

CHAPTER ONE 1.0 INTRODUCTION

1.1 BACKGROUND

Tuberculosis (TB) is a major cause of illness and death worldwide, especially in Asia and Africa (WHO, 2008).

Tuberculosis (TB) is a chronic common and communicable bacteria disease caused by *mycobacteria*, mainly *Mycobacterium tuberculosis* (Raviglione & Obrien, 2004).

TB is a medico-social problem; factors such as socio-economic and nutritional status, perception of the disease, health-seeking behaviour and access to health care, influence its frequency and prognosis. It is generally seen as 'dirty social disease', which mainly affects poor people. 'Hard work' or 'overwork' and 'bad hygiene' are believed to cause TB (Chayaka, 2007a).

TB is almost always transmitted by persons with active pulmonary TB who release large numbers of organisms in their sputum. The organisms could remain suspended in the air for hours or days, making TB one of the most easily transmitted respiratory pathogens. About eighty percent (80%) of all tuberculosis cases mostly affect the lungs. However, it can affect other body systems including skeletal, circulatory among others (Dodor, 2004).

Mycobacterium tuberculosis damages lung tissues which without proper treatment become a cause for patient's disability or death. Treatment of TB is considered a costeffective health intervention in developing countries (World Bank 1993). Prompt diagnosis and successful treatment shorten the chain of transmission.

TB is a chronic condition and requires long-term treatment therefore, if a person with the active form of tuberculosis does not undergo proper treatment, he / she can infect ten to fifteen (10 – 15) healthy people in a shortest possible time. Here the patient's family members and the society as a whole are under highest risk of getting the infection. Whenever a tuberculosis patient refuses treatment the disease progresses so rapidly such that the patient dies in a few months. On the other hand, when the disease takes a chronic form, the patient loses too much energy to work or even walk. Defaulting treatment leads to resistant tuberculosis, which is much more difficult to cure. It will need long-term treatment course which may be less effective.

For treatment to be successful then the patient's cooperation and compliance is therefore necessary. In fact, knowledge on factors influencing non-compliance with treatment would necessitate strategies for effective treatment.

Tuberculosis continues to be public health importance because it is a curable disease that continues to cause suffering and death to thousands of people in the world. Effective treatment of tuberculosis requires adherence to treatment duration. To improve adherence and cure rates Directly Observed Therapy (DOTS) is recommended. Many people are accessing tuberculosis treatment and coverage with Directly Observed Therapy (DOTS) based tuberculosis control services has continued to increase in many countries (WHO, 2007).

In 2008, WHO global report has indicated a recommended approach to reduce the burden of TB in line with global target as Stop TB Strategy. If the global targets are to be achieved then the six components of the Stop TB Strategy should be implemented. These components included detection and treatment of new cases in DOTS programmes, provision of TB / HIV interventions for TB patients in the African Region, improved guidance on advocacy, communication and social mobilization activities and more ambitious planning for treatment of patients with multidrug-resistance TB.

Despite good process with implementing the DOTS strategy, notified TB cases continue to rise in many countries. It is estimated that only half of existing TB cases are being identified and placed on treatment. Of those put on treatment, less than seventy – five percent (75%) are being successfully cured (WHO, 2004).

World Health Organization (WHO) target for treatment is eighty-five percent (85%) of all detected smear positive cases. However, with free medication available many patients are not successfully able to complete their treatment. The results are high morbidity and mortality rate among TB cases. Factors leading to these might include treatment defaulting, multi drug-resistant which are associated with inconsistent or inappropriate use of anti-TB drugs (WHO, 2005).

The aim of this study was to determine the predictors of TB treatment defaulting at Dangme West District.

1.2 STATEMENT OF THE PROBLEM

Health is a resource for everyday life and not an object of living. Tuberculosis is a very serious disease, which has a devastating effect on individuals and the country as a whole. Despite the significant progress by member states in the implementation of Directly Observed Therapy Short (DOTS) course, it remained the most important communicable disease in the country. Tuberculosis is a dangerous infectious disease which in case of belated, incorrect and incomplete treatment causes the loss of working capability, disability, and death.

Defaulters are a threat to the country because they become a persistent source of infection and they continue to be reservoirs for the bacteria. Defaulters pose as danger to their surrounding.

In fact, high TB treatment default rate in a country will prevent investors from coming into that country thereby depriving the country of the needed development.

As such funds for the development of the country would have to be channeled into treatment of TB cases.

The World Health Organization reported that about three million people die of TB yearly, most of who are from developing countries. Out of this figure eighty percent (80%) are of economically and most productive age group (WHO, 2004).

In 2005, WHO report indicated an estimated 8.8 million new cases of TB in the world of which 1.6 million died of the disease. The global sex ratio of male to female TB cases ranges between 1.5-2.3:1

In 2008, WHO report indicated that globally 9.2 million new cases and 1.7 million deaths from TB occurred in 2006 of these, 0.7 million cases and 0.2 million deaths were in HIV-positive people

WHO global report on TB in 2006 ranked Ghana as thirteenth (13th) Africa highest estimated number of new cases per year.

In the Dangme West, although DOT short course of TB treatment is being practiced as well as the use of enabler funds, yet there are still cases of treatment defaulting. In 2006, 40% of those diagnosed as having pulmonary TB defaulted treatment. It is therefore necessary for research to be carried out to unearth the predictors of TB treatment defaulting and to help improve the situation by offering evidence based policy.

1.3 RATIONALE FOR THE STUDY

Due to the defaulting rate of TB cases, there is the need to find factors that are associated with high rate. Information obtained from the study will be relevant to:

The National Tuberculosis Control Programme (NTCP) to help it to strategize appropriately when planning for TB programmes.

The taboos and cultural beliefs of the communities would be brought to bear for which Health professionals who are involved in TB programmes could utilize during their education and interaction with the patients.

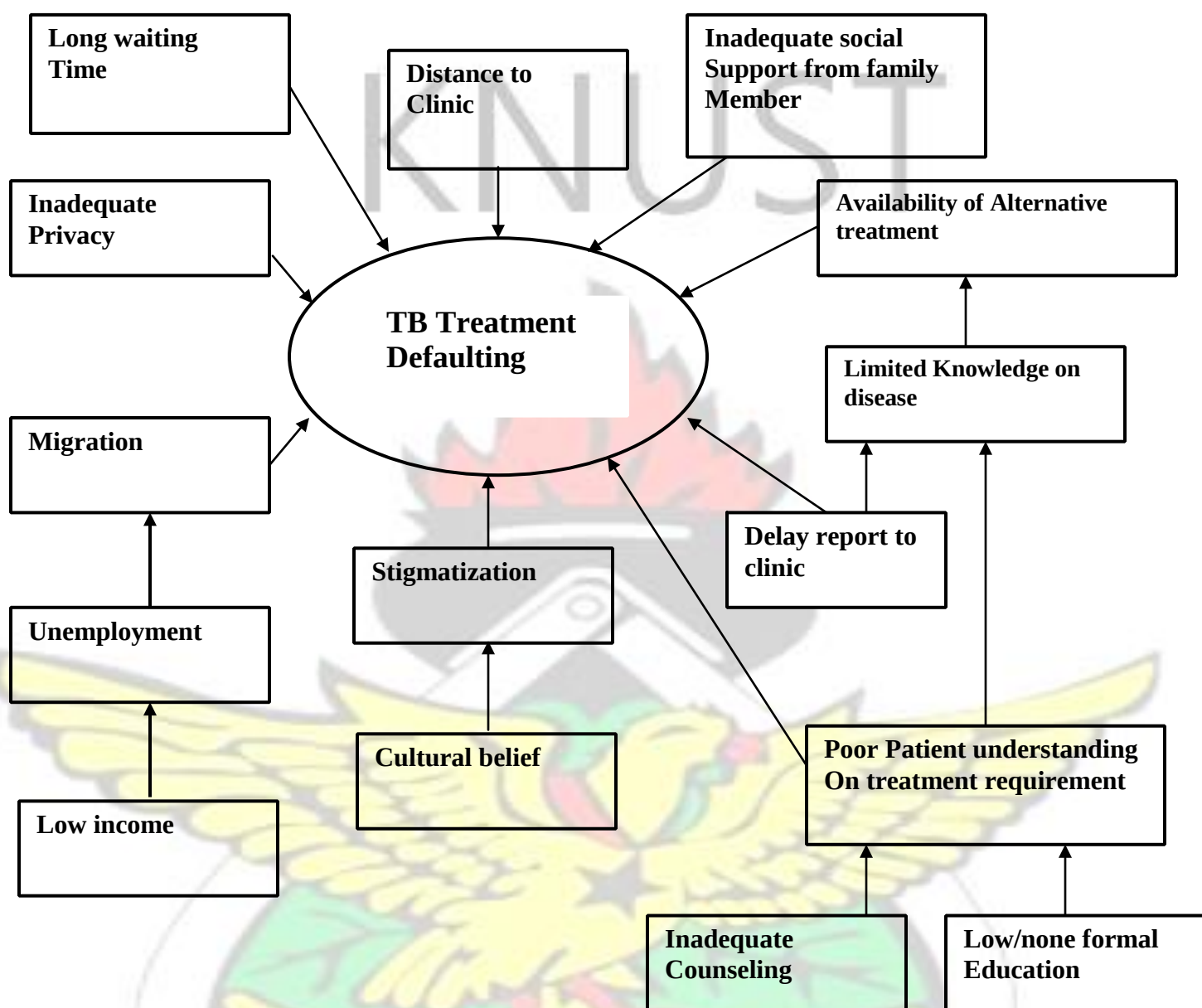
Government to improve road networks leading to the sub-districts for the patients to access their drugs. The road networks are non-motorable during raining season. This would reduce cases of TB in the district.

