Knowledge of tuberculosis and factors responsible for low case detection in the Amansie Central District, Ghana

Eugenia Afoakwa[a] and John Taylor[b]

a Faculty of Public Health and Allied Sciences, Department of Public Health. Catholic University College, Fiapre, Ghana.
b Department of Biochemistry, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

Correspondence: John Taylor ekowtaylor@yahoo.com

Background: Tuberculosis (TB) case detection rate has remained consistently low in the Amansie Central District despite the implementation of the National TB Programme (NTP).

Objective: To assess the factors influencing this low case detection of TB.

Method: Information was collected from 120 individuals and 40 health workers were randomly selected from four health facilities that provided TB treatment.

Results: All patients had a good knowledge of TB. There was no statistical association between patients knowledge and educational level (p>0.05). However, knowledge on the causes of TB was strongly associated with occupation (p<0.05). 53% of patients indicated health facilities as the first place of visit when sick and how they are received was dependent on education (p=0.005) and marital status(p<0.05); 60% of health workers were not trained on the NTP despite 93% being aware of the programme, and 62.5% reported not initiating contact tracing after disease confirmation. Only 34 of the 120 patients reported health workers visiting them regarding TB.

Conclusion: Development of interventions such as HCW training on TB treatment and care, and establishing referral networks that bring TB information and services closer to community members can contribute to improved TB case notification.

Keywords: tuberculosis case detection, knowledge of tuberculosis, health-seeking behaviour, Health worker attitude, Ghana.

INTRODUCTION

There are huge gaps in the performance of national tuberculosis (TB) control programmes [1]. It is estimated that 3.7 million TB cases, including 1.6 million with sputum smear positive disease, were not reported by the Direct Observed Treatment Strategy (DOTS) programmes [2].

Attempts to curb and control this problem led to the 'WHO-CIDA INITIATIVE' which began in 2009 in Ghana, with the aim of addressing the country's low detection of TB cases. This initiative successfully detected 15% additional TB cases over the period 2009 to 2013 leading to an interim achievement [3]. The incidence of new cases worldwide is falling too slowly at around 1%/ year and levels of case detection and successful treatment are far too low. Globally, only 12% of the estimated cases were detected in 2009 and less than 5% were properly treated [4].

According to the Tuberculosis Surveillance Unit, in the Ashanti region of Ghana, only 2101 of the 9583 expected cases were detected in 2008, only 2106 out of 9910 in 2009, and only 1101 out of 10219 cases in 2010. Case detection rate has remained below 25% from 2010 to 2015 [4]. Also in the Amansie Central District in the Ashanti region of Ghana, 45 out of 107 expected cases were detected in 2014 and only 18.2% in 2015.

This has been the trend in most districts and regions in Ghana leading many to hypothesize that, either the projections are exaggerated, the cases in the communities are not reporting to the health facilities or the cases are not being detected at the health facilities [4] which led to this study.

We sought to gain a deeper understanding of the reasons and assess the factors influencing the persistently low TB case detection rates in the District. The contextual scope is to detail and examine behavioural changes and socio-demographic influences through quantitative and qualitative analysis of data. It focuses primarily on

knowledge of TB, health-seeking behaviour and attitudes of healthcare providers. Our purpose was to understand the main bottle necks in TB case detection, and provide evidence based recommendations for improving TB case detection and informing policy decisions in Ghana.

METHODOLOGY

This was a randomized cross-sectional study conducted between March and May 2017 in the Amansie Central District, Ghana among four of the 12 health institutions that provide TB treatment. A total of randomly selected 120 patients present in these 4 health facilities agreed to participate in the study. Forty health workers (doctors, nurses, midwives) were also selected.

Information was collected through interviews by public health students using structured questionnaires.

The study was approved by the Committee on Human Research Publication and Ethics (CHRPE) of the School of Medical Sciences, KNUST and Komfo Anokye Teaching Hospital.

Data entry and analysis was done using SPSS version 20. Quantitative data were used to generate simple descriptive information. The chi-square test was used to determine association and dependence among variables.

RESULTS AND DISCUSSION

Socio-Demographic characteristics of study participants

Of the 120 patients and 40 health workers, 90 (56%) were females and 70 (44%) were males. The mean age (in years) of the health workers was 37.43 ± 5.97 (p= 0.34) and of the 120 patients was 39 ± 3.79(p=0.24).

