FACTORS INFLUENCING EARLY PULMONARY TUBERCULOSIS DETECTION AMONGST UGANDA PEOPLE'S DEFENCE FORCES PATIENTS IN BOMBO GENERAL REFERRAL MILITARY HOSPITAL

BY

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A DISSERTATION REPORT SUBMITTED TO THE SCHOOL OF NURSING AS PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELORS IN NURSING SCIENCE OF INTERNATIONAL HEALTH SCIENCES UNIVERSITY

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DECLARATION

I Grace Baguma Birungi declare that this Dissertation on **"Factors Influencing Early Pulmonary Tuberculosis Case Detection amongst Uganda Peoples' Defense Forces PTB patients in Bombo General Military Referral Hospital"** has been composed and written by me. Full acknowledgement is given where assistance has been sought most especially from my supervisor, Mr. Afayo Robert or where other views from different scholars are quoted. It is a requirement by the School of Nursing as partial fulfillment of the academic requirement for the award of the Degree of Bachelors of Nursing Science of International Health Sciences University**.**

Signature……..Date……**……**

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APPROVAL SHEET

This Dissertation entitled **"Factors Influencing Early PTB Case Detection amongst UPDFs PTB Patients at Bombo General Military Referral Hospital"** has been supervised and approved by me and it's ready for submission.

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Date……

Supervisor:

Mr. Afayo Robert, BSN, Msc Clinical Epidemiology and Biostatistics.

DEDICATION

This dissertation is dedicated to my spouse and the children who have bravely invested their precious time to enable me complete this course in the midst of my numerous challenges at my work place. I dedicate this work piece to all personnel who are striving to improve on the health service delivery and to better understand their field of Bachelorette Nursing I salute you. To those who would like to cement the advancement and improvement of clinical nursing care in the health service delivery and bring about a meaningful change in the nursing career to their fullest potential this is dedicated to you.

The report is rich enough to challenge nurses who have not undergone this course and who are involved in the routine nursing care and administration of the hospital plus any other duty assigned in the health sector. It is clear enough to interest the young generation in developing their career as researchers in health care. It is a report filled with different exposures that are not related to nursing yet there are wonderful health-related exciting ventures to develop a nurse into an effective researcher.

I am convinced that having this dissertation previewed by the University Supervisor and the work supervised will captivate the health workers from the level of policy makers to the personnel in the lower cadres of health service delivery. The report is also written to benefit ordinary health workers who desire to be part of the exemplary health service planners, for aiming at job satisfaction and hence make a difference in the health service delivery of today and tomorrow in a meaningful way

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This is to acknowledge the entire University staff and the Dean of the School of Nursing, International Health Sciences University Kampala, and the University Research Supervisor Mr. **Afayo Robert** who has spent many hours laying the foundation for excellence, your tireless support and hard work are recorded in the archives of heaven. The University Academic Registrar, **Ms Evelyn Ayot and** my work supervisors' of Uganda Peoples' Defense Forces, You have always been my ***"agreeable factor."*** Your tribute towards me speaks volumes of your character. Thanks for enabling me achieve my goal. I would also like to take this opportunity to acknowledge **The late Brigadier General Dr. S. K. Lwanga**, Thank you for your endless love, support and courageous words which have encouraged me to make long strides to develop my career.

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DEFINITION OF TERMS

(1) **Early tuberculosis (TB) case detection** rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy directly observed treatment short course (DOTS).

(2) **Health care-seeking behavior for TB** is described as the ability of the patient to recognize TB-related symptoms, the urge of the patient to present to health facilities and/or ability to seek for alternative medical resources.

(3) The **case detection** rate is the proportion of incident smear-positive TB cases detected through a TB program. It is measured as the notification rate of new cases of smear-positive TB divided by the estimated incidence rate.

(4) The term **"case detection"**, means that TB is diagnosed in a patient and is reported within the national surveillance system.

(5) A **new case of TB** is defined as a patient who has never received treatment for TB, or who has taken anti-TB drugs for less than 1 month.

(6) **Smear-positive** is defined as a case of TB where Mycobacterium tuberculosis bacilli are visible in the patient's sputum when examined under the microscope.

(7) **Stigma** is defined, as an 'attribute that is deeply discrediting' and that reduces the bearer from 'a whole. 'Stigma exists when a person is identified by a label that sets the person apart. Stigma makes it more difficult for people with a cough of long duration who suspect they may have TB to seek care. By delaying seeking care, these people may develop more serious symptoms, and they become more difficult to treat; and as they remain infectious for longer are more likely to transmit the disease to others.

Or

(8) In this study **"Stigma"** is referred when a patient is said to be stigmatized if he/she feeling ashamed of having tuberculosis; have to hide tuberculosis diagnosis from others, isolated due to tuberculosis; and if tuberculosis affects the following: relation with others; work performance, marital relations, family responsibilities, and family relations.

(9) In this study "**Cultural Factors"** included religious beliefs, traditional healing and other beliefs that influenced individuals on the cause and treatment of Pulmonary Tuberculosis.

LIST OF ACRONYMS

%:……Percent

AIDS:…….Acquired Immune Deficiency Syndrome

CDC: …….Center for Disease Control and Prevention

CDR ……..Case Detection Rate

DHAPP…….Department of Defense on HIV/AIDS Prevention Programs

DOTs……Directly Observed Treatments

GMH……Bombo General Referral Military Hospital.

HIV:…….Human Immune Virus

IHSU:……..International Health Sciences University

MDGs:…….Millennium Development Goals.

MOH: …….Ministry of Health

NTCP……..National TB control program

PEPFAR:…….President's Emergency Plan For Aid Relief.

PTB:……Pulmonary Tuberculosis

RTI ……..Research Triangle International

SS+……..Sputum Smear Positive

TB……Tuberculosis.

UK:……...United Kingdom

UPDF……Uganda Peoples Defense Forces

WHO:……...World Health Organization

ABSTRACT

Introduction

Pulmonary tuberculosis is a contagious disease which attacks mainly the respiratory system and any part of the body as extra pulmonary TB. Delayed early case detection increases the probability of cross infection and secondary complications and ensuing into high rates of morbidity and mortality thus hampering the productivity of human resource.

Methodology

A cross sectional study design was used to investigate factors influencing early PTB case detection among 368 respondents of the UPDFs at Bombo Military Hospital. The respondents who consented to participate in this study were sampled using convenient sampling method. A pre-tested researcher administered questionnaire was used to collect quantitative data on early TB case detection and associated factors.

Results

This study revealed that 48% of the UPDFs patients at Bombo were detected with PTB in about two weeks or less than two weeks and 52% were detected with PTB in more than two weeks. Henceforth, early PTB case detection amongst UPDFs patients at Bombo was found to be influenced by Patient related factors such as knowledge about early signs and symptoms of PTB ($P<0.001$) and whether early PTB case detection was necessary (OR=1, P=0.023). Social demographic related factors include: age of UPDFs being 34 or more (OR= 1.58, CI = 1.05-2.39, P = 0.03) the married, (OR = 1.42, CI= 0.73-0.2.73, P= 0.001), less or equal 10 years of service in the UPDF, (OR= 2.19, CI= 1.43-3.36)**,** >3years spent in same unit (OR=2.38, CI=1.47-3.88, P=0.001), rank of the UPDFs

(OR=1.94, CI=1.02-3.69, P=0.008) Life style factors which included cigarette smoking (OR=0.57, CI=0.37-0.86, P=0.008) Alcohol intake (OR=0.38, CI=0.23-0.62, P<0.001), and fear of stigma (OR=0.64, CI=0.41-0-99, P=0.046). Health facility related factors include: availability of medical supply (OR=1.66, CI=1.05-2.61, P=0.030), provision of health education (OR=6.04, CI=3.65-10.01, P <0.001), distance of >5Km of reach to the health facility (OR= 5.65, CI=3.5-9.12, P<0.001), attitude of health workers (P<0.001), had significant statistical association between early PTB case detection and UPDFs patients**.**

Conclusion:

Early PTB case detection amongst the UPDF's at Bombo was low. This was influenced by lack of knowledge about early signs and symptoms of PTB, patients' ability to know whether early detection of PTB was necessary, being more than 34 years old, married, divorced or widowed, years spent in service, years spent in a present unit, rank in the army, life style factors such as smoking and alcohol intake, fear of stigma, and distance of 5km reach of health facility, attitude of health workers, waiting time and provision of health education and consequently influencing health seeking behavior.

Recommendations

To advocate for regular health education activities through all unit establishments about PTB among all UPDF's, sensitization of commanders about PTB and availability of TB services. This should be based on adequate dissemination of appropriate information to all levels of UPDFs ranks geared at implementing outreach services to reach out especially those affected by distance and assuage the fear of stigma by creating awareness about TB.

CHAPTER ONE:

INTRODUCTION TO THE STUDY

1.0 Background of the Study

Pulmonary Tuberculosis Bacilli (PTB) is a contagious disease caused by Mycobacterium tuberculosis bacteria. The bacteria can attack any part of the human body as extra-pulmonary TB, but commonly it affects the lungs due to its affinity to oxygen. It spreads as an air droplet infection and people sick with Pulmonary Tuberculosis Bacilli are infectious, while other types of TB such as extra pulmonary tuberculosis are not infectious (TB outside the lungs). When the immune response cannot suppress replication, primary infection leads to active PTB (progressive primary TB). The most common clinical manifestation is pulmonary tuberculosis, [PTB] typically affecting the parenchyma of the middle and lower lung. In the most infectious patients, bacilli can be seen microscopically on stained sputum smears (60 to 70 percent of pulmonary cases; (Maria et al, 2004).

Worldwide TB has remained one of the main causes of morbidity and mortality from an infectious agent accounting for 85% of all deaths in the Sub-Saharan region despite the availability of treatment that cure most cases of TB second only to the human immunodeficiency virus, or HIV (WHO, 2004). The latest estimates reported was that there were almost 9 million new cases in 2011 and 1.4 million TB deaths (990 000 among HIV- negative people and 430 000 HIV-associated TB deaths) (WHO, 2009).

In Africa the burden of TB has been reported in South Africa as one of the countries with the highest prevalence rate in the world estimated at 440/100,000 population in 2003 and it is anticipated to rise due to the high prevalence of HIV/TB co-infection (WHO, 2009).

In East Africa, research has established that PTB Case Detection Rate in Kenya increased from 57% in 1996 to 70% in 2006, an increase of 23% or 13% pointing towards an increase of 95% (CI:6-20) early detection rate.(WHO, 2009). This ranks Kenya as one of the countries which have probably reached, or is very close to reaching; the 70% target set for 2005 early PTB case detection according to the Millennium Development Goals ranking scheme. (WHO, 2009).

Nationally, Uganda has been ranked as the 15th country amongst the world's 22countries with a high PTB burden. (WHO, 2009) In 2004 the country had nearly 112,000 new PTB cases, with an estimated incidence rate of 402 per 100,000 people. It has been reported that Tuberculosis early case detection rate in Uganda was 61.00 as of 2010. Its highest value over the past 20 years was 61.00 in 2010, while its lowest value was 13.00 in 1990 and treatment success rate of 74%. These reports indicate that Uganda's PTB program indicators are still lagging behind the global STOP TB targets. Studies done indicated that Uganda's TB unclassified prevalence rates were estimated at 330/100,000 and 426/100,000.(PEPFAR, 2012) Hence high TB/HIV co-infection rates resulting into high morbidity and mortality rates a challenge to the country's control efforts.

However, in Bombo Military Hospital, the burden of TB has not been documented but efforts have been made by Research Triangle Institute (RTI) in partnership with the Uganda People's Defense Force (UPDF) in HIV/AIDS Control Programs to implement HIV-related services that respond to Uganda's high rate of tuberculosis (TB), a co morbid factor responsible for many HIV-related deaths in the Uganda People's Defence forces. The partnership of UPDF with the Department of Defense on HIV/AIDS Prevention Program 2008-2011 (DHAPP) intended to increase access to HIV/AIDS-related services to military personnel and their families in order to ensure better care and treatment of the infected; improve diagnosis, early PTB case detection but little has been documented to determine factors that influence early PTB case detection amongst UPDFs patients in Bombo military hospital.