Community members will be knowledgeable about TB, specifically, mode of transmission, causes, signs, symptoms, and consequences of defaulting treatment among other factors. This is because the study will unearth information needed for designing appropriate IE and C messages.

In fact, findings from the study would help to put in place meaningful interventions, advocacy, behavior communication change etc.

Serve as a basis for future research on TB that would be carried out in the district.





CORE PROBLEM

- Predictors of TB treatment defaulting.

RELATED FACTORS

- Patient related factors such as distance from home to clinic

- Social, economic and cultural factors such as stigmatization
- Service provider factors such as long waiting time

The core problem is what the researcher is actually researching, patient, socio-economic and cultural as well as service provider factors are direct contributors to TB treatment defaulting.

1.5 RESEARCH QUESTIONS

- How did patient factors prevent effective completion of TB treatment?
- What are the socio-economic and cultural factors that contributed to TB treatment defaulting?
- What are the service provider factors that promoted TB treatment defaulting?

General objective:

To determine predictors of Tuberculosis treatment defaulting in the Dangme West District

Specific Objectives:

These are to:

- Determine patient related factors such as educational level, distance from home to clinic that prevented effective completion of TB treatment.
- Ascertain social, economic and cultural factors such as occupation, stigmatization that contributed to TB treatment defaulting.
- Assess service provider related factors such as waiting time, privacy that promoted TB treatment defaulting.

CHAPTER TWO 2.0 LITERATURE REVIEW

Tuberculosis (TB) is a major public health problem world wide. TB is a disease of poverty readily taking advantage of those with weakened resistance due to poor nutrition and general health. Social conditions therefore play a large part in determining a person's susceptibility to the disease. The World Health Organization (WHO) reported in 2005 that there were an estimated 8.8 million new cases of TB in the world of which 1.6 million died

of the disease. In Africa poverty and HIV epidemic are the main factors of the TB epidemic (Chakaya, 2007b).

Once the organism gets access into the body through either inhalation- pulmonary infection; ingestion – tonsillar or small intestinal infection; congenital (rare) – blood spread via the placenta, ingestion of amniotic fluid; or inoculation (very rare) it spread to involve body organs such as the lungs, alimentary tract, central nervous system, urinary system, skeletal system, skin, serous cavities, endocrine gland, eyes and genital tract. This actually causes various forms of condition such as Addison's disease, iridocyclitis, infertility among other conditions (Winwood, et al 1998).

2.1 PRESENT STATUS OF TB TREATMENT DEFAULTING.

The Global Ratio of male to female TB cases is 1.5 -2.3: 1 (WHO, 2007). Other researchers had also reported that male to female ratio of smear positive pulmonary TB cases were 2.5:1. However, TB is still a leading cause of mortality and morbidity in women of the developing world. The gender discrepancy might include increased social exposure in men (Ane-anyangwe, 2006a & Adjei & Edoh, 2002a).

According to Balasubramanian et al (2004) men had more severe clinical symptoms at the time of diagnosis. This is because symptoms such as cough had initially been attributed to other causes such as tobacco use, therefore men are symptomatic for longer period of time before seeking for care.

Kolappan et al (2002) stated that men report more frequent use of alcohol and tobacco that influence the rate at which TB infection progresses to active disease.

Vlassof (1994) found out that difference in case detection rates are spurious and that far greater number of women is truly affected, their diagnosis being prevented by social factors. This is because women have been found to use traditional medicines more, and are more concerned with social stigma than men.

The defaulters of TB treatment are mostly males with assigned reasons of being uncertain about treatment efficacy (Hill, Stevens, Donkor, Jallow & Lienhardt, 2005).

The defaulter rate is highest among the rural forks because of their limited knowledge on TB. Most of them relocate to avoid humiliation in their community as a result of stigmatization (Adjei & Edoh, 2002b).

TB is highest between the age group of 21-40 and is more prevalent during the wet season (Ane-anyangwe, 2006b) while Dodor (2004) indicated that patients in the 25–44 year age group and those put on the re-treatment regimen as well as living far from the treatment centre have higher defaulter rates.

According to Demissie and Kebede (1994) of 1206 new TB patients registered over the 12 months period, 82% was found to be defaulted. The rate of defaulting was higher in males, in older age groups and in those living near to the TB centre. Most of the defaulting occurred in the third and fourth months of treatment. The reasons for treatment defaulting were inadequate knowledge about the disease, treatment duration, and medication side-effect, low educational level, feeling of improvement, nearer distance to the treatment centre. This finding was confirmed by Tekle, Mariam and Ali (2002), however they further stated that lack of family support was another factor for treatment defaulting, and that defaulting was highest during the continuation phase of treatment.

2.2 PATIENT RELATED FACTORS.

Patient factors refer to characteristics related to patients that contribute to treatment defaulting.

According to Dr. Frank Bonsu (2006) of the National Tuberculosis Control Programme (NTCP) in Ghana, the symptoms of TB include fever, night sweats, fatigue, weight loss and persistent cough for more than two weeks. These symptoms in the initial stages of the disease are not very specific and often confounded with other upper respiratory tract infections such as common cold or malaria. It is only when the symptoms worsened that

the person present it at the health centre. The conflicting nature of signs and symptoms usually create a different notion for the disease and treatment.

In a study among Mexican workers, Rubell and Garro (1992) found that most of the TB patients attributed their symptoms to benign conditions such as flu or bronchitis. Low awareness of TB symptoms usually tends to delay care-seeking. People with a higher perception about the severity of the disease are more likely to seek care and diagnosis than people with less severe symptoms.

The symptoms of TB such as cough, fever, headache among others resemble most respiratory diseases. Patients mistakenly believe they have malaria or pneumonia and as such delay in the early assessment of medical services. The duration of presentation varies between four (4) days and three (3) years, with a median of two (2) months for patients of both sexes (Eastwood, & Hill, 2004).

Initial symptoms such as cough and fever are often over looked and or confused with malaria or common cold. TB is attributed to causes such as smoking, alcohol, hard work, exposure to cold and sharing with TB patients as well as been hereditary (Balddawa et al, 1997b).

Severe medication side-effect cause patients to require an extra clinic visit because of physical discomfort, unnecessary patient distress or worsening symptoms. These reasons increase the likelihood of treatment default. The symptoms mostly reported include: jaundice, itching, skin rash, nausea, and change in vision (Jittimanee, et al, 2007b).

With limited or lack of knowledge about symptoms of TB, they mostly use the services of traditional healers and pharmacies. These complex patterns of care-seeking behaviour cause diagnostic delay. Some patients use traditional and medical services simultaneously. The use of traditional healers and pharmacies stem from the concept of traditional belief that a disease is like “demon inside” and needed to be killed. Hence, concoction is given to patients in order for them to vomit the sickness. This is due to the confidentiality and quick services accorded them respectively (Vlassoff, 1994).

A case-control study in New York City on TB treatment defaulting revealed that most patients default treatment because of lack of awareness of the severity of TB disease (Driver, et al 1999).

Of 135 patients interviewed in Kuala Lumpur, Malaysia showed limited knowledge and understanding about tuberculosis. Patients with tertiary education have better knowledge than the others. Most patients default treatment because they relate disappearance of tuberculosis symptoms with cure of the disease. Patients and their close relatives are not educated and counselled adequately on TB and the necessity for prolong treatment (Liam, 1999).

Chan-Yeung et al (1999) stated that out of the 5757 patients who were treated by the Chest Service for tuberculosis in Hong Kong, 442 (8%) defaulted treatment for more than 2 consecutive months. Approximately 45% of patients who default do so within the first 2 months of treatment. The key risk factors associated with treatment default were a history of concomitant liver disease or lung cancer 17(3.8%) and 7(1.6%) respectively and multiple drug resistance 7(2.1%).

Most of the TB treatment defaulting are associated with alcohol and tobacco consumption (Jaggarajamma et al, 2007).

In Hamburg, prospective evaluation study was carried on 518 confirmed pulmonary tuberculosis patients, 54(10.4%) defaulted treatment. Alcohol dependence appears to be the strongest risk factors, followed by drug abusers and unemployment (Diel & Niemann, 2001).

In Colorado, treatment default was linked to alcoholism in tuberculosis patients (Burman et al, 2007).

2.3 SOCIAL, ECONOMIC AND CULTURAL FACTORS.

TB is a stigmatized disease as people perceive it negatively. The negative connotations include prostitution, poverty, and uncleanness. For these reasons, TB patients face

eviction by landlords, divorce, avoidance, being less respected, and loss of job among other forms of humiliation in their community (World Bank, 1993).

The major determinants for TB treatment are Stigma and discrimination. These have an enormous impact on the sufferers (Chiang Mai, 2001). This impact is felt at home, workplace, institutions and in the community (Chiang Mai, 2006).

Snow (1993) found that White and Black women in rural southern communities of the United States believe that TB resulted from female conditions such as childbirth, abortion, or prolonged menstrual bleeding. Heavy or prolong blood loss from these conditions resulted in “Quick TB”, a condition that affected only women. There are varying beliefs concerning the contraction of TB ranging from punishment from dishonesty, or bad needs, test of humanity, hereditary, sorcery and witchcraft as well as beliefs in concordance with western biomedical understandings of TB contraction.

