, sharing of utensils, toiletries, and other items contaminated by sputum from an infected person. As a result, community members have intense fear for people who are believed to be suffering from this contagious type of TB. Hence people with this type of TB are isolated and have to acquire their own utensils. The following quotes illustrate these points:

Houseflies can transmit some type of TB . . . flies can transmit the organism to your food and when you eat the food you get it (31-years woman, FGD, rural).

Since the time I was told I had TB and put on the treatment, I don’t share anything with my family: food, bowls, cooking utensils. It is the belief of the community that when you share these things with someone with the condition, you can get it (51-years male TB patients, IDI).

3.3. Emic perspective about signs and symptoms of TB

Continuous, persistent, and prolonged cough was the symptom of TB most frequently mentioned by all groups. This productive cough was described as deep with long duration than that of catarrh or a common cold, which is described as “kørong” (cough). The ethno-semantic “korønkpong” or korøngpilah (in Dagaare/Waale) or korøngkpieng” (in Lobi) or “Kusibine” (in Sissala) is used to depict the deep and fearful nature of the cough. These local terms clearly describe a cough that is of long duration, deep and fatal. In some instances, TB is described as “korøngpilah”, an ethno-semantic that portrays a cough that results in emaciation and discolouration of the skin. To participants, the skin of people with TB become “whitish”. Some participants shared their local understanding of the nature of TB-related cough as follows:
This condition will make you cough too deep for weeks until your chest can no longer take it. That is why it is called kŋonkŋong which is different from common Kɔŋɔŋ. The person also becomes white like he does not have blood so we also call it kŋɔŋpiŋ (35-years male, FGD, rural).

... We call the condition kusbine in our local language because of the nature of the troubling cough that the person gets. This cough is often worse in the night and the person cannot sleep (54-year male, FGD, rural).

Another sign which was described as characteristic of TB was shortness of breath. Participants narrated that the deep cough causes shortness of breath which could result in a fatal outcome:

One of my neighbours had that condition, he can cough until he had shortness of breath. This made us suspect that she was suffering from the kŋonkpiŋ. It is a very bad condition, you cannot even sleep in the night (31-years female, FGD, urban).

Other key signs and symptoms such as fever, loss of weight, and loss of appetite were also mentioned. Participants attributed the loss of weight to vomiting during and after meals. The protracted cough during meals induces vomiting. This vomiting and persistent loss of weight according to respondents make the disease bear similarity to “gbɛmiele baalong” an ethno-semantic for HIV. “Gbɛmiele” literally means extreme wasting of the legs as a result of weight loss. The following illustrative quotes buttress these points:

That person’s body will also be hot and he cannot eat. Anytime the person is eating, or the person’s stomach is full, the cough becomes serious, so they end up growing very lean (56-year man, IDI).

Apart from the cough which is the beginning of the condition, when you do not seek treatment early, your chest also becomes painful, your body becomes hot and you vomit anytime you eat food. This will make you grow lean as if you have gbɛmiele baalong (HIV) (34-year female, FGD).

Participants were of the view that the loss of weight and the appearance of the person leads to stigmatization of people with TB. To escape stigma, people with the condition tend to stay away from public gatherings and are hidden by their relatives:

Some people with tuberculosis look like HIV patients and people stigmatize them and their family members. As a result, relatives will hide the person and prevent him or her from going to public places (43 years, female, rural)

It was also mentioned that symptoms in the early stages of the disease are not very specific and often confounded with other common local conditions such as kaakii, the local term for asthma. The term kaakii is used to describe the condition because of the retraction of the chest and the wheezing sound during breathing.

One of the reasons why people with cough do not go to the hospital is because some of the coughs are often attributed to kaakii which we believe herbs are very effective against it (48-years male, FGD rural).

Some of the coughs are always due to kaakii and in this community, we have some herbs that are very good for this cough. The herbalist can use their special knife to make marks on the chest and apply the herbs. So, people with cough resulting from kaakii will not go to the hospital because it is believed that when you send such people to the hospital, they will die (36-year female, FGD, rural).
Some coughs were also attributed to “maarong” or “nyebiebaalong”, a local term for pneumonia. According to participants “maarong” occurs when an individual’s chest or lungs locally termed “nyebie” is exposed to extreme cold. A participant shared his view about this condition as follows:

We have different types of disease that make you cough. One is the nyebiebaalong which affects your chest. You will cough, have sores in your anus, and also chest pains. This one the herbalist will give you some herbs to boil, bath and in some instance, you use it as enema.