Consequently the internationally agreed-on target for TB control, embraced by the United Nations Millennium Development Goals (MDGs), was to detect 70 percent of sputum-smear-positive cases and successfully treat 85% of such cases by the end of 2005. The anticipation is that, if these targets can be reached and sustained, incidence rates will be falling by 2015, and the TB prevalence and mortality rates of 1990 would be halved by 2015 (WHO, 2012).

Therefore, detection of the most infectious cases of tuberculosis (sputum smear-positive pulmonary cases) – by case-finding in patients attending health facilities is an essential component of the control of tuberculosis. Its objective is to identify the sources of infection in the community, that is, individuals who are discharging large numbers of

tubercle bacilli. Hence early detection and treatment of those infectious patients rapidly renders them non- infectious, thereby cutting the chain of transmission. A secondary benefit of case detection is to lessen the delay in initiating treatment, thereby increasing the probability of cure. The Millennium Development Goals (MDGs) highlight the need for enhanced measurement of health indicators, including TB-specific MDG indicators such as incidence, prevalence, mortality, success with DOTS (Directly Observed Treatment, Short course), and case detection with DOTS.

However, reports indicate that high morbidity and mortality rates of TB occur in countries with weak routine communicable disease surveillance systems, and progress towards delayed early case detection. This is a result of relying on an old technique of TB detection by means of three specimens of sputum smear microscopy to diagnose PTB. Though, diagnosis can be made within a day, but this type of test does not detect numerous cases of less infectious forms of PTB (WHO, 2013).

Like any other disease, low rates of early case detection of PTB makes a significant socio-economical negative impact on national economy in terms of impediment of human resource productivity. This also results into tremendous financial burden on the individual and hence causing treatment failure due to secondary complications resulting into poor prognosis which incur high risks of morbidity and mortality rate. (Bustamante et al, 2000).

1.1 Statement of the Problem

In Uganda the detection and treatment success rates rank between 43 and 68 percent, respectively for new sputum smear-positive (SS+) cases which are also still below WHO global standards of 70% and 85% respectively. In addition to that Uganda's TB problem has further been exacerbated by a strong association between TB and the high endemic infection rates of HIV/AIDS which alters the natural history of TB especially those who report at the health facility in late stages of HIV.

Studies done by Research Triangle Institute (RTI) in partnership with the Uganda People's Defense Force (UPDF) in HIV/AIDS Control Programs to implement HIV-related services amongst UPDFs families and the partnership of UPDF with the Department of Defense on HIV/AIDS Prevention Program (DHAPP), (2008-2011) established that the existence of PTB as a co- morbid factor in HIV amongst UPDFs patients attending HIV/AIDS related services was very high. (USAID, 2006).

Furthermore, a total of 654 newly diagnosed PTB patients were detected with PTB in HIV between the periods of January 2011 to April 2013 in Bombo General Military Hospital according to Bombo Biostatistics report. In the wards patient are referred from various UPDFs units when they have complications of the PTB yet they have been in other health facilities in the peripheral areas gazetted for UPDF with symptoms of the disease but treated as patients of other diseases.

Similarly, other Tuberculosis profile reports conducted by USAID indicate that in Uganda about 19 percent of TB patients are estimated to be HIV-positive (USAID, 2006**).** Hence delay in early PTB case detection worsens the prognosis of the disease and hence increases the spread of PTB infection.

Though UPDF has qualified health workers and have well equipped laboratories put in strategic areas that can be accessible to all soldiers in the UPDF, the capacity to establish early PTB case detection with confirmed laboratory diagnosis still remains an issue of clinical concern. Patients who are diagnosed with PTB will have had symptoms for over six months before. It is until one is completely unable to perform his routine duties and now admitted as a severely ill patient with complications of the disease that is diagnosed. The core of the problem therefore is that factors influencing early Pulmonary Tuberculosis detection among patients in Bombo General Referral Military Hospital are not yet known.

1.2 General Objective:

To determine factors influencing early pulmonary Tuberculosis detection among UPDF patients attending services at Bombo General Referral Military Hospital.

1.2.1 Specific Objectives:

(1) To determine the prevalence of early PTB case detection among UPDF patients attending services at Bombo General Referral Military Hospital

(2) To identify Socio-Demographic factors influencing early Pulmonary Tuberculosis case detection among patients in Bombo General Referral Military Hospital

(3) To determine patients' related factors influencing early pulmonary Tuberculosis case detection among UPDF patients in Bombo General Referral Military Hospital

(4) To identify the health facility related factors influencing early pulmonary Tuberculosis case detection among UPDF patients in Bombo General Referral Military Hospital

1.3 Research Questions

(1) What is the prevalence of early PTB case detection among UPDF patients in Bombo General Referral Military Hospital?

(2) What are patients' factors influencing early pulmonary Tuberculosis case detection among UPDF patients in Bombo General Referral Military Hospital?

(3) What are the Socio-Demographic factors influencing early pulmonary Tuberculosis case detection among UPDF patients in Bombo General Referral Military Hospital?

(4) What are the institutional factors influencing early pulmonary Tuberculosis case detection among UPDF patients in Bombo General Referral Military Hospital?

1.4 Significance of the Study

The study will enable the Chieftaincy of Medical services of UPDF to invest results obtained from this research to implement effective and accurate financial policy for the PTB control programs.

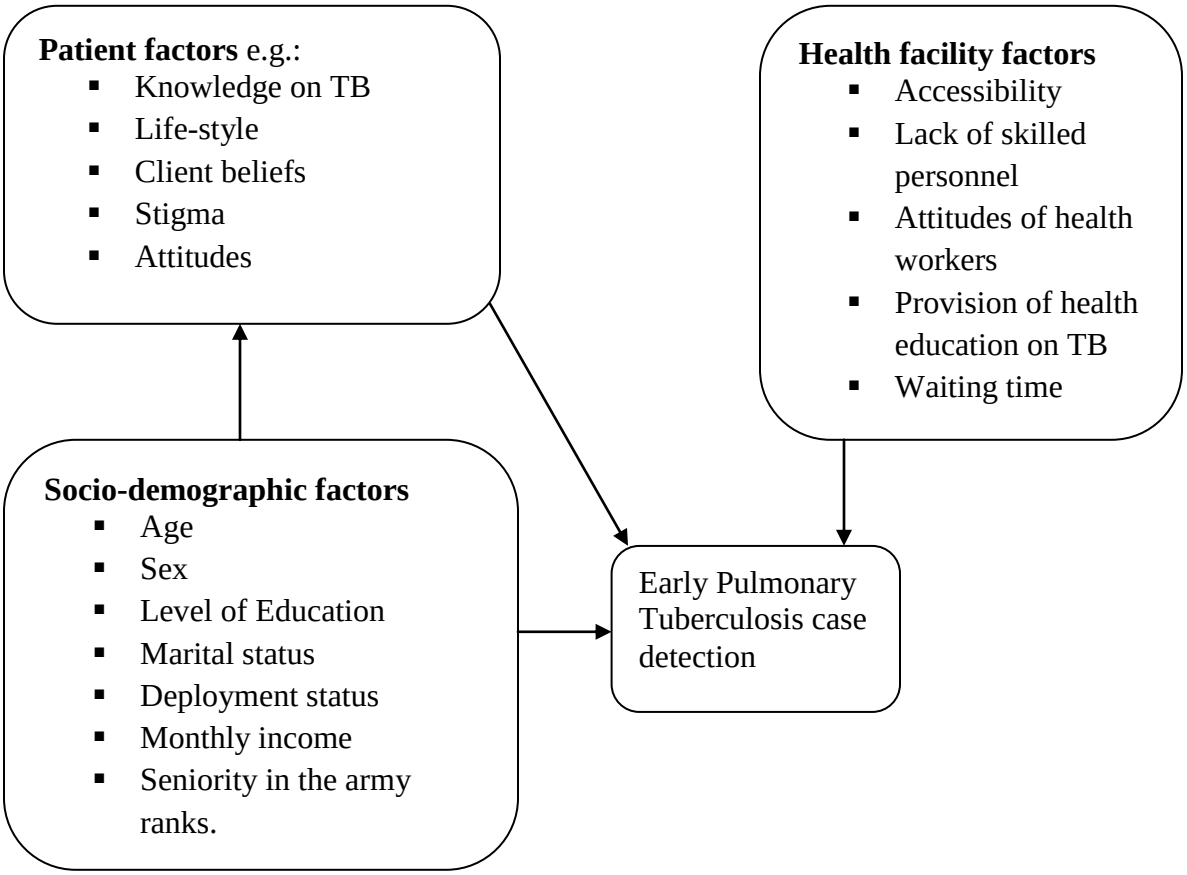
This research will recommend to the Chieftaincy of Health service delivery in UPDF to enhance diagnostic apparatus in Bombo General Military aiming at enhancing early PTB case detection in HIV positive patients.

The study will enable policy makers implement standardized procedures in early detection of PTB.

Recommendations will also be made to invest in infrastructure of laboratory facilities, isolation TB ward to implement streamlined disease surveillance and augment early TB case detection and improve on the diagnostic process.

Recommendations could then be made to the National TB Control Programs (NTCP) on how early case detection of PTB could be improved in Bombo. To improve on institutional policies that affect specific psycho-social needs of soldier such as deployment status and their general welfare.

Figure 1: Conceptual framework showing factors influencing Early Pulmonary Tuberculosis Case detection in Bombo General Referral Military Hospital.



1.7 Narrative of conceptual frame work.

Figure 1 is the conceptual frame work demonstrating the relationship between the independent variables and the dependent variable. The independent variables included the patient factors, socio-demographic factors and the health facility factors that had possible association with the overall poor health seeking behavior and hence influencing early Pulmonary Tuberculosis case detection the dependent variable, amongst UPDFs PTB patients at Bombo General Military Referral Hospital.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents existing literature about factors influencing early Pulmonary Tuberculosis case detection among PTB patients.

The literature was discussed under patients' related factors, socio demographic factors and health system related factors that influenced early PTB case detection among PTB patients. The PTB case detection rate (CDR) is defined as the ratio of the number of notified PTB cases to the number of incident PTB cases in a given year and is expressed in percentage.

2.1 Early Pulmonary Tuberculosis Case Detection

In Uganda early PTB case detection remains a challenge and it is ranked to be at 51% and yet the key target for PTB control programs worldwide is to achieve sputum smear-positive CDR greater than 70% (WHO, 2009). According to WHO TB report 2009, patient delays may be further reduced by early treatment initiation and this increases the risk of community members being exposed to the TB infection from undetected cases. There should be deliberate efforts by health care providers to detect TB patients early, make diagnosis and initiate patients on anti TB drugs to reduce the infectious phase of patients. Such efforts would consolidate the gains made by the DOTs program.

A cross sectional study to explore the impact of psychological factors and cultural factors on delay of TB diagnosis in Peru Amazon found that only a quarter of patients sought

testing within 1 month of symptoms onset; half of the patients in more than 2 months and three quarter of patients within 3 months. Other patients waited longer between symptoms identification and their initial visit to a health post or hospital (Carolyn, 2009). Similarly, a questionnaire-based survey involving 218 pulmonary TB patients treated for two months at 20 health care clinics and 3 hospital conducted in eight cities within the state of Rio de Janeiro, also found that the median time that elapsed from the onset of TB symptoms to diagnosis was 68 days (IQR: 35-119 days), the patient median delay (time from symptom onset to initial medical visit) was 30 days (IQR: 15-60 days) (Audrey, 2011). Rajaswari et al, 2002, in India found that among 531 TB patients, 29% of patients delayed seeking care for one month.