A research conducted in Ethiopia revealed that TB is sometimes perceived to affect a person or family as a consequences resulting from a curse, bad behaviour or taboo, for example ignoring the advice of a healer, not observing a healthy lifestyle and habits, fighting, having enemies, drinking alcohol, smoking cigarettes, and prostituting. Some participants mentioned that some of these behaviours contribute to a weakened immune system (Ethiopia tuberculosis cultural profile).

Tuberculosis is perceived as very dangerous, infectious and incurable disease. This perception has resulted in stigmatization and social isolation of TB patients and their family, diminished marriage prospects for young TB patients and even for their family members, TB in one of the partners may lead to divorce. Due to fear TB patients often deny the diagnosis and reject treatment (Liefoghe et al, 2000).

TB is perceived as a contagious, ‘sensitive’ disease difficult to diagnose and treat. The treatment is perceived as being long, agonizing and cumbersome. Traditional treatment is considered a valid alternative to modern treatment as it is believed to be as effective and much shorter. Prolong self-treatment and consultation with the traditional health sector as

well as social stigma attached to the disease increase patient's delay and compliance to treatment (Balddawa et al, 1997a).

According to Uwah et al (2006a) risk factors associated with the cause of TB defaulting in poor resource limited setting include societal stigma, discrimination and denial, poor access of health facilities, as well as non-availability of anti-TB drugs and where available, were unaffordable due to financial constraints.

Social isolation is due to the fear of contracting the disease from others. To avoid all that, patients hide their diagnosis from friends and family members in order to protect their dignity. Others resort to other forms of treatment such as traditional medicine which interferes with the efficacy of scientific medicine. Meanwhile such individuals are needed to encourage patients to take their treatment (Johansson, Diwan, Huong & Ahlberg, 1996).

Patients with TB 'feels less respected' by others and for that most patients do not call the disease tuberculosis but 'lung disease', as the latter appears less harmful or serious. Fear of the disease leads to patients presenting late for treatment - many only present when they 'spit blood'. Even at this stage they tend to explain the symptoms away as caused by hard work (Johansson 1996).

TB is considered as the disease of the poor and it mostly affects those of lower income earnings. This makes it difficult for such patients to afford transport fare to attend clinic. The daily attendance to the clinic tends to drain their finances. This therefore, reduces treatment seeking (Hill, 2005).

Most of the patients are being paid on a daily basis for the work they do (daily paid workers are those who are not paid when they are at work) and might select to work rather than go to the clinic for their drugs. Again, there is no payment for sick time so if taking TB treatment would bring on different symptoms then the best possible option is to stop taking the drugs. These contribute to treatment default (Jittimanee, et al, 2007a). He further stated that longer travel time to the clinic discourages the patients due to the exhaustion and stress from heavy traffic, especially those in the urban areas.

In tribes where husbands are the sole decision makers in the family, women need to ask permission from their husbands to attend treatment. In such a situation, when the man has no money or does not believe in scientific medicine the woman would not access and or default treatment. This is an essential problem because even at the point of death, the woman has to adhere to the advice of the man (Samson, Toure & Vosken, 2001).

The Ghanaian Daily Graphic on the 18th of March 2008 edition, reported that a lady teacher nearly abandoned her career when the community in which she stayed got to know that she was suffering from tuberculosis. She could not fetch water from the public stand pipe nor go to the market. To make matters worse, her church members sat far away from her during service so as not to contract the disease (Ghanaian Daily Graphic, March 18 page 9).

2.4 SERVICE PROVIDER RELATED FACTORS.

Lack of privacy in the TB clinic affect treatment seeking behaviour of TB patients because of the stigma attached to the disease and its associated social problems. Female patients are usually more concerned about privacy than males, and would prefer female health workers to deliver their treatment as they are more sympathetic (Rajeswari, Balasubramanian & Muniyandi, 1999).

Work overload of health workers deny TB patients adequate education on their condition, individually, to enable them have understanding of their symptoms. This promote noncompliance of treatment among the less educated and rural patients. It paves the way for patients to seek for other forms of care.

In most Sub-Saharan African countries, increase in TB cases has led to heavy workload on service providers specifically laboratory staff as a result of the number of persons who needed to be screened. Aside the workload causing impairment on the quality of evaluation of sputum smear, patients had to spend longer period of time at the laboratory for their

results before seeing a doctor, and collecting drugs. This is because the same staff is responsible for attending to TB cases as well as other medical conditions (Chakaya, 2007c).

Time spent at the clinic is another factor promoting treatment default as patients spend mean time of three hours on each visit (Jittimanee, et al, 2007c).

Guillaume-Signoret of Institut de Recherche Pour le Développement in Senegal in 2006 reported that over 9000 new cases of tuberculosis are diagnosed every year. Despite the free treatment provided by the government, nearly 30 % of patients do not follow DOTS treatment correctly. The reasons for this are long distances from the health centres, insufficient time for care providers to listen to patients complaints; inadequate counseling and information provision by health personnel, associated with shortfalls in following up the DOT strategy discourage patients from taking the treatment right to the end of the prescribed period.

Inadequate counseling as well as poor service delivery and attitude of health care providers cause patients to default treatment (Uwah, et al, 2006b).

In fact, a case control study carried out in Rio de Janeiro, Brazil revealed that most patients default treatment because they do not feel comfortable with doctors, their blood pressure is not checked and health care providers do not give them cards indicating review date (Salles et al, 2004).

The researcher observed that some of the sub-districts do not have medical laboratory to carryout sputum test investigation as a result patients had to travel to Tema for the test to be done. This serves as a financial strain on the part of the patients and especially those who had completed the two months intensive treatment and felt they were well did not return for further treatment.

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CHAPTER THREE 3.0 METHODOLOGY 3.1 STUDY DESIGN

The study involved a retrospective unmatched case control design.

3.2 PROFILE OF THE STUDY AREA GEOGRAPHY

The Dangme West District is one of the ten districts in the Greater Accra region of Ghana. It is bounded on the north by the Akuapim ridge; South by the Gulf of Guinea; east by river Volta, South Tongu and Dangme East districts; and to the west by Tema district.

The district has four sub-districts which are Dodowa, Prampram, Great Ningo, and Osudoku. There are four health centre and a total of six Community Health and Planning Services (CHPS) compounds. There are a number of private health facilities as well as ninety- five trained Traditional Birth Attendants (TBA) delivering services in the districts.

Within the district is the “Shai Hills” with a dense –thick- forest type trees which serve as a tourist site.

There are seven area councils located in Dodowa district (Dodowa, Ayikuma), Prampram, Ningo (Dawa, Ningo) and Osudoku (Asutsuare, Osuwem)

The main road network through the district is in very good condition. However, during rainy season most of the roads leading to the sub-districts are inaccessible unless with a four-wheel drive vehicle.

DEMOGRAPHY

In the year 2000, a national census conducted gave the district population as 96,809. Dangme West district contributed 3.3% of the total population of Greater Accra Region.

The ratio of males to females was 93:100 however, in the absence of district specific data from the Ghana statistical services; districts use the regional growth rate of 4.4% to make population projections. This is to ensure uniformity in all the districts though it may not be accurate. The projected population for the district in 2006 was 125,348 and that of 2008 is 136,622.

Most of the citizens have migrated to Accra and Tema metropolitan areas in search of jobs and better life. The district undertakes demographic surveillance system which involves bi-annual visits to every household to collect data on demographic, migration and other health indicators.

ECONOMIC

Most of the inhabitants are farmers, fishermen and others engage in petty trading. There are few trained artisans, craftsmen and civil servants mainly employees of governments department and agencies.

Poverty, taboo, and cultural beliefs are prevalent in the district and it determines the health seeking behaviour of the citizens which influence their health status.

3.3 DATA COLLECTION TOOL

Structured questionnaire comprising close-ended and open-ended questions was used to collect data on background characteristics, patient, socio-economic and cultural and service provider factors from the participants on predictors of TB treatment defaulting.

3.4 DATA COLLECTION PROCEDURE.

The participants were traced through the use of hospital records to their homes using their contact addresses in order to administer questionnaire. This was made possible with the help of the TB coordinators in the sub-districts.

Non health personnel who could speak the dialect of the participants were trained on the questionnaire to be conversant with the exact information needed. The data collectors had no knowledge on which patient was a case and control. This was to eliminate biases that could arise, ensure uniformity and reliability in data collection.

Memory aids such as samples of the TB medicine used for the treatment duration were used. These stimulated memories, both in the cases and controls, to past exposure use, thus helped patients to recall which of the phases they defaulted.

The entire data collection took four weeks.

3.5 STUDY POPULATION.

In this study, both adult male and female who had been diagnosed as having pulmonary TB and registered in the TB register during the years 2006, 2007 and to June 2008 were recruited.

A defaulter was defined as a person who failed to take the TB medicine within three days or more during the intensive phase. For a continuation phase, a defaulter was a patient who

had discontinued his/her treatment for one month. They were identified as cases for the study.

Non defaulters were patients who were cured and completed the treatment at exactly six months duration. They were the control group for this study.

