FACTORS INFLUENCING DEFAULT RATES OF TUBERCULOSIS PATIENTS IN GHANA

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ABSTRACT

The purpose of this study was to describe factors contributing to the high default rate of tuberculosis (TB) patients participating in the Directly Observed Therapy Short Course (DOTS) programme in the Kwaebibirim district of Ghana. A quantitative, descriptive study was conducted to determine personal, health service, community and treatment factors contributing to the high default rate of DOTS implementation in the district. Structured interviews were used to collect the data. Purposive sampling was done and the sample comprised 130 TB patients who were on DOTS at the district chest clinic. The study highlighted TB patients' knowledge about TB, socio-economic characteristics, organisation of care as well as community perceptions about the disease. The findings revealed that patients defaulting on treatment is a complex behavioural issue involving multiple factors, including an interaction of personal, social and healthcare factors as well as side-effects of medication and duration of treatment. Recommendations include developing and implementing patient-centred interventions that encourage shared decision-making regarding treatment; providing ongoing training to healthcare staff members; strengthening patient support and community advocacy programmes aimed at eradicating the stigma attached to TB; and planning interventions to reduce the influence of poverty and gender on patients and their adherence to treatment.

KEYWORDS: directly observed treatment short course (DOTS), non-adherence to TB treatment, TB treatment supporter, TB treatment defaulters, tuberculosis (TB)

INTRODUCTION AND BACKGROUND INFORMATION

Tuberculosis (TB) is an airborne bacterial disease. The causal agents are Mycobacterium Tuberculosis, and occasionally Mycobacterium Bovis and Mycobacterium Africanum (Ait-Khaled & Enarson, 2003:3). Mycobacterium TB infects a third of the world's population, roughly two billion people (Coberly & Chaisson, 2007:653). In 2008 an estimated 1.8 million people died from TB, and approximately 9.4 million new cases were diagnosed, of which the majority were in Asia and Africa (Avert, 2008).

TB remains a major health problem in many tropical countries, including Ghana. Before 1997 there was virtually no clearly defined TB programme in the Kwaebibirim district of Ghana. This district is one of 19 districts in the Eastern region of Ghana. It is a rural district with a poorly developed infrastructure. Unemployment levels are high, thus contributing to a high poverty level. The resource capacity of the district is low with poorly motivated and ill-equipped staff. Diagnostic and treatment procedures are ill-defined (GHS/KDHMT, 2007:15).

Most TB cases can be cured with current anti-TB drugs. To be effective, however, the drugs must be taken exactly as prescribed (WHO 2000:3). Non-adherence to TB treatment has serious negative consequences, not only for individual patients and their families, but also for societies, in the form of multidrug-resistant TB (MDR) which is much more difficult and expensive to treat.

According to McLean (2003:7), the factors contributing to non-adherence can be grouped into three categories, namely: patient-related, healthcare and treatment factors as summarised in table 1:

Table 1: Reasons for non-adherence to TB treatment

Healthcare factors	Treatment factors	Patient factors
Inaccessible service; travelling distances and lack of transport and/or money	Long duration of treatment	Life stressors (lack of resources, unemployment, life events)
Expenses incurred by attending hospitals/clinics	Large pills, or large number of pills	Low educational level or illiteracy
Long waiting times	Side-effects	Health beliefs, including cultural beliefs and attitudes, stigma and community attitudes
Unfriendly staff members		
Inadequate confidentiality	Disruption of daily routines	Poor understanding of TB and treatment rationale
Seeing different health workers at each clinic visit	Prescribing or dispensing errors	Substance abuse, including alcoholism
Poor communication style		
Lack of interpreters or culturally appropriate staff	Cost	Patients might not believe that they need TB treatment; they might not feel sick.
Other personal and social characteristics of healthcare providers		

(McLean, 2003:7)

The Directly Observed Therapy Short Course (DOTS) strategy was adopted by the World Health Assembly in 1991. This strategy includes the four key pillars, namely: detection of smear-positive pulmonary TB in patients using sputum microscopy; directly-observed treatment with short course chemotherapy; guaranteed continuous drug supply; and a case recording system tracking treatment outcomes (Obermeyer, Abbott-Klafter & Murray, 2008).

The DOTS programme was officially launched in the Kwaebibirim district during 1998. National targets that correspond with international standards were set for DOTS implementation and the district was to comply with them. The targets were a cure rate of at least 85%, a case detection rate of at least 55%, and a default rate of 10% or less (Bonsu, Asamoa & Bonso-Bruce, 2003:8).

A chest ward for TB patients was created and a district TB coordinator was tasked to be in charge of the TB programme. As part of Ghana's national policy, TB diagnosis as well as treatment is free of charge. There is only one chest clinic in the Kwaebibirim district, managed by one professional nurse and one nurse assistant. At the chest clinic, patients are listed on the TB register and undergo counselling about the disease, treatment regimen, side-effects of TB drugs, duration of treatment, and preventive measures (Bonsu et al, 2003:47). At the time of the study, despite the implementation of DOTS, the Kwaebibirim district had experienced a default rate of 35% which was higher than the WHO target (Bonsu et al., 2003:7).

Definitions of key terms

Default is an interruption of treatment of TB patients on DOTS for two consecutive months or more (McLean, 2003:5). In this study, defaulters were TB patients on DOTS registered at the chest clinic who had interrupted their treatment for two or more months.

Directly Observed Therapy Short Course (DOTS) is a programme in which a trained person watches the patient swallowing the pills to ensure that the patient takes the right combination of drugs, at the right time and for the appropriate duration.

