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Assessing Knowledge, Attitudes, and Practices on Tuberculosis and Their Influence on Case Detection: A Facility-Based Study at Father Thomas Alan Rooney Memorial Hospital in Amenfi West Municipality, Ghana

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Abstract

Tuberculosis (TB) continues to pose a significant public health threat in Ghana, particularly in rural areas where delayed diagnosis and persistent stigma impede early case detection and treatment. This study assessed the knowledge, attitudes, and practices related to TB among patients and healthcare workers at Father Thomas Alan Rooney Memorial Hospital in the Amenfi West Municipality. A cross-sectional mixed-methods design was employed involving 303 participants, using structured questionnaires and key informant interviews. Quantitative data were analysed using descriptive statistics, chi-square tests, and logistic regression, while qualitative responses were thematically examined. Findings revealed that although 75.9% of respondents acknowledged TB as curable, only 59.4% correctly identified its bacterial cause and 58.1% understood its airborne transmission. Higher education and health worker status were significantly associated with better TB knowledge. Stigma remained prevalent, with nearly half of respondents expressing discomfort interacting with TB patients and over a quarter reporting delayed care-seeking due to fear of social judgment. Qualitative data reinforced these findings, highlighting widespread misconceptions, spiritual interpretations of TB, and inadequate health communication. The study concludes that targeted health education and stigma reduction initiatives are urgently needed, alongside capacity building within health facilities to improve TB detection and community engagement in rural Ghana.

Keywords: Tuberculosis; Knowledge, Attitudes and Practices (KAP); Stigma; Case Detection; Rural Health; Health Education; Ghana; Amenfi West; Healthcare Workers; Health-Seeking Behaviour

Introduction

Tuberculosis (TB) remains a leading public health challenge globally, particularly in low- and middle-income countries such as Ghana. According to the World Health Organization (WHO,

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2023), over 10 million people contracted TB in 2022, with more than 1.3 million deaths, making it one of the top infectious killers worldwide. Although Ghana has made progress in TB control through the National Tuberculosis Control Programme (NTP), underreporting and under-detection of TB cases persist, especially in rural and underserved areas (GHS, 2022).

Early detection and treatment of TB are critical to reducing transmission and achieving the goals of the WHO's End TB Strategy. However, limited knowledge about TB symptoms, stigma associated with the disease, and poor health-seeking behaviour remain significant obstacles to prompt case detection (Bonsu et al., 2020; Atre et al., 2011). These barriers are particularly important in clinical settings, where both patients and health practitioners influence how TB is recognized, managed, and referred for testing.

Father Thomas Alan Rooney Memorial Hospital, located in Asankrangwa in the Amenfi West Municipality of Ghana's Western Region, serves as a key primary referral centre for the district. Despite its strategic position, the hospital continues to report suboptimal TB case detection rates, raising questions about patient knowledge, attitudes, and behaviours, as well as the practices of healthcare providers.

This study sought to assess the knowledge, attitudes, and practices (KAP) related to tuberculosis among patients and health practitioners at the hospital, and how these influence case detection. By investigating KAP in this hospital-based context, the study aims to offer practical insights for strengthening facility-level interventions, staff training, and patient education strategies to enhance TB case identification and reduce diagnostic delays.

Methods

Study Design and Setting

This was a **descriptive cross-sectional study** using a **mixed-methods approach**, conducted at the **Father Thomas Alan Rooney Memorial Hospital** in **Asankrangwa**, the capital of **Amenfi West Municipality** in Ghana's Western Region. The hospital is a key health service provider for the municipality and neighbouring communities and plays an important role in TB diagnosis and management.

Study Population

The study targeted two groups:

1. **Patients** attending outpatient and TB-related services at the hospital.
2. **Healthcare practitioners**, including nurses, physician assistants, and TB programme staff working at the facility.

The goal was to examine both patient-level and provider-level knowledge, attitudes, and practices regarding TB.

Sampling and Sample Size

A **purposive sampling** strategy was used to select healthcare workers directly

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involved in TB screening or treatment, and a **systematic sampling** method was applied to select patients from OPD and TB units. A total of **303 respondents** participated in the quantitative survey, which included both patients and staff. Additionally, **key informant interviews (KIIs)** were conducted with selected health workers and patients with TB or TB-related symptoms.