The age for both case and control groups was 18 years and above

TABLE 1: STUDY VARIABLES FOR PREDICTORS OF TB TREATMENT DEFAULTING

VARIABLE	OPERATIONAL DEFINITION	INDICATOR	TYPE OF VARIABLE
Occupation	Work actually performed on daily basis(farming, trading, housewife etc)		Nominal (Categorical)
Fear of Stigmatization	Social perception about TB		
Education level	Last level of education attended (basic, secondary, tertiary.)		Ordinal (Categorical)
Other types of treatment	Usage of Non prescribed drugs by a medical doctor	Herbal medicine, Over the counter drugs, Self medication.	Nominal (Categorical)
Waiting time	Time spent at the clinic from entry till departure		Continuous (Numerical)
Privacy	Creation of environment for interaction between a patient and health worker.		Binary (Categorical)
Alcohol	TB drugs		Binary (Categorical)
Adequate health staff			Categorical
Counseling services	Advice given to TB patients on their visit.		Discrete (numerical)
Distance to clinic(km)	Home to clinic		Continuous (Numerical)
Treatment defaulting	Intensive phase-2 days and above. Continuation phase-1 month		Discrete (Numerical)

Age	Age at last birthday		Continuous
Sex	Male / female Mostly defaulting		Binary (Categorical)
Marital status	Expressed in terms of married, divorce, single, etc.		Nominal (Categorical)
Level of knowledge	Ability to answer TB questions asked in a satisfactory manner.	Causes, mode of transmission, signs, symptoms, consequences of defaulting.	Ordinal (Categorical)
Income level	Personal income		Continuous

3.6 SAMPLE SIZE.

Epi info version 3.03.17 was used to calculate the sample size for the study. The following figures were used for computerization:

- Two-Sided significance Level alpha = 0.05
- Power = 80%
- Ratio of sample size / Control : Case = 2
- Proportion of controls with exposure = 0.4
- Proportion of cases with exposure = 0.6

The total sample size for the study was 219, 146 controls and 73 cases, with the Odds ratio of 2.25 by Fleiss (Statistical methods for rates and proportions, formulas 3.18 – 3.19). However, 226 total participants were sampled with a control of 153 and 73 cases.

Case is a person who default TB treatment within first three days during the intensive phase. Continuation phase, a case was a person who discontinued his / her treatment for a month. Control is a person who was cured and completed the treatment at exactly six months.

3.7 SAMPLING TECHNIQUE.

A simple random sampling method was used to select participants from the diagnosed pulmonary TB patients' record at the hospital for the study.

List of all the TB patients' age 18 years and above who did not default with their treatment was made. Pieces of papers were numbered up to the required sample size and were randomly picked, likewise the defaulters.

Selected patients' were then traced using their various contact addresses to administer the questionnaire.

3.8 PRETESTING

The developed questionnaire was tested in one of the communities within the subdistricts of the Dangme West District. The aim was to test for validity and reliability of the instruments. Identified anomalies were corrected before the final data collection.

Simple random sampling technique was used to select the five participants to answer the questionnaire.

3.9. DATA HANDLING

Data collected were checked to ensure that all the needed information had been properly collected and recorded. In the case of inconsistency and incompleteness, the participant and the data collector were contacted for clarification and necessary corrections made.

3.10 DATA ANALYSIS

The data were entered into a Microsoft Access database of a personal laptop computer of the researcher with a password placed on it for safety. This was after the thorough checks had been done. Statistical analysis was performed using Stata version 9.1. Crude and adjusted odds ratios were estimated using logistic regression model. Crude odds ratios and their associated 95% confidence intervals were calculated for potential risk factors. Adjusted odds ratios and 95% confidence intervals were calculated to control for the effect of other risk factors that were significantly associated with the exposure.

3.11 ETHICAL CONSIDERATION

Permission was obtained from the Ghana Health service (GHS), District Chief Executive (DCE) and District Health Directorate (DHD) to carry out the study in the Dangme West. Consent was also obtained from the participants as well as the medical officer's in-charge of the health centres in the sub-districts prior to the data collection. Participants were assured of confidentiality since names and addresses would not be required.

3.12 LIMITATION OF THE STUDY

Most of the patients had migrated to other areas specifically Guinea Bissau, Ivory Coast, Akosombo, Tema and Accra in search of better jobs and this accounted for the delay in data collection.

CHAPTER FOUR

4.0 RESULTS

This chapter presents the results of the study and outlines the main findings as proposed by the study. The data is presented under the following headings:

- Background characteristics of the participants
- Patient factors that promoted TB treatment defaulting
- Socio-economic and cultural factors that contributed to TB treatment defaulting •
- Service provider factors that promoted TB treatment defaulting

Table 2. Descriptive characteristics of cases and controls of TB treatment

Characteristics	cases(n=73)		Controls(n=153)	
	N	%	n	%
Age				
18-25	18	24.7	21	13.7
26-35	22	30.1	37	24.2
36-45	17	23.3	46	30.1
Above 45	16	21.9	49	32.0
Sex				
Male	43	58.9	96	62.7
Female	30	41.1	57	37.3
Education				
Formal Education	28	38.4	102	66.7
None education	45	61.6	51	33.3
Marital status				
Divorced	12	16.4	24	15.7
Married	38	52.1	79	51.6
Separated	1	1.4	2	1.3
Single	12	16.4	30	19.6
Widow/Widower	10	13.7	18	11.8

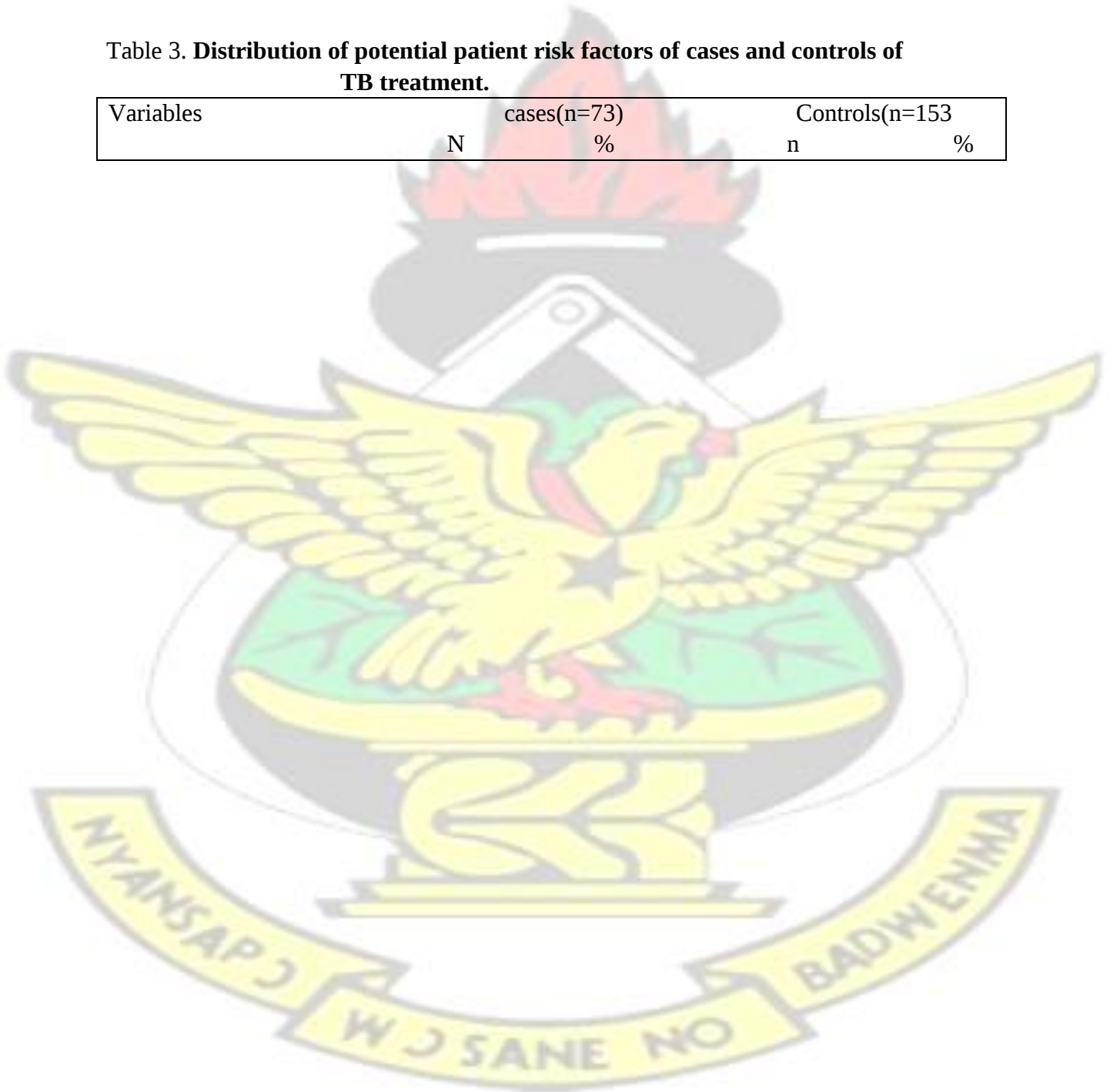
Table 2 above lists the descriptive characteristics of case and control patients. The majority of cases [43(58.9%)] and controls [96(62.7%)] were males. Most cases [22(30.1%)] were between the age range 26-35 years. It was followed by [18(24.7%)] cases belonging to the 18-25 years and the least of [16(21.9%)] cases were above 45 years. However, among the controls [49(32%)] participants were above 45 years with the least [21(13.7%)] between 18-25 years. Considering educational level [45(61.1%)] cases and [51(33.3%)] controls had non formal education and [28(38.4%)] cases and [88(57.5%)] controls had basic education. Most cases [38(52.1%)] and controls [79(51.6%)] were married.



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Table 3. Distribution of potential patient risk factors of cases and controls of TB treatment.