Sharif M et al (2005) established that a considerable proportion of tuberculosis cases were not detected by the public health system. It was also estimated that Uganda, increasing case detection by only 1% could avert 3200 cases and prevent 2000 deaths from TB over the next 10 years. In Kenya, where the HIV epidemic has not yet started to decline, this could avert 6700 cases and 4900 deaths from TB (Hogle J.A.2002).

Early TB case detection is an important component in the efforts to combat the spread of the disease and need to be put at the forefront of planning so that it is supported. Prevalence will decrease sooner if case detection by DOTS programs (and hence the quality of treatment) can be improved more quickly, thus reducing the burden of illness during this period. Therefore, prevalence will then decrease further than indicated if case detection rates exceed 70% (Martien W. 2006).

Improving case detection will generate prevalence rates of 190 to 250 per 100 000 population in 2015, which represents less than halving of prevalence since 1990. However, TB case detection in Tanzania is mainly through passive case finding where patients present themselves to the health facility to seek care. Hence, passive case finding depends much on the patient motivation and knowledge, financial capability, degree of suspiciousness of health workers and the accuracy and effectiveness of diagnostic services.

2.2 Influence of Patient related factors on early PTB Case Detection.

The Center for Disease Control ranked stigma as a universal problem influencing early PTB case detection, (CDC, 2012). As a consequence, stigma affects health seeking behavior out of fear of being socially ostracized as an HIV/AIDS related infection. In this regard a cross section study was conducted in Gilbel Gibe, South West Ethiopia to establish the influence of stigma on health seeking behavior. The researcher in this study analyzed that out of the TB suspects in this study area, 51.3% perceived that other people would consider them inferior if their TB status was known. It was also reported that 51.2% had high stigma and 46.2% did not seek health care for their illness.

In a similar study done in Kenya, it was established that stigma influenced early health seeking behavior due to lack of knowledge about TB (Dana Schneider et al, 2009). In Japan studies done concluded that stigma caused extensive delay to health seeking behavior among TB symptomatic patients (Aoki et al 1990). Also in other similar studies done, social isolation among TB symptomatic patients was described in Ghana and Nepal.

In Ghana the community felt that TB patients should never sell their commodities in the market and in Nepal there was a general belief that one should not meet with people who have TB and neither visit homes where there is a household member diagnosed with TB. The researcher concluded that there was inappropriate health seeking behavior and stigma towards amongst people with symptomatic PTB in Ethiopia. (Aoki et al 1990).

There is suspicion that in UPDF stigma could be one of the causes of delay in health seeking behavior among patients with symptomatic TB. Therefore this study endeavors to verify whether stigma is one the factors that influence early PTB case detection in UPDF communities.

Health care-seeking behavior for TB is described as the ability to recognize TB-related symptoms, the urge of the patient to present to health facilities and/or ability to seek for alternative medical resources (e.g., family and community healers), and adherence to effective treatment regimens and treatment monitoring. (WHO,2009), (CDC,2012) In a study done on health seeking behavior in Gilbel Gibe south west of Ethiopia, the researcher's findings established that individual factors, such as poor perception towards TB due to lack of knowledge, attitudes, gender, sex, ethnicity, low income, in addition to health service barriers which includes accessibility and acceptability of care, lack of financial resources mainly for transport, and quality of care, often delayed or prevented a person from seeking health care and treatment (CDC, 2012)**.**

A significant number of them did nothing since they considered that their illness was not severe. Traditional beliefs such as "evil eye", Satan and witchcraft were the commonest perceived causes of TB in the study.

In Tanzania, a significant number of people also mentioned that witchcraft could be the cause of TB. Cold air, alcohol, smoking and lack of sanitation were common perceived causes in different studies. These traditional beliefs might influence early detection of TB as most people with such beliefs may not visit health care facilities. (Wandwalo et al, 2000). Henceforth in Tanzania health care seeking behavior was affected by knowledge deficit, gender and low educational background. (Wandwalo et al, 2000).

Similarly a study from Ethiopia showed that 46% of patients seeking care at health facilities did so after informal treatment failed. Moreover, patients' poor perceptions of the cause of TB such as "evil eye" were related to a prolonged delay to seek medical care. Some patients had religious beliefs that every illness can be cured by miracle Intervention. **(**Gibe, 2009). Studies established that 50.4% of the respondents believed that TB is caused by "evil eye". Another Study in Nigeria showed that 10 % of the respondents believed that PTB is caused by spiritual attack. **(**Gibe, 2009). Similar reasons were mentioned in Vietnam (Martein et al, 2006)

Hence the researcher concluded that TB control programs in Ethiopia should health educate rural communities, particularly the females and non-educated individuals and emphasize the importance of early detection of TB. **(**Gibe, 2009).

Conversely in Bombo Military Hospital very little is documented about possible factors that may be associated with patient's health seeking behavior hence influencing early PTB case detection.

2.3 Influence of Socio-Demographic related factors on early PTB case detection

A cross-sectional study by Rajaswari, 2002, found that the patient delay was greater if the patient had initially consulted a private provider (OR: 4.0, P = 0.001), resided at a distance of 2 KM from a health facility (OR: 1.8, P = 0.02), and was an alcoholic (OR: 1.6, P= 0.04), and shorter duration of cough (OR: 2.6, P = 0.001). Similarly, in Brazil, a study found that factors independently associated with patient TB case detection delay were female gender (OR: 2.7, CI: 1.3-5.6), cough (OR: 11.6, CI: 2.3-58.8) and unemployment (OR: 3.2, CI: 1.7-6.0). (2012).

Differences exist as to whether employment and socio-economic status are contributory factors to patient TB detection (Pandit et al, 2006). For some researchers, being employed may be associated with better socio-economic status, which enables one to afford cost of transport and healthcare fees, increasing the chances of early TB case detection (Okanurak et al, 2008; Tissera, 2003; Hasker et al, 2008). However, a study in India did not find socio-economic status to be significantly associated with TB detection (Pandit et al 2006).

Studies have used descriptive statistics mainly frequencies and percentages to show the socio-demographic factors against early TB detection. Several studies have tried to look at the relationship of the patient's educational level to their health status, seen as important to gain a better understanding of the causes associated with adverse health outcomes, identifying patients at risk of such adverse outcomes and subsequently developing appropriate interventions (DeWalt, 2004).

A study carried out in Thailand revealed that of 1,241 patients studied, 81% of the patients with higher educational levels and knowledge about tuberculosis visited health clinic for early TB diagnosis, the argument being that these socio-demographic factors are associated with early TB detection (Okanurak, 2008).

Several other studies have demonstrated educational levels of TB patients as significant predictors of TB detection (Balasubramanian, 2004; Date, 2005; Mishra, 2005). Meanwhile, a Malaysian study demonstrated that, among other factors, delay in TB detection was associated with completed secondary education (O' Boyle et al, 2002). Conversely, a study in Ndola (Zambia), found that age, marital status, and educational levels were not significantly associated with TB detection (Kaona, 2004).

Studies in Nepal (Bam & Gunneberg, 2006), Uzbekhistan (Hasker et al, 2008), Malaysia (O' Boyle, et al, 2002), Swaziland (Pushpananthan, 2000), and Zambia (Needham, 1998) indicated that cost of transport accounts for delay in TB detection. In the Malaysian study, cost and time of travelling to the treatment centre were major contributory factors associated with delay in TB detection (O' Boyle et al, 2002). In Botswana, research found that compliance to detection was related to material and emotional support from family members (Kgatlwane, 2005).

According to Smart, 2010, patients' knowledge and attitudes affects TB detection. Smart (2010) stated that patients' lack of knowledge of TB symptoms or failure to recognize them results in delays in seeking healthcare.

Denial may be high due to stigmatization amongst misinformed communities. The above become barriers to early diagnosis and detection, resulting in increased risk of transmitting TB to other close contacts and the general community, as well as poor health outcomes for people with the disease (Afari-Twunamasi, 2005).

According to DeWalt et al (2004), lack of TB literacy is associated with poor health outcomes and conversely TB literacy improves health outcomes and compliance.

In Botswana, research found that compliance to detection was related to the availability of information (Kgatlwane, 2005). A study carried out in Thailand aimed at determining the patient factors predicting early TB detection found that of the 1,241 patients studied, 81% with knowledge of TB were detected early with TB, the argument being that this factor is associated with TB detection and subsequently detection success (Okanurak, 2008).

Several studies in India, Indonesia, Russia (Woith, 2009), Kenya, Tanzania, (Wandwalo, 2000) and South Africa (Afari-Twunamasi, 2005), have shown that knowledge of TB is generally low in many settings among healthcare patients. This study also seeks to establish whether similar Socio-demographic characteristics of the population of Bombo General Military Hospital influenced early PTB case detection.

2.4 Influence of Health facility related factors early Pulmonary Tuberculosis detection

Delay in TB detection/diagnosis at the health facility is influenced by quality of service delivered to the public. It has also been established that distance from health facilities,

traveling costs and other indirect costs such as loosing work days due to long distances may hinder patients to access healthy facilities. Research study on accessibility to health care was conducted in Ethiopia and it was estimated that 220 (46.2%) TB suspects did not seek help due to long distance while 120 (25.2%) contacted a health institution,

125 (26.3%) went to drug vendors as an alternative option, 29 (6.1%) did self medication hoping to get better and 2(0.4%) went to traditional healers as a last resort.

The overall median delay to seek help somewhere other than health care (exceptional visits to traditional healers) was 4 weeks (ranging 2–52 weeks) (Gilgel, 2009). There are suspicions that similar factors may influence accessibility to health facilities among symptomatic TB patients of Bombo Military hospital.

A number of studies have shown the importance of the relationship between healthcare workers and the patients as contributing to TB detection. Bam et al (2005), in a study conducted in Nepal, found that the quality of the healthcare provider and patient interaction and relationship contributed to differences in TB detection. Similarly, a South African study (Peltzer, 2002) established that the quality of healthcare provider and patient communication, coupled with correct causative belief, were associated with TB detection.

In a study in Nepal, inconvenient opening times for TB clinics situated far from patients' homes accounted for delay in 28% of TB patients (Bam et al, 2005). Both studies recommended flexible clinic opening times to accommodate patients staying at a distance to improve TB detection.

Other problems facing patients include poor interpersonal communication with health staff, lack of attention and support at the clinic, difficulties for patients to re-enter the system if they missed treatment, and long distances to the health facilities (inaccessibility) (Jaiswa, 2003).

A Madagascar study also identified quality of relationships of patients with medical staff and staff knowledge and attitudes regarding TB as contributing to TB detection (Comolet et al, 1998). In this study, quality of relationships with and attitudes of healthcare workers had a significant bearing on TB detection, as they determined whether a patient reported early for TB detection.

CHAPTER THREE:

METHODOLOGY

3.0 Introduction

This chapter describes the procedures that were employed in conducting the study of factors influencing early pulmonary tuberculosis detection among UPDF patients in Bombo General Referral Military Hospital. It is organized under the following headings; the study design, study population, inclusion and exclusion procedures, data collection techniques, sample size determination, study unit, description of data collection instruments which were used as well as data analysis and presentation.

3.1 Research study design

The study employed a cross sectional descriptive study design using quantitative approaches to study the factors influencing early pulmonary tuberculosis detection among UPDF patients attending Bombo General Referral Military Hospital. Cross sectional study was chosen because the investigator intended to measure factors and prevalence of early TB case detection simultaneously at one point in time.