Among the 120 patients: 49.1% had basic or primary education and 29.2% reached senior high school; 47.5 % were married, 38.3% were single and 7.5% were divorced; 39.2% were farming, 26.7% were trading, 15.8% were civil servants, 2.5% were students and 15.8% were unemployed. Among the health workers, there was a mean working years' service of 5 (± 1.34) years; 82.5% were nurses, 5% were doctors, 5% were physician assistants, and 7.5% were midwives.

Knowledge of TB

Table 1 shows that the knowledge on causes and treatment of TB among patients was good; the majority (87.5%) knew TB was a disease and 58% knew that it was caused by germs. Knowledge of TB was independent of educational level (p= 0.794) as has been proposed by many studies [5]. Community involvement is crucial for any successful TB control programme [6].

The main sources of patients' knowledge of TB was the radio or health workers – see Table 1. A study conducted in India indicated health workers as the major

Table 1. Knowledge of patients on TB (n=120)

Variable	n (%)
What is Tuberculosis?	
Disease	105 (87.5)
Curse	11 (9.2)
Don't Know	4 (3.3)
Sources of information on tuberculosis	
Local Information Centre	3 (2.5)
Radio	43 (35.8)
Health worker	40 (33.3)
Relative	29 (24.2)
School	5 (4.2)
Causes of tuberculosis	
Witches	9 (7.5)
Curse	10 (8.3)
Germs	70 (58.3)
Bad Air (Odour)	16 (13.3)
Don't Know	15 (12.5)
Transmission of tuberculosis	
Cough	59 (49.2)
Cough/Sneezing	46 (38.3)
Sex/Sharing of sharp objects/cough	5 (4.2)
Sex/Cough	3 (2.5)
Sharing of sharp objects/cough	4 (3.3)
Contact with infected person/cough	3 (2.5)
Symptoms of tuberculosis	
Cough	30 (25.0)
Cough/weight loss	35 (29.2)
Cough/night sweat/weight loss	12 (10.0)
Cough/fever/night sweat	2 (1.7)
Cough/night sweat/weight loss/diarrhoea	19 (15.8)
Weight loss/fever	10 (8.3)
Weight loss	12 (10.0)
Is tuberculosis curable?	
Yes	92 (76.7)
No	3 (2.5)
Don't Know	25 (20.8)
If yes, how can it be cured?	
Herbs	10 (8.3)
Orthodox medicine	78 (65.0)
Prayer camp	4 (3.3)
Not applicable	28 (23.3)

Table 2. Knowledge of health workers of TB (n=40)

Variable	n (%)
Awareness of National TB Programme	
Yes	37 (92.5)
No	3 (7.5)
Trained on NTP	
No	24 (60.0)
Yes	16 (40.0)
When is a TB case suspected?	
When cough is persistent/ night sweat/ chest pains	27 (67.5)
When the person cough persistently	9 (22.5)
When cough is persistent/ night sweat	4 (10.0)
Actions taken when a case is suspected	
Take sample	35 (87.5)
Refer to the next level	5 (12.5)
If sample, what is taken?	
Sputum	35 (87.5)
Not applicable	5 (12.5)
Storage of sample	
No	31 (77.5)
Yes	4 (10.0)
Not applicable	5 (12.5)
Persons reported to when a case is confirmed	
TB co-coordinator	37 (92.5)
The in-charge	2 (5.0)
Refer	1 (2.5)
Role played after a case is confirmed	
Education	28 (70.0)
Treatment	9 (22.5)
None	3 (7.5)
Frequency of counselling patients during treatment	
Monthly	25 (62.5)
Weekly	10 (25.0)
Quarterly	1 (2.5)
Not applicable	4 (10.0)
Delivering of TB health education to community	
Yes	26 (65.0)
No	14 (35.0)
Contact tracing of patients	
No	25 (62.5)
Yes	15 (37.5)

Table 3. Health seeking behaviour of patients (n=120)

Variable	n (%)
Best place for tuberculosis treatment	
Health facility	105 (87.5)
Drug store	6 (5.0)
Traditional healer	5 (4.2)
Prayer camp	4 (3.3)
Reasons for selecting such places	
Easily accessible	49 (40.8)
Healing is fast	41 (34.2)
Less costly	24 (20.0)
Effective treatment	6 (5.0)
Payment for tuberculosis service	
No	112 (93.3)
Yes	8 (6.7)
If so, where was payment made?	
Dispensary	6 (5.0)
Laboratory	2 (1.7)
Not applicable	112 (93.3)

source for disseminating information on tuberculosis [7]. On TB transmission, 49% of patients indicated cough, 38% stated cough and sneezing and 4% indicated sex, sharing objects and cough (Table 1). In comparison to another Indian study [8], our patients showed more correct responses.