Variables	cases(n=73)		Controls(n=153)	
	N	%	n	%



Distance to facility				
0.5-1	21	28.8	80	52.3
1.5-2	29	39.7	34	22.2
2.5-3	14	19.2	16	10.5
>3	9	12.3	23	15.0
How get to facility				
Walk	23	31.5	64	41.8
Car	50	68.5	89	58.2
Use money for other purpose				
Yes	24	85.7	17	27.9
No	4	14.3	44	72.1
Travel out of treatment area				
Yes	38	52.1	13	8.5
No	35	48	140	91.5
Drug finished before returned				
Yes	34	89.5	7	53.9
No	4	10.5	6	46.2
Use of other treatment				
Yes	42	57.5	40	26.1
No	31	42.5	113	73.8
Duration of symptoms before seeing a doctor				
2months or less	29	39.7	84	54.9
More than 2months	44	60.3	69	45.1
Think of cure				
Result of laboratory sputum	5	6.8	124	81.0
Disappearance of signs and symptoms experienced	67	91.8	29	19.0
Unknown	1	1.4	0	0.0
Alcohol				
Yes	35	48.0	42	27.5
No	38	52.1	111	72.6

Table 3, presents the frequency of potential patient risk factors among cases and controls. 29(39.7%) cases and 34(22.2%) controls distance from home to clinic were 1.5-2; 21(28.8%) cases and 80(52.3%) controls 0.5-1; 14(19.2%) cases and 16(10.5%) controls 2.5-3 and 9(12.3%) cases and 23(15%) controls >3.5.

A greater number of cases [50(68.5%)] and controls [89(58.2%)] took a car to the health centre for their medicine and [23(31.5%)] cases and [64(41.8%)] controls walked. Out of the 50 cases that took a car to the clinic, 38 spent GHC1-2 and 12 GHC3-4 while the controls 67 and 22 on transportation spent.

28(38.4%) cases and 61(39.9%) controls received money from the TB coordinators and 45(61.6%) cases and 92(60.1%) controls did not. Among those who received the money, most cases [25(89.3%)] and controls [38(62.3%)] had it on weekly basis. 24(85.7%) cases and 17(27.9%) controls used the money received on other things.

Most cases [38(52.2%)] and few controls [13(8.5%)] traveled out of their communities. The reasons assigned by [19(50%)] cases and [9(69%)] controls for traveling out were to work, and some [16(42%)] cases and [1(7.7%)] controls sought for spiritual support. However, [2(15.4%)] controls did not disclose the reasons for traveling out of their localities.

Majority of cases [34(89.5%)] and controls [7(53.9%)] that traveled out had their drugs finished. Out of such number, 20(58.8%) cases did not returned for further treatment, 14(41.2%) went for treatment after they had returned and 7(100%) controls returned immediately for treatment.

48(65.8%) cases who stopped the TB treatment felt they were well while 18(24.7%) thought orthodox medicine could not cure them. Other reasons assigned were weakness 6(8.2%) and hunger, drug reaction 2(2.7%) respectively.

[53(72.4%)] cases defaulted at continuation phase and [20(27.4%)] intensive phase. The study further revealed most cases [42(57.5%)] and controls [40(54.8%)] used other treatment such as herbs and anointing oil alongside the TB treatment. 42 cases used herbs and anointing oil, 38 controls used herbs and 2 anointing oil only. The reasons assigned by 36 cases and 28 controls were to hasten cure, and 6 cases and 14 controls sited driven away evil spirits.

Majority of cases [41(56.2%)] and controls [107(69.9%)] experienced cough, and [23(31.5%)] cases and [22(14.4%)] controls coughed out blood as the initial signs and symptoms.

[29(39.7%)] cases, and [84(54.9%)] controls first reported to the clinic 2months or less after they had experienced the signs and symptoms, 44(60.3%) cases and 69(45.1%) reported more than 2months.

Majority of cases [53(72.6%)] and controls [101(66%)] used over the counter drugs when they first experienced signs and symptoms. However, most of the controls patronize over the counter drugs.

[67(91.8%)] cases and [29(19%)] controls consider the disappearance of signs and symptoms of TB as being cured of the infection. Most of the cases 59(80.8%) and controls 123(80.4%) considered death as consequences of treatment defaulting. However, did not know that they pose as danger to their neighbours. 35(47.95%) cases and 42(27.5%) controls continue to take alcohol while on TB treatment.

Table 4. Distribution of potential social, economic and cultural risk factors of cases and controls of TB treatment

Variables	cases(n=73)		Controls(n=153)	
	N	%	n	%

SOCIAL FACTORS				
Household aware of condition				
Yes	53	72.6	131	85.6
No	20	27.4	22	14.4
Cultural belief				
Demon inside	9	12.3	20	13.1
Curse	30	41.1	29	19.0
Spiritual disease	32	43.8	77	50.3
Unknown	2	2.7	27	17.6
TB cause				
Hard work	28	38.4	16	10.5
Poverty	0	0.0	3	2.0
Infectious disease	20	27.4	97	63.4
unknown	25	34.2	37	24.2
Number sleeping in a room				
1-4	66	90.4	123	80.4
5-7	7	9.6	24	15.7
8-10	0	0.0	5	3.3
>10	0	0.0	1	0.7
Occupation				
Farming	7	9.6	28	18.1
Fishing	21	28.8	20	13.1
Fish mongering	20	27.4	21	13.7
Artisan	2	2.7	5	3.3
Business	8	11.0	28	18.3
Government worker	15	20.5	28	18.3
Unemployed	0	0.0	23	15.0
Income				
Less than GHC50.00	54	74	88	57.5
More than GHC50.00	19	26	75	49.0

Table 4 above, shows that majority of cases [53(72.6%)] and controls [131(85.6%)] said friends and family members knew their TB status. However, some cases 20(27.4%) and controls 22(14.4%) still hid their conditions. Of those who hid their TB status 20(27.4%) and 21(14.4%) did that for fear of neglect by their family members and friends. However, those who made their TB status known, [21(39.6%)] cases and [61(46.6%)] controls received financial support; [15(28.3%)] cases and [7(5.3%)] controls were taken

to spiritualist; [13(24.5%)] cases and [44(33.6%)] controls were reminded to take their medicine, and [3(5.7%)] cases and [15(11.5%)] controls did not received any kind of support.

Concerning the cultural belief associated with TB in the study area, most cases [32(43.8%)] and controls [77(50.3%)] stated ‘spiritual’ and, [30(41.1%)] cases and [29(19%)] controls stated ‘curse’

For the community’s preference in assessing health service in relation to TB treatment, [56(76.7%)] cases and [99(64.7%)] controls indicated spiritual healer while [15(20.5%)] cases and [24(15.7%)] controls preferred going to a shrine.

28(38.4%) cases and 16(10.5%) controls said hard work; 20(27.4%) cases and 97(63.4%) infectious disease as the cause of TB. However, 25(34.2%) and 37(24.2%) did not know what causes TB.

[21(28.8%) cases and 20(13.1%)] controls were fishermen and, [20(27.4%)] cases and 21(13.7%)] controls fish mongers.

Majority of cases [54(74%)] and controls [88(57.5%)] earned monthly income of <GHC50.00

Table 5. Distribution of potential service provider risk factors of cases and controls of TB treatment

Variables	cases(n=73)		Controls(n=153)	
	N	%	n	%

Counseling					
First visit	56	76.7	79	51.6	
Each visit	1	1.4	17	11.1	
Once a while	10	13.7	48	31.4	
Never	6	8.2	9	5.9	
Privacy					
Yes	64	87.7	134	87.6	
No	9	1.5	19	12.4	
How drug served					
Daily	16	21.9	43	28.1	
Weekly	22	30.1	94	61.4	
Monthly	35	47.9	16	10.5	
Education on condition					
Yes	67	91.7	145	94.8	No
6	8.2	8	5.2		

Table 5 above, shows that majority of cases [56(76.7%)] and controls [79(51.6%)] were counseled on their first visit to the clinic.

[64(87.7%)] cases and 134(87.6%) controls were given privacy while being attended to at the clinic.

Most cases [35(47.9%)] and few controls [16(10.5%)] were given their medicine on monthly basis; [43(28.1%)] controls and [16(21.9%)] cases daily and, [94(61.4%)] controls and [22(30.1%)] cases weekly.

Greater number of cases 67(91.8%) and controls 145(94.8%) were educated on TB 68(93.2%) cases and 150(90%) controls were not given a card indicating their review date.

All the cases 73(100%) and controls 153(100%) spent less than two hours at the clinic for their medicine.