3.2 Study Area.

Bombo military hospital is located 21 miles on Kampala-Gulu highway as the only military referral hospital in the UPDF health system setting. It was elevated to the level of a National Military Referral Hospital in terms of staffing, equipment, consumables and the infrastructure. The hospital consists of five admission blocks with an optimal bed capacity of 96 beds, a maximum bed capacity of 130 but at times excessive bed capacity

raise to 150 admissions due to the influx of admitted patients from the surrounding catchment area of the civilian community. The hospital consists of eleven areas of specialization with relevant specialists as departmental heads and these include: department of obstetric and gynaecology, general Surgery, Anesthesiology, Orthopeadic, Internal Medicine, Peadiatrics, Ear Nose and Throat (ENT), Opthalmology, Dermatology and Diagnostic arm consisting of; Pathology, Radiology, and Laboratory Departments respectively. Therefore, this ranks General Military Hospital (GMH) as the highest level of health care delivery in the UPDF. It is also important to note that it is the only referral hospital in Luwero District after Nakaseke attained a district status.

Besides providing health service delivery to all UPDF personnel including their immediate families, Bombo Military Hospital is also surrounded by Bombo Town Health center III, Nyimbwa Health centre III, Saint Luke Namaligga Health center II, Kasana Health center II, Nakaseke Hospital and Kiwoko Missionary Hospital. Therefore, Bombo Military Hospital serves as the only referral centre to this catchment area in Luweero District. This increased the scope of the study area and also broadened the study population for comparison purposes during this research study.

3.3 Populations

Target population: All UPDF patients with pulmonary tuberculosis.

Accessible population: All UPDF patients with pulmonary tuberculosis attending services at Bombo Military Hospital August 2013.

Study population: All UPDF patients with pulmonary tuberculosis attending services at Bombo Military Referral Hospital during the research study period of August 2013 and who consented to participate in the study.

3.4 Eligibility criteria

3.4.1 Inclusion criteria

- UPDFs patients with pulmonary tuberculosis attending out- patients department and UPDFs patients attending health services as in- patients at Bombo general military referral hospital.
- UPDF patients suspected with pulmonary tuberculosis who consented to participate in the study.

3.4.2 Exclusion criteria

- Those who were unable to communicate or never consented for the study.
- UPDF patients who were very sick

3.5 Source of data

Primary data was obtained by interviewing UPDF patients with pulmonary tuberculosis.

3.6 Sample size determination

Kish and Leslie formula for cross-sectional study was used to determine the desired sample size for this study.

$$N = \frac{Z^2 \times P\,(1-P)}{e^2}$$

Where

N = Sample size

Z = Standardized normal Z score, 1.96

e = Precision, 0.05

P = Proportion of patients detected early with PTB, 0.61 (WHO, 2009).

$$N = \frac{(1.96)^2 \times 0.61 \times (1-0.61)}{(0.05)^2}$$

N = 366

3.7 Sampling procedure

A non-probability sampling technique that is, Convenience sampling procedure was used to select patients to participate in this study because it was difficult to develop sampling frame for probability sampling method. Patients were conveniently enrolled into the study from both out-patient department and in-patient department until the desired sample size was achieved.

3.8 Study variables

3.8.1 Dependent Variable

The dependent variable were early PTB case detection among UPDF patients in Bombo General Referral Military Hospital and were evaluated using how long the patient took to be given a confirmatory diagnosis of PTB by the qualified health worker from the time of onset of symptoms. Patients who sought health care service within 2 weeks of onset symptoms of pulmonary tuberculosis were considered to be diagnosed early.

3.8.2 Independent Variables:

These include:

- **Patient factors**: knowledge about early signs and symptoms of PTB, Knowledge on TB, life-style, client beliefs, TB related stigma and attitude towards health care service deliveries.
- **Health system factors**: Accessibility, Lack of skilled personnel, Attitudes of health workers, Provision of health education on TB, Waiting time
- **Socio-demographic factors**: deployment status, age, sex, level of income, education level, marital status and seniority in ranks.

3.9 Data collection

Pre-testing of the instrument

The study instrument (Appendix ii) was pre-tested among 10 subjects in Nakasongola military hospital to ensure clarity and that any mistakes in the instrument were corrected before the actual study.

3.10 Data collection techniques

Data collection was conducted through administering of pre-tested structured questionnaires by research assistants to interviewees, in simple English language and translated to Swahili whenever it was required. Every administered questionnaire was cross checked by the principal investigator for completeness before losing touch with the interviewee.

3.11 Data management and analysis

3.11.1 Data management

Data was tallied on a daily basis; questionnaires were coded manually before entering the information in the computer software called the Statistical Package for the social sciences (SPSS) with database functionalities to avoid re- entering the data during data entry. After data collection, questionnaires were kept under lock and key in a facility that would be accessible to the researcher only. The questionnaires would be kept for a year after which they would be destroyed.

3.11.2 Data Analysis Plan

Descriptive statistics was used to summarize continuous characteristics of study participants into median or Inter-quartile range (IQR). Categorical variables were summarized into proportions and Bar graphs. The proportion of patients who were detected early with pulmonary TB was also determined.

Bivariate analysis was performed to determine the relationship between factors and Early Pulmonary tuberculosis case detection using logistic regression. The strength of association was determined by odds ratio (OR) and the level of precision around OR was assessed by 95% confidence interval (CI) at α-level of significance of 0.05. Independent variables with P-values less than 0.05 were considered to be significant influence on Early Pulmonary Tuberculosis case detection among UPDFs.

3.12 Quality control techniques

To guarantee validity and reliability of this study report, the following were done;

The pre-testing of the tools or instruments (mainly the questionnaire and methodology) were done during the training of the research assistants to ensure that errors were minimized; while consistency and competence of data collection was preserved

The questionnaires were administered by trained Research assistants under close monitoring by the principle researcher. The techniques of interpretation and translation of the questionnaires were highlighted during the training to ensure efficiency. The random sampling process for identifying participants in the study helped in monitoring the reliability of the study.

My supervisor and other consultants at International Health Sciences University with expertise on TB data collection on early detection were asked to assess the content validity of the tool in order to make judgment concerning how well items in the tool represented their intended content area. The coefficient of validity interval was calculated for every item in the instrument and an average computed for the overall instrument. CVI was calculated as follows:

CVI= (No of items declared valid) ÷ (Total no of items). The instrument was accepted as valid because average CVI was equal to or greater than 0.7. Reliability of the instruments was achieved by using audit trial and mechanical recording instruments for qualitative

instruments which were used during key informants' discussions with health workers. This is because errors were minimized.

3.13 Ethical Considerations

This dissertation sought informed consent from the respondents. Maximum confidentiality of the respondents was observed. Research assistants were also trained on the professional code of conduct. Permission to conduct the study was obtained with the help of an introductory letter from International Health Sciences University. An authority to enter the community and conduct the study was granted by The Leadership of Uganda Peoples Defense Forces, the Chieftaincy of Medical Services, and the Director Bombo General Military Referral Hospital (GMH) was also informed by the relevant authority of the army.

To enhance maximum confidentiality, integrity, privacy and dignity of the respondents no use of personal names was recorded in accordance with the research guidelines which were observed during data collection. Signing of consent form by each and every respondent was highly recommended.

3.14 Dissemination Plan:

The study report was submitted to the school of Nursing of International Health Sciences University in partial fulfillment of the requirement for the award of Bachelors' Degree in Nursing Science. Copies of the findings were also distributed to the Leadership of UPDF, the Chieftaincy of Medical Services and The Director Bombo General Referral Military Hospital of Uganda Peoples Defense Forces.

The researcher also retained a copy for further reference.

CHAPTER FOUR:

DATA PRESENTATION AND ANALYSIS OF FINDINGS

Introduction:

The study report represents findings of data collected from 368 UPDFs respondents with pulmonary Tuberculosis at Bombo general military referral hospital. Among these included other soldiers admitted at Bombo general military referral hospital as referred cases from different UPDFs Health facilities during the month of August 2013.

4.0 Data Analysis and Interpretation.

In this chapter the study findings are presented and interpreted according to the study objectives which includes; Early PTB case detection, Patient related factors, Description of socio-demographic characteristics of the research participants, Socio-demographic data of research participants and Health facility related factors influencing early PTB case detection amongst PTB patients at Bombo General Referral Military Hospital.

Initially, 368 tuberculosis patients were estimated to be a representative sample size for this study. However, we could not reach the estimated sample size that what was anticipated because only 366 (99.5%) questionnaires had complete information and two questionnaires had errors and incomplete information.

4.1 The description of socio-demographic characteristics of UPDFs tuberculosis patients

The characteristics of socio-demographic factors are described in Table 1 and these include age, gender, and marital status, level of education, years of service spent in the

army, deployment status, and years spent in the present unit, rank, smoking status, Alcohol intake and fear of stigma.

The majority, 189 (51.8%) of the respondents were less or equal to 34 years. Of those 176 (48.2%) were greater than 34 years of age, the mean age in years was 35.81 and the median age was 34.00. The standard deviation was 7.783.

Respondents were asked to state their gender. Of the 366 respondents, majority 300 (82.0%) were males and 66 (18.8%) were females.

Each respondent was asked to state about their marital status whether single, married, divorced or widowed. Most of the 258 (70.9%) respondents reported to be married, 49 (13.5%) were divorced, 43 (11.8%) reported to be single and few of them 14 (3.8%) widowed.

Mostly, 213 (58.2%) reported to have spent less or equal to 10 years of service in the army, 153 (41.8%) slightly more than half reported more than 10 years of service in the army, the mean year of service was 11.35 and the median of years of service was 10.00 with a standard deviation of the years of service as 5.970

Similarly, a greater number of the respondents 235 (70.4%) had spent more or equal to three years in the present unit and 99 (29.6%) slightly less than a half reported to have spent less than three years in their present unit and the mean of years spent in present unit

was 3.76 and median of years spent in the present unit was 3.00. and a standard deviation of years spent in the present unit as 3.754.

Mostly, 334 (94.4%) of the respondents were deployed and few 20 (5.6%) reported as not deployed.

The proportion of the Corporals 21.5% (78) was slightly greater than that of the Privates 21.2% (77), but superior to that of 15.4% (56) sergeants, 10.2% (32) Warrant Officers 14.3% (52) Lieutenants, 8.05% (31) Captains and few were 4.1% (15) Majors and 4.7% (17) Lieutenant Colonels.

Table 1: Description of the socio-demographic characteristics of UPDFs PTB patients at Bombo General Referral Military Hospital

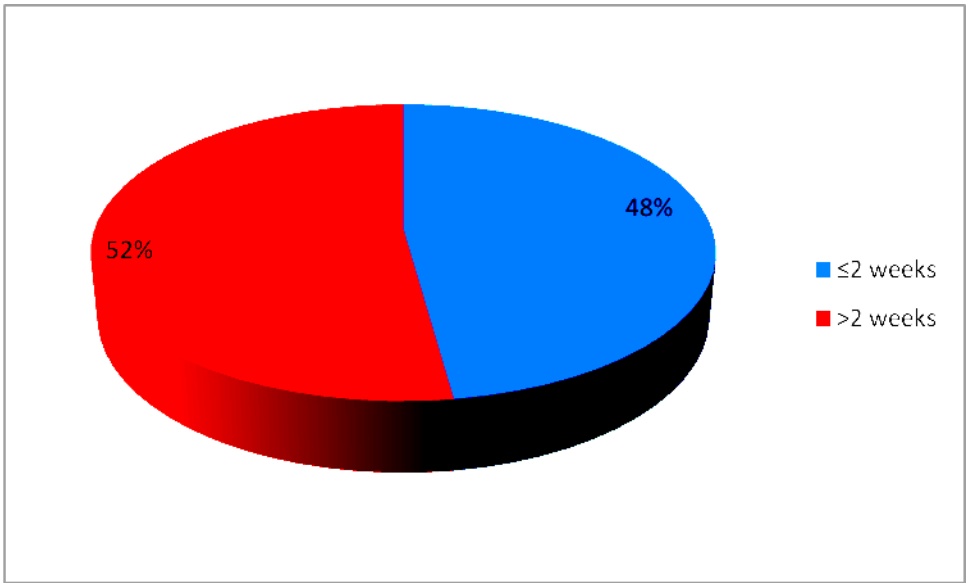
Age	≤34 years	189	51.8
	>34 years	176	48.2
Gender			
	Female	66	18.0
	Male	300	82.0
Education			
	None	15	4.1
	Primary	138	37.7
	Secondary	162	44.3
	Tertiary	51	13.9
Marital status			
	Single	43	11.8
	Married	258	70.9
	Divorced	49	13.5
	Widowed	14	3.8
Years of service			
	≤10 years	213	58.2
	>10 years	153	41.8
Deployment			
	Deployed	334	94.4
	Not deployed	20	5.6
Years spent in present Unit.			
	≤3 years	235	70.4
	>3 years	99	29.6
Rank			
	PTE	77	21.2
	Cpl	78	21.5
	Sgt	56	15.4
	WO	37	10.2
	Lt	52	14.3
	Capt	31	8.5
	Maj.	15	4.1
	Lt.Col	17	4.7
Smoking status			
	Yes	208	57.5
	No	154	42.5
Alcohol intake			
	Yes	273	75.0
	No	91	25.0
Fear of stigma			
	Yes	248	67.9
	No	117	32.1

***KEY: A Unit is the instuitional term used in the UPDF to imply a station where a soldier has been deployed for a unspecified period until a formal rotation is made to end the tour of duty. It is an establishment composed of a commanding officer, an administrative officer and other established designations of the UPDF organizational structure.**

4.2 Early PTB case detection amongst the UPDFs

Mostly 177 (48%) of the respondents interviewed and who accessed health care services at Bombo General Referral Military Hospital were detected with PTB in about two weeks or less than two weeks and 191 (52%) were detected with PTB in more than two weeks.