3.4. Management of coughs and tuberculosis

In view of the belief that cough during sex, curse, sin, witchcraft, and break in social norms could cause TB, it affected the management of the condition. The general belief was that spiritual management was more effective. Specifically, patients with this condition have to undergo spiritual cleansing before physical remedies can be effective. Two participants in the study shared their views as follows:

When you are cursed to cough during sex and you get the krongkpong you will need to see a spiritualist or the herbalist takes you through some rituals which will clean your soul and spirit from that curse. Otherwise, you can get any medication for a hundred years but you will never get cure (Male Traditional healer, IDI).

The krongpilah that one gets because you coughed during sex is a curse. So that curse will have to be removed before any medicine can work. Without that ritual, no medicine will work. That is why we see the traditional healers who know how to remove the curse (63-year man, FGD, rural).

In the management, the traditional healer and/or diviner will first have to consult the gods to determine the exact cause of the illness. To do this, the patient or relatives are made to provide animals mostly a fowl for sacrifice. The gods and ancestors are then consulted in a special room (see Figure 2).

Once consulted, the gods and/or ancestors provide direction on the best way to manage the condition. In some instances, more animals have to be sacrificed to appease the gods or ancestors. The cleansing process then follows. This process is mainly a way of exercising the spirits to pave the way for the use of physical substances. The physical substances used in the management of TB are typically a combination of herbs for ingestion, warm inhalation/steaming, or bathing. A traditional health shared his experience as follows:

When you come to us the traditional healers, we consult the gods and ancestors to determine the cause of the condition. We sometimes have to sacrifice the fowl to the gods for this purpose. Once we know it is a spiritual condition, we clean your first before giving you herbs to take and bath (Traditional healer 1, IDI)

Some patients revealed their condition especially the cough subsided after undergoing the cleansing and taking medicines received from traditional and local health outlets. A TB patient shared his experience as follows:

After going through the rituals, the medicine actually reduced the cough for some time but it returned after some months (45 years, TB patient)

There was no consensus on the duration of treatment. According to traditional healers, some people can get their healing within a month but others will have to be on treatment for a longer period. The specific cause of TB was essential in determining the duration of the treatment. Patients may be detained at the healer’s outlet for the management or given treatment to go
home. Reviews are scheduled depending on the quantity of concoction the individual is able to afford. A traditional healer shared his views as follows:

The treatment period depends on the cause of TB, it can go for a month or more. So, we give the medicine to take home and come back when is finished.

Participants identified various types of conditions that present with cough, their causes, and management (Table 3).

3.5. Health seeking behaviour of TB patients
All TB patients reported a delay of several months, sometimes a year or more, between the onset of the symptoms and initiation of TB treatment. For several TB patient's appropriate treatments was delayed because they initially ascribed the cough to other conditions and spiritual factors. Prolonged self-medication was reported among all patients with TB. Only after symptoms persisted for a period of time that patients felt the need to seek medical attention. The following illustrates these points:

We give traditional herbal medicine and when the person is not better, we send the person to the clinic. The herbalists live with us in the community, so it is easy to go to them (45-years Married man, FGD, rural).

There is even one at Gurungu (Community) and one at Tokali (community). They have the local medicine for TB and I went there for treatment first two months but one day I felt dizzy and fell down and was rushed to hospital (36-years Male TB Patient, IDI).

The delay was also attributed to concealment of the condition as a result of the stigma. A female participant shared her views as follows:

Figure 2. Typical room where the gods are consulted for direction (consulting room).
Some patients do not seek health care because they have to conceal the condition from community members, otherwise, your entire household will be stigmatized (36 years female, FGD, Rural)

### 3.6. Social support for people with tuberculosis

The study found that some TB patients were isolated and stigmatised by their family members. People with the condition have to sleep in a different room. In extreme cases, people who were married have their partners leaving them as a result of this condition. The following quotes illustrate these points:

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**Table 3. Emic causes of cough, signs and symptoms, and management in the Upper West Region**

| TB/Cough related illness | Local name (Dagaare/Lobi/Sissali) | Cause(s) | Signs/ Symptoms | Treatment | Prevention |
|--------------------------|-----------------------------------|----------|-----------------|-----------|------------|
| Asthma                   | Koaki                             | Spiritual, bewitchment, and hereditary | Cough, chest of lizard (badarenyaa), irregular movement of the chest | Use of local herbs, divination, making incisions on the chest and smearing the incised area with herbs or cola | Making of marks on the chest and applying herbs |
| Catarrh (Cold)           | Korang                            | Exposure to cold air, exposure of the chest to cold | Running nose, dry cough, pain on swallowing | Use of ginger, herbs, self-medication with cough mixture | Covering the body at night, avoiding cold water during the dry season |
| Pneumonia                | Maarong or Nytiebaalolong         | Exposure to cold weather especially the chest | Cough, chest pains, flaring of the nose, sores at the anus | Use of warm compresses on the chest, and anus, use of local herbs, hot compresses on nose and chest, use of enemas | Avoid exposure of chest to when the weather is cold, covering of children when the weather is cold, avoid drinking cold water |
| Whooping cough (Perosis) | Konhiin/Keehin-hila               | Caused by spirits, a curse, bewitchment | Cough, chest pain, shortage of breath, flaring of the nose | Hanging of padlock key on the neck to drive away spirit, wearing of talismans on neck and arm, use of herbs, making of marks on the chest and applying herbs | Wearing a padlock key and talisman on the neck, avoid offending the gods, and adults |
| Tuberculosis             | Karangkpong or Karangkpieng or karangplah or Kusbine or Kesubine | Spiritual, sex, cough during sex | Cough, chest pains vomiting loss of appetite, loss of weight, fever, whitish skin, blood in sputum, emaciation | Spiritualist, herbal, medical | Avoid having sex with someone partner, avoid the use of alcohol, avoid sharing utensils and close to the person with the disease |
... I have my eating bowl and drinking cup which I use alone. I don't share them with my wife and children. When I was diagnosed as having TB, I have been sleeping alone in the other room and my wife and the children are also sleeping in the other room (36-years male TB patient, IDI).

One man in this community, his wife run away when the man had the condition because the woman was afraid, she will also get the condition. So, if you get it and you are married and you don't have a good partner the person may run away from you (42-years female, FGD, rural).

As a result of the stigma, patients with the condition stay away from public gatherings for fear of being humiliated. This according to respondents is even more pronounced during religious gatherings that require people to either sit or stand close to one another. The following quotes support these assertions:

It is very difficult living with this condition, people don't want you to come close to you. Even in a public place, people will not want to come close and when they see you coming close to them, they move a distance (52-year male TB patient, IDI).

For me, since I was told I had Koronkpong and put on treatment, I don't go to a public gathering because people will be pointing fingers at you as the person with the disease. In church when you sit at a particular bench, no one will join that row (42-years female TB patient, IDI).

The study also explored the views of people with TB on the DOTS system of taking the medication as social support. The results showed that patients found the system very useful in ensuring that they take their medications. This strategy according to respondents served as a motivating force to adherence to medication and regular visits to the health facility. The following quotes illuminate these points:

It is very encouraging, because at least someone will daily encourage you to take the drugs, otherwise I am sure many of us with the condition will not complete the treatment. It is not easy taking drugs for such a long time (21-year male TB patient, IDI).

At the beginning, I was finding it difficult to take the drugs but because I had to take it in the presence of someone, I was forced to take it. I will confess, if it was not for that I would have stopped the medication because initially, it was difficult. People were also afraid of me but because my brother is always with me and has not contracted the condition, people are beginning not to fear the condition (36-year female TB patient, IDI).

4. Discussion
The global agenda is to end TB in 2030. However, there are country-specific challenges that need to be addressed to achieve this agenda. Local beliefs about TB can adversely affect progress and inhibit the country's drive towards ending the condition. This study used data from in-depth interviews with patients with TB, traditional healers, and focus group discussions with community members to identify the contextual issues and strategies to increase TB case detection. The findings of the study show TB was believed to be caused by spiritual and social factors in both urban and rural settings in the community. The signs and symptoms of TB were also similar to other local conditions which were deemed to have spiritual aetiologic factors. The social and spiritual aetiological factors resulted in the seeking of health care from folk and traditional healers. This illness and health-seeking behaviour undermine TB control efforts by the biomedical health system. Good collaboration between the socio-cultural and biomedical health systems has the potential to increase case detection and management. This will help break the chain of transmission for TB and improve the indicators required to meet the global agenda of end TB by 2030.
4.1. Causes and signs and symptoms of tuberculosis