Table 6. **Crude odds ratio for Tuberculosis treatment defaulting**
Result

Variables	Crude OR(95% CI)	P-value
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BACKGROUND CHARACTERISTICS

Age group

18-25	1	
26-35	0.69 (0.31,1.58)	0.38
36-45	0.43 (0.19,0.10)	0.05
0.03	Above 45	0.38 (0.16,0.89)

Sex

Male	1	
Female	1.18 (0.66, 2.08)	0.58

Marital Status

Married	1	
Separate/Divorced	1.03 (0.48,2.25)	0.92
Single	0.83 (0.38,1.80)	0.64
0.74	Cohabiting	1.15 (0.49,2.74)

Education

None formal	2.72 (1.52,4.87)	0.001
Formal	1	

CRUDE ODDS RATIO FACTORS ASSOCIATED WITH PATIENT

Distance to facility

0.5-1	1	
1.5-2.0	3.25 (1.63,6.48)	0.001
0.006	>3.5	1.49 (0.60,3.70)
		0.39

How to get to clinic

Walk	1	
Car	1.56 (0.87,2.82)	0.14

Use money for other purpose

Yes	1	
No	0.10 (0.03,0.28)	0.001

Travel out treatment area

Yes	1	
No	0.09 (0.04,0.18)	0.001

Drug finish b/4 next treatment

Yes	1	
No	0.10 (0.02,0.45)	0.003

Other Treatment		
Yes	1	
No	0.26 (0.15,0.47)	0.001
Duration of symptoms b/4 seeing the doctor		
2months or less	1	
More than 2 months	1.85 (1.05,3.26)	0.03
What makes you think u are cured		
Result of laboratory sputum	1	
Signs and symptoms	57.30 (21.19,154.90)	0.001
experienced stopped		
CRUDE ODDS RATIO FACTORS ASSOCIATED WITH SOCIAL,ECONOMIC & CULTURE		
Household aware		
Yes	1	
No	2.24 (1.13, 4.46)	0.02
Number in a room		
1-4	1	
5-7	0.43 (0.18,1.04)	0.06
CRUDE ODDS RATIO FACTORS ASSOCIATED WITH SERVICE PROVIDER		
Counseling		
On the first visit	1	
On each visit	0.08 (0.01,0.64)	0.02
Once a while	0.29 (0.13,0.63)	0.002
Never counseled	0.94 (0.32,2.79)	0.91
Educate on condition		
Yes	1	
No	1.62 (0.54,4.86)	0.39

*Statistically significant findings are in **boldface** type*

Table 6 presents statistical significant findings using logistic regression.

There is a significant relationship between none formal education and treatment default [OR: 2.72 95%CI: 1.52, 4.87; P= 0.001].

The distance of 1.5-2 [OR: 3.25 95%CI: 1.63, 6.48; P=0.001] and 2.5-3 [OR: 3.33, 95%CI: 1.41, 7.90; P= 0.006] from home to clinic were statistically significant associated with treatment default.

There is a significant relationship between reporting more than 2 months to the clinic when first experienced sign and symptoms and defaulting in treatment [OR: 1.85, 95%CI: 1.05, 3.26; P=0.03]..

A significant relationship was also observed among defaulters who used disappearance of signs and symptoms as cured. The odds of those considering disappearance of signs and symptoms was 57.30 more likely to default as compared with those who used laboratory result [OR=57.30, 95%CI: 21.19, 154.90; P= 0.001].

The odds of a defaulter (case) hidden his/her TB status from family and friends is 2.24 that of a non defaulter (control) [OR=2.24, 95%CI: 1.13, 4.46; P= 0.002].

The crude odds ratio revealed no formal education; distance of 1.5-2 and 2.5-3 from home to clinic; duration of more than 2months of symptoms before seeing the doctor; disappearance of signs and symptoms experienced as been cured and hiding of TB status from family members as variables which were statistically significant. They were therefore adjusted to obtain strongest predictors of TB treatment defaulting at the Dangme West district.

Table 7. **Adjusted Odds Ratio for Tuberculosis treatment defaulting**

Results:

Variable	Adj. OR(95% CI)	P-value
Age group 18-		
25	1	
26-35	0.34 (0.12,0.96)	0.04
36-45	0.18 (0.06,0.58)	0.004
Above 45	0.30 (0.10,0.90)	0.032
Education		
None formal	1.57 (1.22,2.03)	0.001
Formal	1	
Distance to facility 0.5-		
1	1	
1.5-2.0	3.61 (1.64,7.97)	0.001
2.5-3	2.45 (0.94, 6.42)	0.068
>3.5	1.66 (0.56,4.89)	0.34
Other Treatment		
No	1	
Yes	0.29 (0.15,0.58)	0.001
Duration of symptoms before seeing the doctor		
2months or less	1	
More than 2 months	2.12 (1.05,3.26)	0.034
Household aware		
Yes	1	
No	2.26 (1.00,5.08)	0.05

*Statistically significant findings are in **boldface** type*

Table 7 above shows adjusted odds ratio after accounting for the effect of other factors. Statistical significant variables that were found to be associated with the outcome are none formal education [OR: 1.57, 95%CI: 1.22, 2.03; P= 0.001], distance of 1.5-2.0 [OR:3.61, 95%CI: 7.97; P= 0.001], reporting first to the clinic more than 2months on experienced the signs and symptoms [OR: 2.12, 95%CI: 1.05, 3.26; P= 0.034] and hidden of TB status to family members and friends [OR: 2.26, 95%CI:1.00, 5.08; P= 0.05]. Theses were found to strongly predictor or associated with TB treatment default after adjusting for the effect other factors.

CHAPTER FIVE 5.0 DISCUSSION

BACKGROUND CHARACTERISTICS OF THE PARTICIPANTS

In this study default of TB treatment cases and controls was high among males than the females. This finding is in line with the findings of Hill and others, 2005 that the rate of TB treatment defaulting was higher in males. Default rate is high among the age groups 18-25 and 26-35 of the participants. This finding is contrary to the findings of Aneanyangwe, 2006b and Dodor, 2004 which indicated higher default among age groups of 21-40 and 25-44 respectively.

Adjusted odds ratio revealed that none formal education was strongest TB treatment default [OR: 1.57, 95%CI: 1.22, 2.03; P= 0.001]. The odds of a case with none formal education is almost 1.6 times that of a control. Participants with none formal education mostly had strong belief in superstitions and they are easily influenced by herbalist and spiritualist.

PATIENT RELATED FACTORS

Adjusted odds ratio showed that 1.5-2 km distance from case's home to the clinic [OR: 3.61 95%CI: 1.64, 7.97; P= 0.001] were 3.6 times more likely to default TB treatment than the control. This is a strongest predictor of treatment default.

In this study cases who took a car to the health centre for the TB treatment default the most [50(68.5%)]. This was because of their low income level and was not able to afford transport fare on daily basis. In fact, the main occupation in the study district was fishing and fish mongering. Even the weekly financial support from the TB coordinator was used by client on other things. This finding is in conformity with the findings of Hill, 2005 that TB is considered as the disease of the poor and it mostly affects those of lower income earnings. This makes it difficult for such patients to afford transport fare to attend clinic on daily basis to assess for their medicine as it drains them financially as such reduces treatment seeking.

The study revealed that the patients who traveled out did so in search of work and sought for spiritual support. This finding is contrary to the findings of Adjei and others, 2002b that patients' migrated to avoid humiliation from the stigma attached to TB.

The patients who defaulted thought were cured of the TB because of the disappearance of the signs and symptoms experienced [OR= 57.30, 95%CI: 21.19, 154.90; P= 0.001]. This is not a strong predictor of TB treatment default when adjusted odds ratio was done. Other reasons indicated were feeling of weakness, hunger, drug reaction and non confidence in orthodox medicine. This finding confirmed the findings of Liam, 1999 that patient defaulted treatment because they related the disappearance of TB signs and symptoms with cure of the disease. The finding is not significant in this study.

Patients who drink alcohol while on treatment were found to default TB treatment. This might be due to forgetfulness on their part to take the treatment after been intoxicated previous night. This finding substantiates the findings of Jaggarajamma and others, 2007; Diel and others, 2001 and Burman and others, 2007 that alcohol dependence was the strongest risk factor of TB treatment default. The finding however, is not significant in this study after adjusted odds ratio was done.

The initial signs and symptoms experienced by patients were cough, malaise among others and with their limited knowledge on seeking for TB treatment services, chemical shops are used and therefore delays early report to the clinic. They mostly report to the clinic more than two months on experienced the signs and symptoms [OR: 2.12, 95%CI: 1.05, 3.26; P= 0.034]. This is the strongest predictor of TB treatment default when adjusted odds ratio was done. This finding substantiates the findings of Eastwood and others, 2004 that the symptoms of TB such as cough, fever among others resemble most respiratory diseases. Patients mistakenly believed they had malaria or pneumonia and as such delayed in early assessment of medical service. The duration of presentation varies between four (4) days and three (3) years with a median of 2 months.

The study revealed that most of the TB patients used both traditional medicine (herbal concoction and anointing oil) and orthodox medicine simultaneously. The reasons were to hasten cure and to drive away evil spirits because of fear of death and cultural belief of TB being spiritual and or curse. This finding is in line with the findings of Vlassoff, 1994 that

TB patient's usage of traditional and medical services simultaneously stem from the concept of traditional belief of TB being a demon inside the body and must be killed.

It is interesting to note that in this study patients considered hard work to be the cause of TB and that as soon as they were relieved of the signs and symptoms they stopped taking the TB treatment. This finding is consistent with the findings of Balddawa and others, 1997b that TB is attributed to hard work and that the initial symptoms such as malaise are overlooked.

The default was high at continuation phase [53(72.4%)] than intensive phase [20(27.4%)].

SOCIAL, ECONOMIC AND CULTURAL FACTORS

53(72.6%) cases and 131(85.6%) controls made their TB status known to family members and friends. 21(39.6%) cases and 61(46%) controls of them received financial support whereas 15(28.3%) cases and 7(5.3%) controls were sent to the spiritualist. This might be due to the cultural belief and fear of death from TB. This finding is contrary to the findings of Tekle and others, 2002 that lack of family support promoted TB treatment default.