Figure 2: Early PTB case detection among UPDFs in Bombo General Referral Military hospital



4.3 Influence of Patient Related Factors on Early PTB case Detection among Patients in Bombo General Referral Military Hospital.

The following were assessed as patient related factors as described in Table 2 and these included; knowledge about early signs and symptoms of PTB, Whether PTB is curable,

early PTB case detection is necessary, or PTB is preventable and whether respondents had knowledge on mode of transmission of PTB.

Mostly, 171(46.7%) of the UPDF patients who agreed that they were knowledgeable about early signs and symptoms of PTB, of these more than half 104(59.4%) had early PTB case detection and 67(35.1%) had delayed early PTB case detection (OR=0.14, CI=0.02-1.19). This study indicated that early PTB case detection depended on the level of knowledge of UPDFs about the signs and symptoms of TB ($P < 0.001$).

Most, 346(94.8%) of the respondents said it was necessary to have early PTB case detection and of these 171(97.7%) had early PTB case detection and 175(92.1%) had delayed early PTB case detection. The respondents who did not find it necessary to have early PTB case detection were 4 times more likely to have delayed early PTB case detection than those who agreed that it was necessary to have early PTB case detection and this relationship was statistically significant (OR=3.66, CI= 1.19-11.26, P=0.023).

Of the patient factors studied, knowledge on whether or not TB is curable, TB is preventable and knowledge on mode of transmission were not significantly associated with early PTB case detection.

Table 2: Influence of Patient Related factors on Early PTB case detection among UPDFs in Bombo General Referral Military Hospital.

Variable	N (%)	Early detection	Delayed detection	OR(95%CI)	P
Knowledgeable about early S/S					
Strongly disagree	8(2.2)	1(0.6)	7(3.7)	1	
Disagree	63(17.2)	7(4.0)	56(29.3)	0.07(0.01-1.06)	<0.001
Neutral	118(32.2)	59(33.7)	59(30.9)	0.09(0.01-0.77)	
Agree	171(46.7)	104(59.4)	67(35.1)	0.14(0.02-1.19)	
Strongly agree	6(1.6)	4(2.3)	2(1.0)	1.14(0.12-10.71)	
TB is curable					
Yes	330(91.4)	153(89.0)	177(93.7)	1	
No	31(8.6)	19(11.0)	12(6.3)	0.55(0.26-1.16)	0.116
Early PTB detection is necessary					
Yes	346(94.8)	171(97.7)	175(92.1)	3.66(1.19-11.26)	
No	19(5.2)	4(2.3)	15(7.9)	1	0.023
PTB is a preventable					
Yes	275(76.2)	125(71.8)	150(80.2)	1	
No	86(23.8)	49(28.2)	37(19.8)	0.63(0.39-1.03)	0.063
Knowledge of mode of transmission					
Wind	81(22.3)	44(25.3)	37(19.6)	1	0.271
Breath (droplets)	243(66.9)	116(66.7)	127(67.2)	1.30(0.79-2.16)	
Contaminated food	14(3.9)	6(3.4)	8(4.2)	1.59(0.50-4.98)	
others	25(6.9)	8(4.6)	17(9.0)	2.53(0.98-6.52)	

4.4 Influence of socio-demographic factors on early PTB case detection among the 366 patients in Bombo General Referral Military Hospital.

The influence of the Socio-demographic factors of the respondents in Bombo General Referral Military Hospital was stratified by the time of case detection. Majority of the 365 TB patients interviewed 189 (51.8%) were aged less or equal 34 years. The

proportion of the respondents who were in the age bracket of less or equal to 34 years; and those who later had early PTB case detection was 57.7% (101).

With regards to early PTB case detection, UPDFs aged more or equal to (≥) 34 years were 1.6 times more likely to have early PTB case detection than UPDFs who are aged ≤ 34 years. Therefore, there was a statistical significant relationship between age and early PTB case detection (OR = 1.58, CI =1.05-2.39, P =0.03).

With regards to marital status, out of the 368 respondents interviewed, majority 258 (70.9%) reported to be married and of these 134 (76.6%) had early PTB case detection and half of them 124 (65.2) had delayed early PTB case detection. The married, (OR=1.42, CI=0.73-2.73), Divorced, (OR=4.72, CI=1.93-11.52) and Widowed, (OR=5.61, CI=1.36-23.09) UPDFs were significantly associated with early PTB case detection (P=0.001)

Majority, 213 (58.2%) of the respondents who had spent less or equal 10 years of service in the UPDF, more than a half 119 (68.0%) had early PTB case detection and 94 (49.2%) had delayed PTB case detection. Of these, 153 (41.8%) who had spent more than 10years in the UPDF, 56 (32.0%) had early PTB case detection and 97 (50.8%) had delayed PTB case detection, (OR= 2.19, CI= 1.43-3.36).

UPDFs respondents who had spent greater than 10 years of service in the army were 2.2 times more likely to have early PTB case detection than those who had spent less than or

equal to 10 years of service in the UPDF. There is statistical significant relationship between years spent in the service and early PTB case detection among patients at Bombo General Referral Military Hospital (P<0.001). Most of the respondents, 235 (70.4%) interviewed had spent less than or equal to 3 years in the present unit. Of these 133(79.2%) had early PTB case detection and 102(61.4%) had delayed PTB case detection. (OR = 2.38, CI =1.47-3.88).

UPDFs respondents who had spent more than three years in the present unit were 2.4 times more likely to have early PTB case detection than those who had spent 3 years or less in their present units. Therefore, there is a statistical significant association between years spent in the same or present unit and early PTB case detection among UPDFs patients at Bombo General Referral Military Hospital (P < 0.001).

78(21.5%) of the respondents were Corporals. About 37 (21.3%) of Corporals had early PTB case detection and 41(21.7%) had delayed PTB case detection (OR=1.94, CI=1.02-3.69, P=0.008). From this study, it has been established that a UPDFs patients at a rank of a Cpl, Sgt, WO, Lt, Capt, Major and Lt Col were more likely to have early PTB case detection than the one at a rank of a PTE. The rank of a UPDF patient significantly influenced the ability of UPDF patient to seek for early PTB case detection (P=0.008).

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Of the 208(57.5%) of the UPDFs patients who reported to be smoking, 88(50.3%) had early PTB case detection and 120(64.2%) had delayed early PTB case detection. This study has established that respondents who were smoking were less likely to have early

PTB case detection than the UPDFs respondents who were not smoking. Therefore there is statistical significant association between smoking and early PTB case detection among the UPDFs PTB patients at Bombo General Referral Military Hospital (OR=0.57, CI=0.37-0.86, P=0.008). Most, 273 (75.0%) of respondents who reported to be taking alcohol, slightly less than half 115(65.7%) had early PTB case detection and 158(83.6) had delayed PTB case detection (OR=1). Of 91(25.0%) who reported not taking alcohol, more than half 60 (34.3%) had early PTB case detection and 31(16.4%) had delayed early PTB case detection.

Respondents who reported to be taking alcohol were less likely to have early PTB case detection than the respondents who were not taking alcohol among the UPDFs PTB patients at Bombo General Referral Military Hospital. Hence, there was a statistical significant association between the UPDFs PTB patients who were taking alcohol and early PTB case detection. (OR=0.38,CI=0.23-0.62, P < 0.001).

Majority 248(67.9%) of respondents reported fear of stigma and of these 110(62.9%) had early PTB case detection and 138(72.6%) had delayed early PTB case detection. UPDFs PTB patients who reported fear of stigma were less likely to have early PTB case detection than those who did not have fear of stigma (OR=0.64, CI=0.41-0-99, P=0.046).

However, gender, level of education and deployment status of the UPDFs patients were not associated with early PTB case detection among UPDFs patients at Bombo General Referral Military Hospital.

Table 3: Influence of Socio-demographic factors on Early PTB case detection in Bombo General Military Hospital.

Variable	N (%)	Early detection	Delayed detection	OR(95%CI)	P-values
Age					
≤34 years	189(51.8)	101(57.7)	88(46.3)	1	
>34 years	176(48.2)	74(42.3)	102(53.7)	1.58(1.05-2.39)	0.030
Gender					
Female	66(18.0)	30(17.1)	36(18.8)	1	
Male	300(82.0)	145(82.9)	155(81.2)	0.89(0.52-1.52)	0.672
Education					
None	15(4.1)	5(2.9)	10(5.2)	1	
Primary	138(37.7)	76(43.4)	62(32.5)	0.41(0.13-1.26)	0.151
Secondary	162(44.3)	71(40.6)	91(47.6)	0.64(0.21-1.96)	
Tertiary	51(13.9)	23(13.1)	28(14.7)	0.18(0.18-2.04)	
Marital status					
Single	43(11.8)	26(14.9)	17(9.0)	1	
Married	258(70.9)	134(76.6)	124(65.6)	1.42(0.73-2.73)	0.001
Divorced	49(13.5)	12(6.9)	37(19.6)	4.72(1.93-11.52)	
Widowed	14(3.8)	3(1.7)	11(5.8)	5.61(1.36-23.09)	
Years of service					
≤10 years	213(58.2)	119(68.0)	94(49.2)	1	
>10 years	153(41.8)	56(32.0)	97(50.8)	2.19(1.43-3.36)	<0.001
Deployment					
Deployed	334(94.4)	160(92.5)	174(96.1)	1	
Not deployed	20(5.6)	13(7.5)	7(3.9)	0.49(0.19-1.27)	0.144
Years spent in present Unit.					
≤3 years	235(70.4)	133(79.2)	102(61.4)	1	
>3 years	99(29.6)	35(20.8)	64(38.6)	2.38(1.47-3.88)	<0.001
Rank					
PTE	77(21.2)	49(28.2)	28(14.8)	1	
Cpl	78(21.5)	37(21.3)	41(21.7)	1.94(1.02-3.69)	0.008
Sgt	56(15.4)	30(17.2)	26(13.8)	1.52(0.75-3.06)	
W0	37(10.2)	19(10.9)	18(9.5)	1.66(0.75-3.67)	
Lt	52(14.3)	19(10.9)	33(17.5)	3.04(1.46-6.31)	
Capt	31(8.5)	13(7.5)	18(9.5)	2.42(1.03-5.68)	
Maj.	15(4.1)	5(2.9)	10(5.3)	3.50(1.09-11.27)	
Lt.col	17(4.7)	2(1.1)	15(7.9)	13.13(2.79-61.64)	
Smoking status					
Yes	208(57.5)	88(50.3)	120(64.2)	0.57(0.37-0.86)	0.008
No	154(42.5)	87(49.7)	67(35.8)	1	
Alcohol intake					
Yes	273(75.0)	115(65.7)	158(83.6)	0.38(0.23-0.62)	<0.001
No	91(25.0)	60(34.3)	31(16.4)	1	
Fear of stigma					
Yes	248(67.9)	110(62.9)	138(72.6)	0.64(0.41-0.99)	0.046
No	117(32.1)	65(37.1)	52(27.4)	1	

4.5 Influence of Health Facility Related factors on Early PTB case detection among Patients in Bombo General Referral Military Hospital.