Data Collection Instruments and Procedure

Quantitative data were collected through **structured questionnaires** designed to assess knowledge of TB causes, symptoms, and transmission; attitudes such as stigma and beliefs; and practices like care-seeking and support behaviour. Separate versions of the questionnaire were tailored for patients and staff. The tools were pre-tested at a nearby facility and revised for clarity.

For the qualitative component, **semi-structured interview guides** were used to explore deeper perspectives on TB-related behaviours, stigma, and system-level influences. Interviews were conducted in English or Twi, depending on participant preference, and were audio recorded with consent.

Data Analysis

Quantitative data were analysed using **SPSS version 25**. Descriptive statistics such as frequencies and percentages were computed. **Chi-square tests** were used to examine associations between demographic variables and KAP indicators. A significance level of $p < 0.05$ was used.

Qualitative data were transcribed, translated (where necessary), and analysed using **thematic content analysis** to complement the quantitative findings.

Ethical Considerations

Ethical approval was obtained from the Ethics Review Committee of the Catholic University of Ghana. Additional permission was granted by the Amenfi West Municipal Health Directorate and hospital management. Verbal informed consent was obtained from all participants. Data confidentiality and anonymity were ensured throughout the process, and participation was entirely voluntary.

Results

Table 1: Socio-demographic Characteristics of Respondents (N = 303)

Characteristic	Category	Frequency (n)	Percentage (%)
Sex	Male	145	47.9
	Female	158	52.1
Age Group	18–25	61	20.1

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	26–35	95	31.4
	36–45	81	26.7
	46+	66	21.8
Educational Level	No formal education	53	17.5
	Basic education	119	39.3
	Secondary	87	28.7
	Tertiary	44	14.5
Occupation	Health Worker	63	20.8
	Farmer	105	34.7
	Trader	74	24.4
	Others	61	20.1

A total of **303 respondents** participated in the study, including both patients and healthcare workers at Father Thomas Alan Rooney Memorial Hospital. The demographic distribution is represented in Table 1 above.

Table 2: Knowledge of TB among Respondents

Knowledge Item	**Correct (n)**	**Percentage (%)**
TB is caused by a germ	180	59.4
Persistent cough is a symptom of TB	191	63.0
TB is transmitted through air	176	58.1
TB is curable	230	75.9
TB can be prevented by covering the mouth and early care	201	66.4

The study assessed knowledge across five key dimensions: cause, symptoms, mode of transmission, curability, and prevention. The following table summarizes responses**.**

Table 3: Attitudes toward TB

Attitude Statement	**Agree (n)**	**Percentage (%)**

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TB is a dangerous and highly contagious disease	250	82.5
TB patients should be isolated from others	216	71.3
I would be uncomfortable interacting with someone with TB	149	49.2
TB patients deserve compassion and support	233	76.8
People with TB are often blamed or discriminated against	177	58.4

Respondents were asked about their personal views and social perceptions of TB and its sufferers.

Table 4: Practices on TB Case Detection

Practice Statement	Yes (n)	Percentage (%)
Would seek medical care for TB symptoms	207	68.3
Have delayed seeking care due to fear of stigma	79	26.1
Have supported someone to seek TB treatment (especially health workers)	44	14.5
Have ever used herbs or traditional medicine before hospital visit	95	31.4
Willing to encourage others to get screened or tested for TB	194	64.0

The study explored actual and intended behaviours when respondents experienced or observed symptoms of TB.

3.5.1 Association between Education and TB Knowledge

Educational Level	Correct Knowledge of Cause (n)	Total (n)
No formal education	14	53
Basic education	62	119
Secondary education	67	87

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Tertiary education	37	44

Chi-square = 24.11, df = 3, p = 0.000
There is a statistically significant association between educational level and correct knowledge about TB.

3.5.2 Association between Occupation and Delay in Care-seeking

Occupation	Delayed Seeking Care (n)	Total (n)
Farmer	44	105
Trader	18	74
Health Worker	5	63
Others	12	61

Chi-square = 10.27, df = 3, p = 0.016

Occupation was significantly associated with delay in seeking care.

Table 5: Logistic Regression Analysis Predicting Good TB Knowledge (N = 303)

Predictor	Odds Ratio (OR)	95% CI	p-value
Female (vs Male)	1.34	0.85–2.10	0.212
Age 26–35 (vs 18–25)	1.51	0.89–2.58	0.123
Age 36–45	1.93	1.08–3.45	0.027*
Tertiary (vs No Edu.)	3.72	1.81–7.64	0.000**
Health Worker (vs Farmer)	4.88	2.01–11.83	0.001**

A binary logistic regression was conducted to assess the influence of demographic variables on respondents' likelihood of having good knowledge about TB .Respondents with tertiary education were over 3.7 times more likely to have good TB knowledge than

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those with no formal education ($p < 0.001$). Health workers were nearly 5 times more likely to be knowledgeable compared to farmers.