However, those who hid their TB status [OR=2.26, 95%CI: 1.00, 5.08] were almost 2.3 times likely to default treatment and it is a strongest predictor in this study when adjusted odds ratio was done. Such individuals did that for fear of neglect in order to protect their dignity. This finding confirmed the findings of Johansson and others, 1996 that patients hid their TB status from family members and friends to avoid social isolation and to protect their dignity.

Cultural belief associated with TB in the study area was 'curse'. Hard work was indicated as the cause of TB. This accounts for patients stopping the TB medicine as soon as the signs and symptoms disappeared.

Fishing and fish mongering were most occupation in the area. This brought to bear the lower income level of the people and their difficulty to afford transport fare to the clinic on daily basis for the medicine. This finding confirmed the findings of Hill, 2005 that TB is the disease of the poor and it mostly affects those of lower income earnings. This makes it

difficult for such patients to afford transport fare to the clinic to assess their medicine on daily basis.

SERVICE PROVIDER FACTORS

Most TB patients were counseled on their first visit to the health centre for treatment therefore the counseling section was inadequate considering the educational level of the people. This finding is in line with the findings of Guillaume-Signoret, 2006 and Uwah and others, 2006b that inadequate counseling and information provision by health personnel were the cause of TB treatment default.

Privacy was provided for the patients being attended to at the clinic however, this finding is contrary to the findings of Rajeswan and others, 1999 that lack of privacy was associated with treatment default. Moreover, it is of not much importance in this study.

Health education on TB was given to all the patients at the TB unit of the various health centres in the district however, with their limited educational level and cultural beliefs services of shrine and spiritualist were sought.

From this study almost all the patients spent less time at the clinic for their medicine while Chakaya, 2007c and Jittimanne and others, 2007 found in their study that patients spent more time at the clinic. This finding is contrary to their study findings.

Care providers did not give a card indicating review date for the patients thereby promoting treatment default. This finding is similar to findings of Salles and others, 2004 that health care providers did not give TB patients cards indicating their review date. This finding however, is not significant in this study.

DOTS were not strictly practiced in the study areas. TB medicine was given mostly on weekly and monthly basis in order to reduce financial strain on patients in terms of daily transportation to the clinic. Another reason was to help reduce the rate of default among patients who traveled out of their communities. Yet most of such patients who traveled out their communities did not return for further treatment when their TB medicine got finished.

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CHAPTER 6 6.0 CONCLUSIONS AND RECOMMENDATIONS 6.1 CONCLUSION

The study explicitly showed that the distance of 1.5-2km from the patients' home to the clinic was a predictor that promoted treatment default. This is because the main occupation in the study area was fishing and fish mongering and with their lower income level it makes it difficult to afford transport fare on daily basis for the medicine. The Enabler fund to support patients with their transportation and feeding according to the TB coordinators was not regular and even that patients use the money received on other purpose. This depicts the state of poverty in the area.

Secondly, patients report late to the hospital for treatment usually more than two months on experienced the signs and symptoms. They mostly use the services of the chemical shops and also the strong cultural belief on TB as being a curse made them to seek for spiritual

support. Interestingly, some of the patients receiving anti-tuberculosis medicine simultaneously use the service of the spiritualist. This brings to bear the limited knowledge of the people on the disease condition as well as the initial signs and symptom experienced.

Thirdly, patients' hidden TB status from family members and friends was a predictor of TB treatment default. They do that because of stigma and fear of avoidance and neglect that might be meted on them. However, patients' whose families were aware received various support such as financial, reminding them of their drugs while some were sent to a spiritualist.

Finally, people with no formal education were associated with a higher risk of TB defaulting in the district, a factor promoting treatment default. Such individuals are easily influenced as they are not able to think through issues.

6.2 RECOMMENDATIONS DISTRICT HEALTH MANAGEMENT TEAM

Spiritualist in the communities must be involved in TB programmes in their localities for them to be aware of the signs and symptoms of the disease as well as the consequences of defaulting treatment. This would help them identify cases in their prayer camps and refer for medical management while they see to the spiritual side of the disease.

There should be intensive education on TB in the churches, schools, on durbar grounds etc to sensitize community members its existence, free assess to medical care and treatment duration. The initial signs and symptoms must be made known to them and the need to seek for early treatment at the hospital.

TB programmes should be integrated into other existing health services such as outreach, maternal and child welfare programmes among others in order to increase its awareness.

Chemical sellers must be enlightened on signs and symptoms of TB for them to detect cases that might be reported at their facility.

Every community where there are cases of TB must have treatment supporter to administer the medicine and supervise patient take the medicine on daily basis. The supporter would therefore serve as an encourager for the patient.

Existing treatment supporters should be involved in the detection of new cases, follow ups and effective administration of DOTS to patients. For such individuals to be committed to the voluntary task there should be a package to motivate them.

TB patients who migrate must be given referral to the clinic in such areas for continuation of the treatment.

Income generation activities with NGOs involved must be encouraged to support community members have improvement on their financial status.

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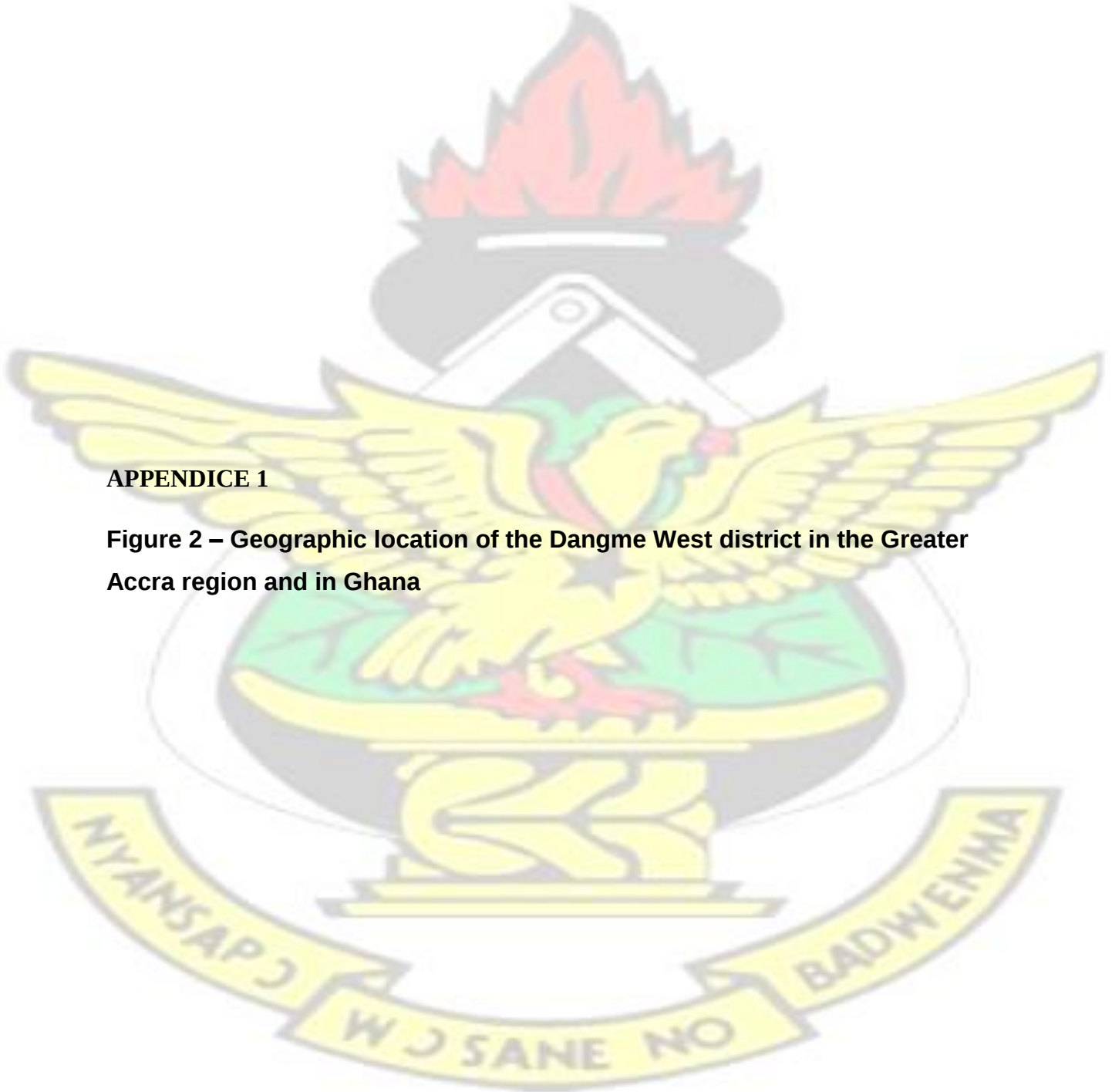
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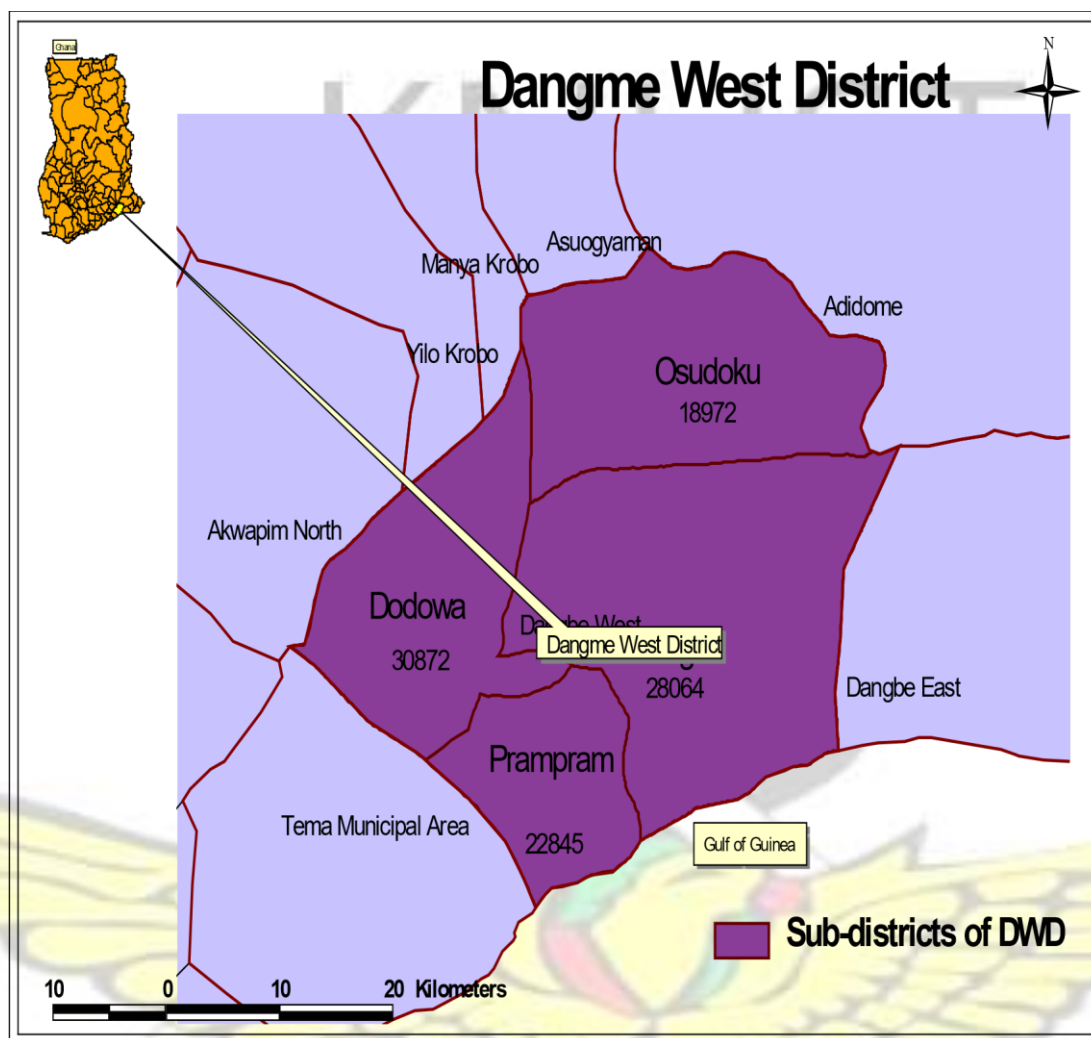
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APPENDICE 1