Table 4 shows the health facility related factors that were assessed as possible factors influencing early PTB case detection amongst UPDFs patients accessing health care services at Bombo General Military Referral Hospital. These include Distance of less or equal (≤) 5km or Distance more than (>) 5km away from the health facility, Attitude of health workers, Availability of medical supplies, Availability of health workers, Provision of health education and Waiting time of less than or equal to one hour or waiting time of greater than one hour at the healthy facility.

About 128 (35.1%) of the respondents reside within 5Km of health facility and of these 95 (54.3%) had early PTB case detection and 33 (17.4%) had delayed early PTB case detection. UPDF patients who reside within 5Km reach of health facility were 6 times more likely to have early PTB case detection than respondents who reported a travel distance of more than 5Km to access the health facility (OR=5.65, CI=3.5-9.12). In this study residing within 5Km reach of health facility was associated with early PTB case detection (P <0.001).

Majority, 236(64.7%) of UPDF patients rated attitude of the health workers as good and of these 135(77.1%) had early PTB case detection. UPDFs PTB patients who rated the attitudes of health worker as good, bad and very bad were less likely to seek for early diagnosis of PTB (P <0.001).

About, 211 (63.7%) of the respondents reported that medical supply were available. The proportion of patients who said medical supply were available and were detected early with PTB was 69.9% (107). UPDFs PTB patients who said medical supply were available were 1.7 times more likely to have early PTB case detection (OR=1.66,CI=1.05-2.61, P=0.030) than UPDFs PTB patients who reported no availability of medical supply. There was a significant relationship between early PTB case detection and patients who reported availabilty of medical supply.

Majority, 241(66.2%) of the respondents said there was provision of health education on PTB at the health facility and of these 149 (85.1%) had early PTB case detection while 92 (48.7%) had delayed early PTB case detection. Patients who said health education on PTB was provided were 6 times more likely to be diagnosed with PTB. There was a significant relationship between early PTB case detection and provision of health education (OR=6.04, CI=3.65-10.01, P <0.001)

Of the 238 (65.2%) respondents who reported waiting time of one hour or less before they were attended to, majority 156 (89.1%) had early PTB case detection and less than half 82 (43.2%) had delayed early PTB case detection. PTB patients who said waiting time was one hour or less at health facility were 11 times more likely to have early PTB case detection than those who denied that waiting time was one hour or less. Waiting time of one hour or less was significantly associated with early PTB case detection (OR=10.8, CI=6.2-18.86, P <0.001).

However there was no statistical significant relationship between availability of health workers and early PTB case detection among the UPDFs patients at Bombo General Referral Military Hospital.

Table 4: Influence of Health Facility Related factors on Early PTB case detection among Patients in Bombo General Referral Military Hospital.

Variable	N (%)	Early detection	Delayed detection	OR(95%CI)	P-values
Distance					
≤5Km	128(35.1)	95(54.3)	33(17.4)	5.65(3.5-9.12)	<0.001
>5Km	237(64.9)	80(45.7)	157(82.6)	1	
Attitude of health workers					
Very good	90(24.7)	18(10.3)	72(37.9)	1	<0.001
Good	236(64.7)	135(77.1)	101(53.2)	0.19(0.11-0.33)	
Bad	36(9.9)	21(12.0)	15(7.9)	0.18(0.08-0.41)	
Very bad	3(0.8)	1(0.6)	2(1.1)	0.50(0.04-5.83)	
Availability of supply					
Yes	211(63.7)	107(69.9)	104(58.4)	1.66(1.05-2.61)	0.030
No	120(36.3)	46(30.1)	74(41.6)	1	
Availability of health workers					
Yes	342(93.7)	161(92.5)	181(94.8)	1	0.384
No	23(6.3)	13(7.5)	10(5.2)	0.68(0.29-1.60)	
Provision of health education					
Yes	241(66.2)	149(85.1)	92(48.7)	6.04(3.65-10.01)	<0.001
No	123(33.8)	26(14.9)	97(51.3)	1	
Waiting time					
≤1 hour	238(65.2)	156(89.1)	82(43.2)	10.8(6.2-18.86)	<0.001
>1 hour	127(34.8)	19(10.9)	108(56.8)	1	

CHAPTER FIVE: DISCUSSION

5.0 Introduction

This chapter will focus on the discussion about major contributing factors that had significant bearing on the influence of early PTB case detection among patients in Bombo General Referral Military Hospital. The researcher also attempts to evaluate judgment of other findings published by different researchers about prevalence and early PTB case detection of pulmonary tuberculosis.

5.1 Early PTB case detection among UPDFs PTB patients.

This study has revealed that slightly less than half of the UPDFs PTB patients at Bombo General Referral Military Hospital who accessed health care services had early PTB case detection in about two weeks or less.

Consequently it is reported that prevalence will decrease further than indicated if case detection rates exceed 70 percent (Martien W. 2006).

But also results in this study were slightly below the Tuberculosis early case detection rate in Uganda which was ranked at 61.00 percent as of 2010 (WHO, 2009).

Similarly in the cross sectional study done by Carolyn in Peru Amazon (Carolyn, 2009) the prevalence of early PTB case detection was found slightly below the prevalence rates of early PTB case detection compared to those in GMH but also slightly below the 70 percent target set for 2005 early PTB case detection according to the Millennium Development Goals ranking scheme. (WHO, 2009).

It was established that factors influencing delayed early PTB case detection have contributed to inappropriate health seeking behavior and hence resulting into increased risks of high morbidity, mortality rates and also transmission of tuberculosis to other contacts among the UPDFs patients.

Comparably several studies have also revealed that delay in getting TB diagnosis and prompt treatment may lead to adverse effects on the patients, their families and the whole community as a diseased person will be transmitting infection as well as having poor prognosis. (WHO, 2013).

Henceforth, understanding determinants influencing early PTB case detection amongst UPDFs patients who access health care at Bombo General Military Referral Hospital is significant for timely diagnosis and designing tuberculosis case finding and health promotion activities to advance on health seeking behavior amongst the UPDFs patients. The foundation of this study hence forth has made findings be determined and have been made known.

This study has established that knowledge deficit of UPDFs PTB patients on early signs and symptoms of PTB was one of the determinants that influenced early PTB case detection and hence subsequent lower rate of early PTB case detection than the set target of World Health Organization (WHO). This was also aggravated by the co-existence of high HIV infection presenting PTB as a co- morbid factor. This clinical trend was found

to be challenge in the diagnostic process giving raise to higher rates of morbidity and mortality rates among the UPDFs PTB patients (USAID, 2006).

It has also been indicated that the number of UPDFs who did not find it necessary to have early PTB case detection were more likely to have delayed early PTB case detection than those who agreed that it was necessary to have early PTB case detection. This significant relationship had a bearing on the low levels of early PTB case detection as compared to the set target of World Health Organization (WHO).

Also other socio-demographic variables that could have possibly influenced lower rates of early PTB case detection as compared to the set target of world health organization (WHO) included age, marital status, years spent in service, years spent in the same unit, rank of the UPDF, cigarette smoking, alcohol intake and fear of stigma as well as patient and health facility related factors.

5.2 Influence of Patient Related factors on early PTB case detection.

In this study it was determined that lack of patients' knowledge on PTB early signs and symptoms or failure of PTB patients' to recognize the need to seek early healthcare significantly influenced early PTB case detection.

A similar study done in Tanzania found that significant number of people associated early signs and symptoms of PTB to witchcraft. Superstitious myths such as cold air, alcohol, smoking and lack of sanitation were some of the common perceived causes of PTB and these were found to be associated with patient's limited knowledge about signs and symptoms of PTB according to different studies done (CDC, 2012).

Therefore, knowledge deficit had considerable influence on early PTB case detection as most people with contrary beliefs may not visit health care facilities. A study from Ethiopia showed that 46 percent of patients seeking care at health facilities did so after informal treatment failed. This corresponded with patients' poor perceptions about the cause of PTB such as “evil eye” which were found to be having a relationship with prolonged delay in seeking medical care. Some patients had religious beliefs that every illness can be cured by miracle. (Gibe, 2009)

However studies done in Ethiopian were not in agreement with our study findings in regard to level of knowledge on signs and symptoms of PTB as an influence on early PTB case detection. (Gibe, 2009).

Similar findings were reported in Nigeria showing that 10 percent of the respondents believed that PTB is caused by spiritual attack. **(**Gibe, 2009) and similar reasons were mentioned in Vietnam. (CDC, 2012). Similarly in Kenya stigma was associated to lack of knowledge about PTB (Dana Schneider et al, 2009) hence influencing early health seeking behavior.

Mostly there was significant relationship between UPDFs patients who reported necessity to early PTB case detection and whether PTB is a preventable disease. Of those UPDFs patients who did not agree whether early PTB case detection was necessary and whether lack of knowledge about PTB being a preventable disease could be attributed to lack of knowledge about disease process of PTB. However UPDFs patients’ knowledge on mode

of transmission, and whether PTB is curable did not have significant relationship on early PTB case detection.

5.3 Influence of Socio-Demographic related Factors on early PTB case Detection.

This study also made it known that there was statistical significant association between age, marital status, years of service, years spent in the same unit, rank of the UPDFs, smoking status, alcohol intake, fear of stigma and early PTB case detection among UPDFs patients at Bombo General Referral Military Hospital. This was consistent with previous studies done in Gilbel Gibe south west of Ethiopia (CDC, 2012).

Although other studies done in Brazil (CDC,2012) found Socio-Demographic variables such as female gender and unemployment to be independently associated with delayed early PTB case detection, this study did not find any statistical significance between such variables and early PTB case detection amongst the UPDFs.

However, other studies have made endeavors to determine whether differences in patients' variables such as employment and socio-economic status have a bearing to determine patient's early PTB case detection (Pandit et al, 2006).

In this regard, some researchers have extensively labored to explain that being employed may be associated with better socio-economic status enabling one to afford cost of transport and healthcare fees, hence increasing the chances of early PTB case detection (Okanurak et al, 2008; Tissera, 2003; Hasker et al, 2008). Some researchers have also justified that the effects of employment have an association with increase in socio-

economic status (Okanurak et al, 2008) and consequent influence of indirect increase on early PTB case detection rates.

Conversely, other studies done in India did not find any significant relationship between socio-economic of a patient with early PTB case detection (Pandit et al 2006). On the contrary this study has also established that of the UPDFs senior ranking officers classified to be of high socio-economic profile have delayed early PTB case detection and this is most likely due to fear of stigma.

Stigma is one of the socio-demographic factors that have been ranked as a universal problem influencing early PTB case detection by the Center for Disease Control (CDC, 2012). Similarly in this study it has been determined that the UPDFs PTB patients who reported fear of stigma were more likely to have delayed early PTB case detection than those who did not have fear of stigma.

As a consequence, stigma has affected health seeking behavior of UPDFs most especially amongst the high ranking officers most probably due to fear of being socially ostracized as an HIV/AIDS related infection as PTB has been commonly found to be a co-morbid factor among the HIV/AIDS. In addition, studies done have found that Uganda's PTB case detection and treatment success rates range between 43 and 68 percent and for new sputum smear-positive (SS+) cases are also still below WHO global standards of 70 percent and 85 percent respectively. (USAID, 2006). Henceforth these findings could probably be attributed to fear of stigma.