The belief that TB infection is spiritual, caused by witchcraft, dough during sex, or supernatural conditions in this study has implications for the prevention and care of TB patients. Similar local beliefs about TB have been reported in other countries. In the Philippines, TB was perceived to be caused by weak lungs (Nichter, 1994). In Zambia, Mogensen (1997) reported a form of TB called “kahungo” which is believed to be caused by having sex with a woman who has just had a miscarriage among the Tonga people. This condition was believed to be similar to HIV infection. Associating tuberculosis to HIV and AIDS has also been found to prevent people from seeking health care for fear of being diagnosed with HIV in Malawi (Woolf et al., 2006), a situation that can affect case detection. In South Africa, people believed that TB was caused by the violation of cultural norms which requires an individual from abstaining from sex after the death of a family member and post-spontaneous abortions for women (Edginton et al., 2002). A study in Morocco also reported that people attributed TB to excess water in the abdomen (Ottmani et al., 2008). In their study in Nalonda district in South India, it was found that people attributed TB to spiritual causes such as a sin against the gods, punishment from a deity, witchcraft, evil eye, fate, and imbalance in hot-cold qualities in the body, and bad blood (Venkatraj & Prasad, 2010). These local beliefs result in people with the condition seeking health care from traditional and spiritual healers who may not have the expertise to treat the condition. The untreated patients become reservoirs of infection to susceptible persons in the community. To be able to break the chain of transmission, the infected individual needs to be identified early and treated.

The finding of this study that TB could be caused by lifestyle factors such as abuse of alcohol is not sui generis. In Kenya, TB was believed to be caused by unhealthy lifestyles, intake of local alcoholic drinks, smoking, sharing of facilities with TB patients, and inheritance (Liefooghe et al., 1997). However, it was evidenced by this present study that the relationship between abuse of alcohol and TB is spiritual and not a direct cause as reported in Kenya. A curse for engaging in a promiscuous lifestyle or having carnal knowledge with someone’s partner was cited as the reason for the abuse of alcohol. This was a necessary factor to precipitate a cough during sex to be inflicted with the condition.

The belief in supernatural causes often results in inappropriate health-seeking behaviour. This study shows that individuals with such beliefs seek health care from traditional and spiritual healers as biomedical remedies are deemed ineffective for such conditions. In a plural medical system as practiced in Ghana, people may identify with one or more of the three health systems; the professional sector (biomedical), folks and the popular system (Kleinman, 1978), and in recent times, the spiritual sector. This finding, therefore, requires a good collaboration between formal and informal health systems to cater to both physical and spiritual causes of the condition.

The findings of the study clearly show that knowledge of individuals and the community as a whole about TB is lacking, leading to misconceptions about the condition. The local names given to tuberculosis reflect how people perceive the disease. The ethno-semantics “kwrongkpong”, “karongpilah”, “kusibine”, portray TB as a chronic disease that affects the lungs, caused by spiritual factors, and often a reference to the fatal end is included. Other traditional names emphasize the concept of losing weight or becoming thin. This finding raises doubts about the effectiveness of the current strategies that are used to provide health education to the community on TB. There is therefore the need to refocus and strategize on the medium and channels that are used to provide this health education on the condition.

4.2. Management of tuberculosis

The findings of this study clearly show that TB was attributed to spiritual and social factors. The management, therefore, involves spiritual cleansing to pave way for the use of herbal preparation. This finding is important in designing an intervention to reduce the burden of tuberculosis in communities. Integrating the world view into the design of health promotion messages will be essential. An infected individual who does not seek health care from the hospital will become
a reservoir for TB infection. As reported in an earlier study, Explanatory Models (EMs) affects the type of healer or doctor patients will visit as well the course of treatment they will follow (Farmer, 1993). EMs are influenced by people’s social and cultural contexts and prior experience (Blaxter, 1983; Karasz, 2005).