Figure 2 – Geographic location of the Dangme West district in the Greater Accra region and in Ghana





APPENDICE 2 QUESTIONNAIRE

PLEASE KINDLY FILL THIS QUESTIONNAIRE WHICH SEEKS TO ANSWER QUESTIONS ON PREDICTORS OF TUBERCULOSIS TREATMENT DEFAULTING AT DANGME WEST DISTRICT.

INFORMATION PROVIDED WILL BE HANDLED WITH MUCH CONFIDENTIALITY.

KINDLY TICK APPROPRIATELY IN THE BOX PROVIDED FOR THE SELECTED ANSWER.

CODE_____

DATE_____

BACKGROUND INFORMATION

1. What age category are you in?

1. 18- 25	☐
2. 26 – 35	☐
3. 36 - 45	☐
4. >45	☐

2. What is your sex?

1. Male	☐
2. Female	☐

3. What is your educational level?

1. Formal	☐
2. None Formal	☐

4. What is your marital status?

1. Divorced	☐
2. Married	☐
3. Separated	☐
4. Single	☐
5. Widow/Widower	☐
6. cohabitation	☐

PATIENT RELATED FACTORS

5. How far was your home to the clinic in kilometers (Km)?

1. $\frac{1}{2}$ -1
2. $1\frac{1}{2}$ -2
3. $2\frac{1}{2}$ - 3
4. >3

☐☐☐☐☐

6i. How did you get to the clinic?

1. Walked
2. Took a car
3. Others(specify)-----

☐☐☐

6ii. If you boarded a car, how much did you spend on transportation to the clinic and back home? -----

6iii. Who paid the bill?

1. Self
2. Family members
3. Husband/ Wife
4. TB coordinator
5. Non Applicable (99)

☐☐☐☐☐

7i. Did you receive money from the TB coordinator?

1. Yes
2. NO

☐☐

7ii. How was the money given to you?

1. Daily
2. Weekly
3. Monthly
4. Once a while
99. Non Applicable

☐☐☐☐☐

7iii. Did you at times use the money given by the TB coordinator for other personal things with the intention of replacing later?

1. Yes
2. No
99. Non Applicable

☐☐☐

8i. When you started the hospital treatment, did you travel outside your locality?

1. Yes
2. No

☐☐

If yes, why did you travel?-----

----- 8ii. Did your drugs get finished before you returned?

1. Yes

☐

2. No

☐

8iii. What did you do when your drugs got finished?

1. Contacted the nearest hospital immediately

☐

2. Waited till return

☐

3. Did not return for further drugs

☐

4. Returned immediately for treatment

☐

9i. Did you ever stop taking the TB drugs?

☐

1. Yes

2. No

☐

9ii. What was your reason for stopping the treatment?

☐

1. Was feeling well

☐

2. Do not have money

☐

3. Was feeling weak

☐

4. feel hungry

☐

5. Drug reaction

☐

6. Run out of medicine

☐

7. Thought hospital treatment will not cure the disease

☐

10. What phase of the treatment did you stop taking the TB drugs?

1. Intensive phase (2 months of treatment).

☐

2. Continuation phase (4 months of treatment).

☐

11i. Did you use other treatment along side the hospital treatment?

☐

1. Yes

☐

2. No

If yes, list them-----

11ii. What was your reason(s) for using other treatment?

12. How did the disease start?

1. Cough for more than three weeks
2. Profuse night sweat
3. Cough out blood
4. Fever
5. Malaise

☐
☐
☐
☐
☐

13. When did you first experience the symptoms before reporting to the hospital?

1. < 1 months
2. 1-2 months
3. 3 – 4 months
4. >4 month

☐
☐
☐
☐

14. What did you do when you first experienced the symptoms?

1. Self-medicate
2. Use over the counter drug
3. Use the service of traditional healer
4. Reported to the hospital immediately

☐
☐
☐

15. What made you think that you were cured of the disease?

1. Result of laboratory sputum
2. Signs and symptoms experienced stopped
3. Others

☐
☐
☐

16. What are the consequences of defaulting tuberculosis treatment?

1. Organisms build resistance
2. Infect all those around
3. Death
88. Don't know

☐
☐
☐
☐

17. Do you use any of the following drugs?

1. Alcohol
2. Cigarette
3. Tobacco
4. None

☐
☐
☐

SOCIO-ECONOMIC AND CULTURAL FACTORS

18i. Were those in your family, house and friends knew that you were suffering from TB?

1. Yes ☐
2. No ☐
- 18ii. If No, why ☐
1. Fear of avoidance ☐
 2. Fear of eviction ☐
 3. Fear of divorce ☐
- 18iii. If Yes, what support did they render concerning your treatment? ☐
1. Reminding me to take my drugs. ☐
 2. Supporting financially. ☐
 3. Helping in household chores. ☐
 4. No support ☐
 5. Took me to spiritualist ☐
 99. Non Applicable ☐
19. What is the cultural belief of Tuberculosis in your locality? ☐
1. Demon inside ☐
 2. Curse ☐
 3. Spiritual disease ☐
 88. Don't know ☐
20. What is the attitude of the community members in accessing health care services in relation to TB? ☐
1. Self medication ☐



2. Spiritual healer ☐
3. Shrine ☐
88. Don't know ☐
21. What do you think was the cause of your TB?
1. Hard work ☐
2. Poverty ☐
3. Infectious disease ☐
88. Don't know ☐
22. How many people sleep in a room in your house?
1. 1 - 4 ☐
2. 5 – 7 ☐
3. 8 – 10 ☐
4. >10 ☐
23. What is your occupation?
1. Farming ☐
2. Fishing ☐
3. Fish mongering ☐
4. Artisan ☐
5. Business ☐
6. Unemployed, retired, student ☐
7. Government, private worker ☐
24. What is your household / monthly income?
1. <GHC50.00 ☐
2. >GHC50.00 ☐

SERVICE PROVIDER RELATED FACTORS

25. How often were you counseled on the condition by the care providers?
1. On the first visit ☐
2. On each visit ☐
3. Once a while ☐
4. Never counseled ☐
26. Did the care providers provide privacy while attending to you at the hospital?
1. Yes ☐
2. No ☐
27. How were you always served with your drugs on each visit to the clinic?
1. Daily dose ☐

2. Weekly dose ☐
3. Monthly ☐
4. Others----- ☐

28. Did the health professionals educate you on the disease condition?
1. Yes ☐
2. No ☐

39. Did the health care providers give card indicating your review date?
1. Yes ☐
2. No ☐

30. How long did you have to wait at the hospital on each visit before you are served with the drugs?
1. <2hrs ☐
2. 3hrs ☐
3. 4hrs ☐
4. >4hrs ☐

THANK YOU