Similarly a cross section study conducted in Gilbel Gibe, South West Ethiopia established corresponding significant relationship between stigma and health seeking behavior. This was corresponding with studies done in Kenya (Dana Schneider et al, 2009), in Japan, (Aoki et al 1990) and was also in line with the studies done in Ghana and Nepal who established similar findings.

The researcher analyzed that of the PTB suspects in this study area, 51.3 percent perceived that other people would consider them inferior if their TB status was known. Of 51.2 percent who had high stigma, 46.2 percent did not seek health care for their illness. Therefore findings in this study verified that stigma was one of the most likely determinants influencing early PTB case detection amongst the high profile ranks of the UPDFs.

Though in this study and other related studies done in Ndola (Kaona, 2004) Zambia did not find any statistical significant relationship between level of education and early PTB case detection, Several other studies have made effort to link the relationship of the patient's level of education with their health status as a beneficial gain to better understand causes associated with adverse health outcomes, ability to identify risks that predispose one to such adverse outcomes and subsequent progress of appropriate interventions (DeWalt, 2004).

Also similar findings in Thailand give point of view that there is an association between level of education and early TB case detection (Okanurak, 2008, Balasubramanian, 2004; Mishra 2005 and O' Boyle et al, 2002).

This study also found that being married, divorced or widowed UPDFs had a significant relationship with early diagnosis of PTB among UPDFs patients.

This was justified in the study done at Bombo General Referral Military Hospital by the Department of Defense on HIV/AIDS Prevention Program 2008-2011 (DHAPP) to establish Primary Maternal to Child Transmission (PMCT) in the HIV/AIDS clinic.

Efforts made by this partnership increased access of the married who were mostly maternity mothers among the UPDFs patients utilizing HIV/AIDS-related services than the singles, widowed and divorced of the UPDFs and hence this clinical trend has increased early PTB case detection and diagnosis as a co-morbid factor among the married of the UPDFs patients with PTB as a co-morbid infection than the singles, widowed and divorced of the UPDFs.

In Botswana, research found that compliance to detection was related to material and emotional support from family members (Kgatlwane, 2005). Similarly delay of early PTB case detection among the singles, divorced and the widowed could be associated with loss of this social fiber among these social groups which corresponds with the widowed and the divorced of the UPDFs in this study.

Influence on length of stay in the present unit among the UPDFs patients as having a significant relationship with early PTB case detection could not be clearly explained. . However, the UPDFs of lower ranks are more likely to spend more than 3 years in the same or present unit than Majors or Lieutenant colonels and hence influencing delayed

early PTB case detection. Longer periods in the same unit may probably result into progression of low morale; post traumatic stress disorder and psycho-socio stress amongst the UPDFs especially those in operational areas hence influencing poor health seeking behaviors.

Life style variables such as smoking status and alcohol intake were found to be one of the predictors influencing delayed early PTB case detection among the UPDFs. A cross-sectional study by Rajaswari, 2002, found that patient's delay of early PTB case detection was greater if the patient was an alcoholic or had shorter duration of cough. In Tanzania, a significant number of people also mentioned that among other socio-demographic factors, alcohol and smoking were commonly perceived as causes of PTB. (CDC, 2012).

These traditional beliefs might influence early PTB case detection as most people with such lay beliefs are more likely to be susceptible to poor health seeking behaviors.
However respondents of the UPDFs who reported to be taking alcohol were more likely to have delayed early PTB case detection than those UPDFs patients with PTB who had no history of alcohol intake. This social determinant could be explained as one of the predisposing factor to low body immunity due to erosion of body nutrients resulting from excessive alcohol intake. This social wreckage may probably influence temptations to the UPDFs practice of irresponsible sexual behavior hence increasing probabilities to HIV/AIDS infection a predisposing factor to high risks of PTB as a co-morbid factor in immune compromised individuals.

This kind of social life style leads to gross health tragedy which eventually alters disease process of PTB; increases PTB incidence rates as a co-morbid infection hence resulting into poor health seeking behavior and subsequent delayed early PTB case detection.

Of those who had history of smoking were more likely to have delayed early PTB case detection than those who had no history of cigarette smoking. It is traditionally known that active cigarette smoking predisposes one to frequent or chronic respiratory infections factors that are more likely to mask early signs and symptoms of pulmonary tuberculosis.

Therefore these biomedical developments could most likely influence poor health seeking behavior, self medication on assumption of treating ordinary cough or the commonly known as "smokers' cough" and hence delay early PTB case detection. However no previous studies have attempted to relate smoking to early PTB case detection.

5.4 Influence of Health Facility related factors on early PTB case detection

According to findings of this study, UPDFs patients who had a travelling distance of less or equal to 5Km were associated with early PTB case detection. Most UPDFs patients who are more than 5Km away from the health facility were more likely to stay at home and wait until adverse effects manifests before seeking for health care. The association of long distance and patients' delay in early PTB early case detection is linked with increased expenditure in terms of transport costs which may cause significant patients' clinical dropouts which is a challenge to diagnostic process. Hence promote self medication, help from unqualified practitioners and traditional healers. These findings are in accordance with those established in Ethiopia (Gilgel, 2009).

Rajaswari, 2002, found that the patient delay was greater if the patient resided at a distance of 2 KM from a health facility (OR: 1.8, P = 0.02). Therefore, this implies that long distances of more than 5Km amongst patients of UPDFs could impede health care seeking behavior hence lowering early PTB case detection because of financial constraints implications.

Also in Nepal (Bam & Gunneberg, 2006), Uzbekhistan (Hasker et al, 2008), Malaysia (O' Boyle, et al, 2002), Swaziland (Pushpananthan, 2000), and Zambia (Needham, 1998) indicated that costs of transport accounts for delay in early TB case detection.

Malaysian study also established that costs and time of travelling to the treatment centre to be major contributory factors associated with delay in early TB case detection (O' Boyle et al, 2002).

Attitudes of UPDFs patients towards health workers had significant influence on early PTB case detection at Bombo General Referral Military Hospital. Similar studies done by Comolet et al, (1998) in Madagascar have corresponding findings that quality relationships between medical workers and PTB patients had influence on early TB case detection. This relationship has a bearing to determine whether a patient reported early or delayed for TB case detection. Henceforth this raises possible concern that patients who have negative attitude towards health workers would experience unexpected adverse effects on their curative rates and attributing to the severity of tuberculosis clinical presentations as consequences of poor health seeking behavior.

Comparably this study corresponds with other findings done by Jaiswa who established that patients who experienced poor interpersonal communication with health staff, lack of attention and support at the healthy facility had difficulties to re-enter the care system if they missed treatment (Jaiswa, 2003).

This calls for further investigations into the cause of UPDFs patients' deviating attitude towards health workers who are most likely to resort to self medication. No previous studies have been done to determine factors influencing the relationship between attitude of patients and Health workers. However findings done in South African by Peltzer, (2002) established that the quality of healthcare provider was associated with early TB case detection.

Provision of health education transforms traditional beliefs, creates awareness and changes patients' perceptions about PTB and transforms attitude into biomedical understanding. Hence these are one of the elementary basics among UPDFs patients at Bombo General Referral Military Hospital towards significant association with early PTB case detection.

This is in relation with other findings done in Botswana that found compliance to PTB early case detection related to adequate availability of information about PTB (Kgatlwane, 2005).

Waiting periods of less than or equal to 1hr at the health facility had significant relationship with early PTB case detection among respondents at Bombo General Referral Military Hospital. This is consistent with studies done in Nepal, which established that inconvenient opening times for TB clinics were equivalent to waiting time of more than 1 hour at GMH and this accounted for delay in 28 percent of PTB patients (Bam et al, 2005).

In a study dine in Nepal (Bam et al, 2005) it was established that the trend of inconvenient opening times of TB clinics caused irregular and untimely availability of health workers hence discouraging patients to visit health care facilities ensuing into consequent delay of early PTB case detection. The researcher henceforth recommended that flexible clinic opening times to accommodate patients coming from long distances in order to avail health care be made to improve on early PTB case detection. However in this study availability of health workers did not have significant relationship between UPDFs patients and early PTB case detection.

5.5 Methodological issues.

Though the study design was chosen because the investigator intended to measure factors influencing early PTB case detection and prevalence of early TB case detection simultaneously at one point in time, but the study sample was limited to UPDFs patients who sought health care mainly in Bombo General Referral Military Hospital.

Therefore the findings of the research may only be generalized to UPDF PTB cases attending health care service at Bombo General Military Referral Hospital.

A general criticism of cross-sectional studies of this kind is the inability to show with certainty a causative relationship between factors influencing early PTB case detection and the outcome of interest. Finally, it must be noted that patient delay may sometimes be misclassified as health system delay, for example some patients who were asked to return for follow-up on several sputum investigations probably due to the existence of co-morbid factors may not have complied due to long distance and transport constraints, thus causing an underestimation of patient delay.

The level of Early PTB case detection in this study may have been underestimated or overestimated because the research study relied mainly on the estimates given by the respondents on when they were actually diagnosed with PTB.

CHAPTER SIX:

CONCLUSION AND RECOMMENDATIONS.

6.1 Conclusion

The main achievement of this study is to transform respondents' major concerns obtained during the interview into practical tools to entreat meaningful yardsticks from other researchers as starting points to offer improved health care services in accordance to the information obtained as factors influencing delayed early PTB case detection.

(1) Hence it was determined that the level of early PTB case detection in this study was low.

(2) That Socio-Demographic factors such as being more than 34 years old, being married, divorced or widowed, ten years of service, more than 3 years spent in present unit, rank in the army, being a smoker, being alcoholic and fear for stigma were significantly associated with early PTB case detection amongst the UPDFs

(3) Knowing early signs and symptoms of PTB and knowing that it is necessary to diagnose PTB early were the only patient related factors that were associated with early PTB case detection among the UPDFs.

(4) Among health facility related factors studied, residing within 5Km reach of health facility, very good attitudes of health workers, provision of health education and waiting time of one hour or less had strong relationship with early PTB case detection.

6.2 Recommendations

(1) Advocate for Strengthening of health education in all UPDFs health facilities aiming at creating awareness about disease process, early signs and symptoms, mode of transmission, knowledge about prevention and availability of curative treatment for TB, and the importance of seeking early health care intervention. This is geared at enhancing early PTB case detection amongst the UPDFs patients at Bombo General Military Referral Hospital.

(2) To ensure that shorter periods of rotating out from present units are implemented, change of institutional policy about length of service into the UPDF and limitation of frequent transfers that may possibly affect psycho-social being of the UPDFs and hence influence poor health seeking behavior.

(3) Sensitization programs to various commanders of different Units, Divisions and Brigades to Improve on their knowledge base and create awareness about TB. Ensuring that information about TB awareness, about the need to practice good health seeking behavior in general and availability of TB services in particular is efficiently disseminated among all UPDFs personnel.

(4) This is to ensure that all UPDFs gain adequate ability to recognize early signs and symptoms of TB and also seek early health care intervention from appropriate health care facilities. This will also enable commanders obtain appropriate problem solving solutions to soldiers under their command and control, geared at bringing about change of behavior, attitudes and practices to risky social life styles and hence mitigating fear of stigma.

(5) More importantly, intensive health education is aimed at mitigating fear of stigma and the UPDFs patients to believe that the available general health care services offered in all UPDFs health facilities are valuable and free to all UPDFs personnel, and that TB is preventable and curable and also to give assurance that such services do not come at a social cost caused by stigma commonly associated with TB.

(6) Display of information at strategic points such as guard centuries in form of customized fliers basing on UPDFs 'ability with active TB to recognize early signs and symptoms and the PTB Patient to recognize the need to access early health care hence improving health seeking behavior.