Table 6: Gender Differences in Delay of Care-Seeking

Gender	Delayed Care (n)	No Delay (n)	Total
Male	41	104	145
Female	38	120	158

Chi-square = 1.03, df = 1, p = 0.310
No significant difference in delay based on gender.

Table 7: Education Level vs Number of Correct Knowledge Items

Education Level	Mean Knowledge Score	SD
No formal education	2.8	1.1
Basic	3.2	1.0
Secondary	3.9	0.9
Tertiary	4.5	0.6

F(3, 299) = 16.78, p < 0.001
A one-way ANOVA was performed to compare knowledge scores across education levels. Significant difference exists in TB knowledge scores by education level. Post hoc tests showed tertiary education differs significantly from all other groups.

Qualitative Findings

Qualitative data from interviews were analysed thematically. Three core themes emerged:

Theme 1: Misinformation and Local Beliefs

Many patients attributed TB to non-medical causes.

"Some of us believe TB comes when you overwork or when a spirit attacks you." — *Patient, Male, 37 years*

Theme 2: Fear and Stigma in the Facility

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Stigma still exists even within the hospital environment.

"I have seen people hiding their TB status because they are afraid others will talk or avoid them." — *Nurse, Female, 29 years*

Theme 3: Willingness to Learn and Educate

Health workers expressed a need for continual sensitization and training.

"We need to keep talking to the patients about TB symptoms, especially those who come with persistent coughs." — *Physician Assistant, Male, 45 years*

These qualitative insights reinforced the quantitative findings, especially the link between education and TB understanding, and the lingering issue of stigma, even in healthcare settings.

Discussion

This study sought to examine the knowledge, attitudes, and practices regarding tuberculosis among patients and healthcare workers at Father Thomas Alan Rooney Memorial Hospital in the Amenfi West Municipality of Ghana. The findings show that although the majority of respondents demonstrated moderate to high levels of awareness about tuberculosis, important gaps in understanding persist, particularly among respondents with no formal education and among patients compared to healthcare providers. These results are consistent with the findings of Amo-Adjei and Kumi-Kyereme (2014), who reported that health literacy in Ghana is strongly influenced by one's educational level and occupational status. While more than 75 percent of respondents were aware that tuberculosis is curable and could be prevented through early treatment and respiratory hygiene, a substantial proportion still lacked correct knowledge about the actual cause of tuberculosis and its airborne mode of transmission. These knowledge gaps have been similarly documented by Osei, Oppong, and Koomson (2022), who noted that rural populations often hold mixed biomedical and spiritual beliefs about disease causation, which may hinder prompt diagnosis and adherence to treatment.

Importantly, the results show a statistically significant association between tertiary education and good TB knowledge, and logistic regression further revealed that those with tertiary education were more than three times as likely to exhibit correct knowledge compared to individuals without formal education. This supports previous findings by Choun et al. (2016) and Adane et al. (2017), which emphasized the role of formal education in improving knowledge and health-seeking behaviours related to TB. Moreover, health workers were nearly five times as likely to possess good TB knowledge compared to farmers, reinforcing the expected knowledge divide between trained professionals and laypersons.

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In addition to knowledge, the study investigated attitudes toward tuberculosis and found that while the majority of respondents recognized the seriousness of the disease and expressed sympathy toward those infected, nearly half also reported feeling uncomfortable interacting with TB patients. This duality reflects the persistence of TB-related stigma, which remains a barrier to early case detection. The finding that over 70 percent of participants believed TB patients should be isolated underscores the extent to which fear and misinformation shape social responses to the disease. These attitudes mirror previous research in sub-Saharan Africa, where TB stigma has been linked to delayed care-seeking and poor treatment adherence (Abebe et al., 2010; Van Rie et al., 2008; Courtwright & Turner, 2010). The interviews with both patients and health workers further supported this, as several participants described witnessing or experiencing stigma within the hospital setting. Some respondents believed TB was caused by spiritual forces or stress, while others admitted hiding their symptoms to avoid social exclusion. Such misconceptions are not uncommon in rural Ghana, as noted by Bonsu et al. (2020) and Tadesse (2016), and they can limit the effectiveness of biomedical TB interventions.