In recognizing that some Ghanaians have a preference for traditional medicine, the country enacted a Traditional and Alternative Medicine Act (2010) to regulate the practice of traditional and alternative medicine. Nonetheless, this study clearly shows that herbal products are given to patients without approval from the Food and Drug Authority. Some of these substances could be toxic to the body. This calls for the need for the traditional and alternative medicine directorate at the Ghana Health Service to register and regulate the practice of these traditional and spiritual healers. Once this has been done, the herbs produced by these healers could be submitted for approval before use.

The use of local remedies in the management of TB has also been reported in different countries. In Peru, it has reported that patients with cough suspected to be TB used home remedies and local treatment (Oeser et al., 2005). In Kenya, respondents generally recognized that hospital treatment was necessary however, prolonged self-treatment and use of herbal medication were deemed to be more appropriate for TB cure with a shorter duration than western medicine (Liefooghe et al., 1997). Similarly, another study in Rwanda found that people with chronic cough used herbal medicine (Ngang et al., 2007). Though the efficacy of local plants in treating TB is unknown, participants in one study mentioned over 30 medicinal plants that patients with TB are given to take when they visit traditional medical practitioners (Orodho et al., 2011). Similarly, a study among TB patients in Western Kenya found that majority of the patients initially self-treated with herbal remedies or drugs purchased from kiosks or pharmacies before seeking professional care when such treatment did not subside symptoms (Ayisi et al., 2011). In China, it was found that some patients first sought health care from traditional medical practitioners which affected case detection as such health outlets were not well equipped to diagnose TB (Li et al., 2013).

4.3. Contextual issues and effects on TB agenda

Figure 3 shows the pathway of how emic beliefs can affect the end TB agenda. As demonstrated in the results and discussion, the emic views about the causes, misconceptions, and lack of knowledge result in fear, stigmatization of people with the condition, and poor attitude towards people with the condition. The attribution of TB to spiritual aetiological factors results in inappropriate health seeking behaviour. As reported in this study, local remedies are sought which are incapable of treating the condition. These patients, therefore, become the reservoir for infection to other community members. Transmission of infectious diseases relies on three conditions: sources of infection, routes of transmission, and susceptible hosts (CDC, 2012). To be able to achieve the global agenda of ending TB, the source of infection (infected persons) must be detected early and treated. Individuals on antituberculosis become less infectious (Chaudhry et al., 2012).
The stigma and intense fear for the condition also results in concealment as well as delay in seeking health care. This further results in secondary cases as patients remain infectious until they are put on appropriate treatment.

5. Limitations

Even though this study provides useful insights into how the emic perspective about TB can hinder progress towards achieving the end TB global agenda in Ghana, it is important to note a few limitations. One weakness in qualitative studies is the inability to generalize the findings (Bowling, 2014). Nonetheless, the use of the maximum variation sampling technique involving members from different communities and data triangulation strengthens the findings of the study whilst increasing the credibility, dependability, and trustworthiness (Nowell et al., 2017) of the evidence from the study.

6. Conclusion

First, tuberculosis has been given a superstitious label by community members and therefore, the treatment they seek is often inappropriate, a key social factor that affects case detection. This has wide-ranging public health implications with the current passive case detection strategy being employed by the National Tuberculosis Control Programme (NTP), as those non-orthodox health outlets are not currently collaborating with the NTP programme. Second, owing to the misconceptions about the causes of TB, many seek health care from non-orthodox health outlets that are not well-resourced to diagnose and treat TB. The local beliefs about TB, consultation with the traditional health sector as well as the social stigma attached to the disease increase patient’s delay. This will hinder progress towards achieving the end TB global agenda. Screening of clients of folk healers for TB by public health practitioner increase case detection and treatment. The provision of culturally sensitive health education, taking into account local beliefs about TB would help increase knowledge and reduce misconceptions about the condition.

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Author contributions

PT-NT designed the study, participated in data collection and analysis, and prepared the draft of the manuscript; PA and PBA provided scientific advice on the design of the study and data analysis. All authors read and approved the final manuscript.

Data availability

Majority of the anonymized data have been included in this manuscript. Providing the individual transcripts will breach the confidentiality and anonymity requirement during ethical approval. As a result, we do not have permission from the participants to share the raw data. All interested researchers/readers/persons who meet the criteria for access to confidential data can access the data set from the corresponding author via this email address: ptabong@ug.edu.gh

Competing interest

The authors declare that no conflict of interest exists.

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