(7) To carry out Out-reach services from unit level through Battalions, Divisions and Brigades aiming at creating awareness about early signs and symptoms of PTB and reaching out UPDFs patients deterred to access timely intervention at appropriate health facilities due to long distances.

(8) To advocate for Routine surveillance for TB in form of targeting presumptive TB patients or among UPDFs who do not actively seek and receive care for symptoms or signs compatible with TB. This includes both people with active TB and who do not experience signs and symptoms that they perceive as severe enough to warrant medical attention and targeting specific risk groups such as (i) clinical risk groups' e.g. HIV positives, smokers, drug and substance abusers and malnourished UPDFs, (ii) previous TB contacts, risk UPDFs population e.g., UPDFs in prison and (iii) previous contacts from work place attending health service care at GMH in order to mitigate delayed early PTB case detection through routine TB surveillance amongst

such categories of UPDFs. To improve on attitudes of health workers through training and seminars and advocate for punctuality and commitment at work.

(9) Finally to ensure that other qualitative studies are made to elucidate reasons for delayed early PTB case detection amongst the ranks of the UPDFs.

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APPENDICE I: CONSENT FORM

Consent to Participate in the Study

Title of the Study:

Factors that Influence Early Pulmonary Tuberculosis Patient Detection among Patients in Bombo General Referral Military Hospital

Brief Introduction: (The interviewer will then read and explain the following to the study participants)

You are invited to participate in a research study investigating factors that influence early PTB case detection rate in Bombo Military Hospital. This study is being conducted by Ms Grace Baguma Birungi a third year student of Bachelors Degree in Nursing Sciences at International Health Sciences University.

Objective: To establish factors influencing early pulmonary Tuberculosis detection among UPDF patients in Bombo General Referral Military Hospital.

Study Procedure:

You are requested to answer the question attached to this consent form by ticking the box corresponding to the appropriate answer. This will take approximately 20 minutes to complete. The interviewer will record your responses with maximum confidentiality. You are therefore requested to be as truthful as possible in your responses. The interviewer will ask you questions about your demographic data, knowledge about TB, your interaction with the health care facility, the health workers as well as questions about your community.

Risks and Benefits of the Study

There are no known risks involved in participating in this study. However the interviewer may ask you certain sensitive questions about your health seeking behavior but no samples will be taken from any part of your body therefore no pain will be inflicted on you. The study will benefit us by in-depth assessment of factors that influence early TB detection in relation to time of onset and also gauging your knowledge base about the disease process of TB. This therefore will aid the chieftaincy of Medical services of UPDF to make recommendations that will enhance handling of TB patients to receive qualitative care in UPDF health facilities.

Confidentiality

Any information in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. In any written report or publication, no one will be identified or identifiable and only aggregate data will be presented.

Voluntary Nature of Study

You will not be paid for accepting to participate in this study and your decision whether or not to participate will not affect the service or employment in this hospital. If you decide to participate, you are free to withdraw at any time before your data is de-identified.

Contact and Questions:

The researcher in this study is **Ms Grace B. Baguma** and you may ask questions you have at this time. If you have any questions later on, you may contact **Grace** on +256782026598 or +256704525790 or on email gbaguma20@gmail.com

I……..…….give my consent to the researcher to use the data collected for presentation of the research. The consent form has been read and explained to me. All contents in the consent form have been well understood. I understand that by signing this consent form, I do not compromise any of my legal and human rights but this only indicates that I am fully informed about the research study in which I have voluntarily agreed to participate. A copy of this consent form will be provided to me on request. (Please write yes or no and initials)

Signature of Participant ……Date…….

Signature of Interviewer……Date……

APPENDIX II: QUESTIONNAIRE

Patients' Questionnaire about Factors Influencing Early Pulmonary Tuberculosis (PTB) case Detection among Patients in Bombo General Referral Military Hospital.

Confidentiality Statement:

Information gathered in this questionnaire will only be used for the partial fulfillment of the requirements for the award of a Bachelor's Degree in Nursing Sciences of International Health Sciences University-Kampala. The researcher commits to protect and treat the information gathered from all respondents with maximum confidentiality.

Respondent's code number……..

Instructions……Kindly read the questions carefully and put your response in the correct space provided.

Demographic Characteristics of the Respondents

1. Age in years…….

2. Gender;

    1. Female [ ]

    2. Male [ ]

3. Education background:

    1. None [ ]

    2. Primary [ ]

    3. Secondary [ ]

    4. Tertiary [ ]

5. Marital status

    1. Single [ ]
    2. Married [ ]
    3. Separated/Divorced [ ]
    4. Widowed [ ]

6. Years of service ……

7. Deployment status

    1. Deployed [ ]
    2. Not deployed [ ]

8. Years spent in present unit…….

9. Rank (Cadre)

    1. PTE [ ]
    2. Cpl [ ]
    3. Sgt [ ]
    4. WO [ ]
    5. Lt [ ]
    6. Capt [ ]
    7. Maj. [ ]
    8. Lt Col [ ]

10. Do you smoke cigarettes?
    1. Yes [ ]
    2. No [ ]

11. Do you drink alcohol?

    1. Yes [ ]
    2. No [ ]

12. Did you initially fear to come for treatment because of stigma associated with TB and HIV?

    1. Yes [ ]
    2. No [ ]

Knowledge and Understanding of TB

13. I am well knowledgeable about the early signs and symptoms of PTB
    1. Strongly Disagree [ ]
    2. Disagree [ ]
    3. Neutral [ ]
    4. Agree [ ]
    5. Strongly Agree [ ]

14. Pulmonary TB is curable
    1. Yes [ ]
    2. No [ ]

15. Early detection of pulmonary TB is necessary
    1. Yes [ ]
    2. No [ ]

16. Pulmonary TB is a preventable disease
    1. Yes [ ]
    2. No [ ]

17. The mode of transmission of pulmonary tuberculosis is (tick only one)
    1. Wind [ ]
    2. Breath (droplets) [ ]
    3. Eating contaminated foods [ ]
    4. Others (Specify) [ ]

Institutional Factors

18. How far is your place of residence from the hospital?
    1. ≤5 KM [ ]
    2. >5 KM [ ]
19. How would you rate the attitudes of health workers towards patients on scale of 1- 4?
    1. Very good [ ]
    2. Good [ ]
    3. Bad [ ]
    4. Very bad [ ]
20. Do you think the hospital have adequate reagents and equipment for testing for TB?
    1. Yes [ ]
    2. No [ ]
21. Are health workers always available at the hospital?
    1. Yes [ ]
    2. No [ ]

22. Do health workers provide health education on TB in the hospital?
    1. Yes [ ]
    2. No [ ]
23. The waiting time at the health facility is very long and tiring
    1. Yes [ ]
    2. No [ ]

Early Detection of PTB

24. For how did you experience the symptoms of PTB before seeking for medical help?
    0. ≤ 2 weeks [ ]
    1. > 2 weeks [ ]

If more than 2 weeks, give a reason…….....

……

APPENDIX III ……..Action Plans for the Intended Strategies 2013.

District……Luweero

Component...Intended Systematic Strategies for Implementation of the dissertation about Factors that Influence Early PTB Case Detection among patients in Bombo General Military Referral Hospital.

Healthy Facility…General Military Referral Hospital Bombo [GMH]

Activity	Time Frame	Responsible Person	Resources Needed	Performance Indicators
Submission of research proposal	June-July	Principal researcher	Stationery, memory stick, modem, computer	Approval by research supervisor
Clearance letter from IHSU	July/Aug	Principal researcher Research Supervisor	Research proposal	Clearance letter obtained
Clearance from CMS	Jul/Aug	Principal researcher Secretary to CMS	Letter from IHSU	Permission granted.
Introductory letter to Director GMH	Jul/Aug	Principal researcher Director GMH	Letter from CMS	Acceptance and cordial welcome.
Identification of R/A	Jul/Aug	Principal researcher Departmental Heads	Personnel to be identified	Willing R/A identified.
Training of R/A	Aug	Principal researcher Other health workers who have consented.	Computer, flip charts, copy of pre-tested tool/questionnaire, markers, visual teaching aids, 02 reams of paper, flash, printer, projector	Feed back of Review of pre-tested tool from R/A to evaluate understanding methods of data collection. R/A able to collect relevant data and make timely submissions. .

Activity	Time Frame	Responsible Person	Resources Needed	Performance Indicators
Data collection	Aug/Sept	Principal researcher	Check list of GMH on clinical practices, copies of consent forms and pre-tested tools, stationery, computer, memory stick, L/A	Relevant participants obtained. Relevant Data collected within time frame
Key informants of data collection.	Aug/Sept	Principal researcher	Copy of research guidelines, computer, stationery, collected raw data, flash, interview rooms for privacy and confidentiality	Reliability of instruments will be achieved. Efficiency of data collection. Approval of content validity the university research supervisor.
Data entry Analysis and interpretation	Aug/Sep	Principal researcher	Counter books, computer, stationery, printer, flash, locker and Key.	Entry of analyzed data into SPSS using cumulative tables, %ges, pie charts and bar graphs
Zero draft of dissertation	Sept	Principal researcher	01 copy of study report	University Research supervisor will edit report and permission to print final copy will be granted.
Submission of final dissertation	Sept	Principal researcher	01 copy of the study report	Approval by the university research supervisor
Dissemination of report	Oct/Nov	Principal researcher	03 copies of study report	Accepted.

KEY:
L/A……Language Assistants
CMS……Chieftaincy of Medical Services
R/A……Research Assistants
IHSU…..International Health Sciences University
SPSS……..Statistical Package for the Social Sciences

APPENDIX IV BUDGET PLAN

ITEM	Unit	Unit Cost	Quantity	Amount
Administration of Questionnaires				
Per-diem (Research Assistants, Language Assts	Per day	80,000sh	04	320,000
Stationery and Printing	Per day	20000sh	20	400,000
Transport Expenses from Kampala-Bombo (fuel)	Per day	70,000sh	30	2,100,000
Hiring of Motor cycles (Boda- Boda)	Per day	10,000sh	30	300,000
Sub-Total				**3,120,000**
Administrative Costs				
Fuel	Per day	3,800/lt	600 litres	2,228,000
Refreshments	Per day	18,000	480 days	
Lunch	Per day	6,000	480 days	
Airtime	Per day	10,000	480 days	
Cartridge	Per day	180,000	02 pieces	
Markers and pens	once	30,000	6 dozens	30,000
Computer	once	1,800,000	01 piece	1,800,000
Printer	once	500,000	01 piece	500,000
Memory stick	once	40,000	01 piece	40,000
Modem	once	115,000	01 piece	115,000
Stationery	Per day	18,000	480 days	
Flip charts	Per day	15,000	14 days	
Key and Lock	once	50,000	01 piece	
Sub Total				**4,713,000SHS**
Grand Total				**7,833,000SHS**

IHSU INTERNATIONAL HEALTH SCIENCES UNIVERSITY

PART OF INTERNATIONAL MEDICAL GROUP

Office of the Dean, School of Nursing

Kampala, On the 5th day of August, 2013

TO WHOM IT MAY CONCERN

Re: Assistance for Research

Greetings from International Health Sciences University.

This is to introduce to you **Ms. Baguma Grace** Reg. No. **2010-BNS-TU-035,** who is a student of this University. As part of the requirements for the award of a Bachelor of Nursing Sciences of this University, the student is required to carry out field research for the submission of a Research Project.

Ms. Baguma would like to carry out research on issues related to: **Factors influencing early pulmonary tuberculosis detection among UPDF patients in Bombo General Referral Military Hospital**

I therefore request you to render her such assistance as may be necessary for her research.

I, and indeed the entire University are thanking you in anticipation for the assistance you will render to her.

Sincerely Yours,

International Health Sciences University
★ 05 AUG 2013 ★
SCHOOL OF NURSING
P. O. Box 7782, Kampala (U)

MRS. WAFULA ELIZABETH

DEAN