Knowledge of TB among health workers was also good (Table 2). This high level of awareness is likely to be associated with increased case detection. However, no mechanism was available for tracking suspects. Very few of the nurses (37.5%) initiated contact tracing after the diagnosis of a sputum positive case. A study in South Africa showed contact tracing to be a powerful means of improving case detection [9] and failing to practice it, is a weakness and leads to low case detection. Despite the high knowledge and awareness of the health workers, 60% were not trained on the national TB programme. 65% of health workers were reported to be giving TB health related education in the community and even among these people it was not frequent. Direct and indirect methods of health education significantly enhance awareness, spread and prevention of TB and its relevance in these settings cannot be overlooked [10].

Health seeking behaviour

TB control is faced with the problem of getting patients to seek care especially when the level of formal education is low. The Technical Policy and Guidelines for HIV/TB Collaboration on Ghana has identified late reporting of patients for medical care, late diagnosis

Table 4. Relationship between some socio-demographic characteristics and how patients are received

	Cordially (n)	Cold heartedly (n)	Others (n)	Total (n)	p-value
Educational level					
Basic Education	55	4	0	59	0.005
SSS/TECH	29	5	1	35	
Graduate	17	9	0	26	
Total	101	18	1	120	
Marital status					
Single	37	9	0	46	0.009
Married	50	7	0	57	
Divorced	8	1	0	9	
Widowed	6	1	1	8	
Total	101	18	1	120	

and HIV/TB co-infection as challenges confronting the DOTS implementation [11]. Seeking care from traditional healers is common and may account for the delay to seek medical care [12]. Among our patients 87.5% said the best place for TB treatment is the health facility (Table 3). Their reasons included accessibility (41%), fast healing (34%) and less cost (20%).

Accessibility of healthcare is a major problem to TB case detection especially in low resource settings [13]. The uncontrolled nature of settlements in these regions has necessitated many rural inhabitants to rely on traditional healers in close proximity or seek healthcare at urban areas due to the absence of a specialised clinic for such services.

Attitude and activities of health workers

Based on previous studies [1], we examined the association between marital status and education and how patients are received. Education (p=0.005) and marital status (p=0.009) affected how patients were received (Table 4). These data show that one is less likely to be treated well by health workers if one is less educated or not married. Married people are considered responsible and are well respected in the community. Inequalities in education greatly affect how patients are received. This is problematic for TB case detection because individuals are less likely to visit the health centre due to these factors. The general acceptance of health workers as caring and empathetic answers the question of the contribution of health workers in TB case detection.

TB is characterized by stigma and therefore the ability of health workers to show care allows for improvement in case detection despite the variations in how they are

Table 5. Attitude and activities of health workers

Variable	n (%)
Home visit by health workers in connection with TB	
No	86 (71.7)
Yes	34 (28.3)
If yes, what information was given?	
TB is curable	28 (23.3)
Avoid spitting	2 (1.7)
Health education	2 (1.7)
TB is curable	2 (1.6)
Not applicable	86 (71.7)
Relationship with TB patients in the community	
Good	59 (49.2)
Very good	37 (30.8)
Fair	19 (15.8)
Very poor	5 (4.1)

received in the hospital. This is important as it allows and provides the right motivation for persons to seek care. The majority (71.7%) of patients said that health workers do not make home visits in connection with TB (Table 5). This poses a threat to case detection. A study in rural India identified health information given by health workers through periodic home visits improves health-seeking behaviour [14].

CONCLUSION AND RECOMMENDATION

Health workers and patients were knowledgeable with regards to TB. Overall, educational level had less association with their knowledge on TB than marital status and occupation. A little above half of patients indicated health facilities as the first place of visit when sick and how they were received was dependent on factors such as education and marital status. More than two-thirds of health workers were found to not have been trained on the NTP despite their awareness of the programme and 62.5% reported not initiating contact tracing after disease confirmation. Very few individuals reported that health workers visit them regarding TB. The study could not investigate the effectiveness of laboratory investigations in contributing to tuberculosis detection. We therefore recommend a further study into this field.

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