Despite the hospital setting, not all respondents reported behaviours aligned with best practices in TB case detection. About one in four admitted to delaying care due to fear or stigma, and over 30 percent reported using herbs or self-medication before coming to the hospital. These findings raise concern about the effectiveness of existing health communication strategies and the reach of the National TB Programme in peripheral areas. MacPherson et al. (2014) have argued that health facility-based communication alone is insufficient, especially in high-burden countries, and must be supplemented with community engagement and outreach. Health workers interviewed in this study echoed similar sentiments, stating that although posters and brochures are available, there is limited active education during patient interactions. These comments reflect the findings of Ahorlu et al. (2019), who highlighted the need for culturally sensitive and sustained patient education efforts in Ghanaian health facilities.

The presence of stigma even among hospital clientele highlights a missed opportunity for systematic TB education in clinical settings. Faith-based hospitals like Father Thomas Alan Rooney Memorial Hospital are strategically positioned to promote public health and could be leveraged further to deliver structured TB awareness sessions, integrate routine TB screening at outpatient departments, and establish referral linkages with community health volunteers. The Ghana Health Service has emphasized the importance of public-private partnerships in TB control (GHS, 2022), and such facilities could be instrumental in bridging the awareness gap in underserved districts.

The study's inferential analyses also revealed important associations between demographic characteristics and TB-

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related behaviour. Occupation was significantly associated with delay in seeking care, with farmers being more likely to postpone visits to the hospital. This is consistent with the findings of Tadesse (2016), who reported that rural livelihood patterns, economic hardship, and fear of social judgment often result in delayed diagnosis. While no significant difference in stigma perception was observed between males and females, this may reflect shared community beliefs rather than gender-specific experiences.

Given these findings, there are several implications for policy and practice. The Ghana National TB Programme must prioritize health education tailored to low-literate populations, using local languages, community radio, and drama. Facility-level communication should go beyond static materials to include interpersonal counselling, audio-visual aids, and TB education incorporated into routine consultation. Additionally, healthcare workers should receive refresher training on TB signs, stigma reduction, and effective patient communication. The Amenfi West Municipal Health Directorate should consider incorporating TB case detection training into in-service programmes, especially for non-TB unit staff. Establishing community health volunteers and peer educators who can engage hard-to-reach populations would also enhance early detection and linkage to care. Moreover, faith-based hospitals should be incentivized through partnerships and logistical support to strengthen their role in TB surveillance and patient education.

Nonetheless, this study is not without limitations. The research was conducted in a single facility, and while the sample size was adequate, the findings may not be generalizable to other districts or urban settings. Self-reported practices are susceptible to social desirability bias, particularly among health professionals who may have presented ideal rather than actual behaviours. Also, as a cross-sectional study, causality cannot be inferred from the observed associations. Despite these limitations, the combination of quantitative and qualitative data provides a nuanced understanding of the knowledge gaps, attitudes, and behaviours affecting TB case detection in a rural hospital context. Future research should consider longitudinal approaches or multi-site studies to validate and expand upon these findings.

Conclusion

This study has revealed that despite moderate awareness of tuberculosis among patients and healthcare providers at Father Thomas Alan Rooney Memorial Hospital in the Amenfi West Municipality, significant knowledge gaps and attitudinal challenges persist. The data show that higher education and professional status are associated with greater TB knowledge, while stigma and misinformation continue to affect care-seeking behaviour, especially among community members with low formal education. The integration of both quantitative and qualitative findings

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affirms that fear, traditional beliefs, and inadequate communication strategies limit the effectiveness of facility-based TB interventions.

To address these barriers, there is an urgent need for more tailored, community-focused health education, consistent patient engagement within healthcare facilities, and the empowerment of health workers to serve as active educators. The findings emphasize that rural healthcare settings, including faith-based institutions, play a vital role in TB control and should be more effectively resourced and integrated into national strategies. Strengthening TB detection efforts through education, community outreach, and stigma reduction initiatives will be essential in improving early diagnosis and treatment adherence in Ghana.

This study contributes to the growing body of evidence on TB control in resource-limited settings and underscores the value of combining epidemiological data with contextually grounded qualitative insights. Policymakers and healthcare stakeholders must prioritize targeted interventions that bridge knowledge gaps and dismantle stigma if Ghana is to make meaningful progress toward its tuberculosis elimination goals.

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