Tuberculosis (TB) is a communicable bacterial disease caused mainly by the Mycobacterium Tuberculosis, also known as tubercle bacilli or as acid-fast bacilli (AFB), which affects primarily the lungs. Occasionally, other species of mycobacterium could affect other parts of the body (Harries, Maher & Graham, 2004:23).

A treatment supporter is a person nominated by the health worker and patient who watches the patient take his/her medication. The treatment supporter's main role is to ensure that the TB patient takes the TB drugs regularly, on schedule, for the full duration

of the treatment, while listening and encouraging the patient as part of this supportive role (AETC National Resource Centre, 2006:3).

PROBLEM STATEMENT

The government of Ghana's policy provides for free TB treatment. This includes consultation at clinics, laboratory services and non-payment for drugs. Despite the availability of free TB treatment the default rate of the DOTS programme in the Kwaebibirim district was 35% (Bonsu et al., 2003:7). According to the Ghana National Tuberculosis Programme (NTP), the national default rate should not exceed 10% (Bonsu et al., 2003:7). High default rates lead to large numbers of patients suffering from MDR TB. In 2007, the MDR TB rate in Ghana was 1.9% (USAID, 2008:1).

PURPOSE AND OBJECTIVES OF THE STUDY

The purpose of this study was to identify factors contributing to the high default rate of DOTS implementation in the Kwaebibirim district of Ghana despite the availability of free diagnostic and treatment services. The research question was: "Why do some TB patients in the Kwaebibirim district default on their TB treatment despite the implementation of DOTS?" In order to answer this question, the objectives of the study aimed to describe how TB patients in the Kwaebibirim district of Ghana understand the condition and treatment of TB; and to identify factors that contribute to TB patients defaulting on DOTS in the Kwaebibirim district of Ghana.

Significance of the study

The results of this study could provide evidence-based information on factors contributing to patients' defaulting on DOTS implementation in the Kwaebibirim district and contribute to the existing body of knowledge about TB treatment. The findings should help the District Health Management Team (DHMT) to design patient-centred approaches for implementing DOTS programmes. Finally, the findings should be relevant for designing more effective TB advocacy programmes in the community.

ETHICAL CONSIDERATIONS

Permission to conduct the study was obtained from the following: Regional Director of Health Services and District Director of Health Services, Kwaebibirim; District Chief Executive Kwaebibirim District Assembly; and Medical Director of the hospital where the chest clinic was situated. The study was also approved by the Research and Ethics Committee of the Department of Health Studies, University of South Africa.

Informed consent was obtained from the respondents after explaining the nature and purpose of the study. It was emphasised that participation was voluntary and that they could withdraw from the study at any time without penalty.

The interviews were conducted privately and the respondents were assured that their information would be treated as being strictly confidential.

RESEARCH DESIGN AND METHOD

A quantitative, cross-sectional, descriptive design was used to determine the factors that contribute to the high TB treatment default rate. This study quantified the collected data and presented it numerically. The respondents' knowledge and understanding of TB and TB treatment, as well as their reasons for defaulting on treatment, were described at a specific point in time. The study described the knowledge of the respondents with regard to TB and its treatment and the reasons why they defaulted on their treatment.

Population

In this study, the population comprised all smear-positive cases of TB in the Kwaebibirim district of Ghana registered at the chest clinic from 2006 to 2007. No sampling was done as all smear-positive patients (defaulters and non-defaulters) registered at the chest clinic were included. The population consisted of 130 persons, comprising 49 (37.7%) defaulters and 81 (62.3%) non-defaulters.

Research instrument

Data collection was done by means of structured interviews conducted by the research team due to the high illiteracy rate which would make completing questionnaires impossible. Tape recorders were used to cross-check information at review meetings between the researcher and research assistants. The interview schedule was developed according to the objectives of the study and the literature review and covered the following aspects: patient-related factors; health service related factors; and community and treatment factors that could affect TB patients' default rates.

The interview schedule was pre-tested with 30 respondents in another district, who did not participate in the main study. Following the pretest, the researcher modified questions that were either ambiguous or unclear.

Validity and reliability

Face validity refers to the researcher's subjective assessment of the presentation and relevance of the interview schedule, namely whether the questions appeared to be relevant, reasonable, unambiguous and clear. This was established by means of the pretest.

Content validity refers to judgements (usually made by a panel) about the extent to which the content of the instrument appears logically to examine and comprehensively include the full scope of the characteristic or domain it is intended to measure (De Vos, Strydom, Fouche & Delport, 2002:166). A panel consisting of one medical officer, one nurse from the School of Public Health and one researcher each from the Health Research Unit of the Ghana Health Service Institute and the University of Ghana School of Public Health reviewed the final interview schedule. With regard to reliability, the researcher and research assistants had varied levels of research experience, training and authority, and the clearly stated purpose of the study further enhanced validity and reliability.

Data collection procedure

The researcher and two research assistants conducted the face-to-face interviews with the TB patients at the clinic or at their home. Data collection lasted three weeks. The interviews were tape-recorded with the respondents' consent to double check (between the researcher and the research assistants) whether the given answers had been recorded correctly. Interviews lasted an average of 45 minutes.

Data analysis

A statistician analysed the data using the SPSS program, version 10.0 and presented the results in tables and graphs. This study used univariate statistics, which are descriptive statistics for the analysis or description of one variable, such as frequency distributions and statistics of central tendency.

ANALYSIS AND DISCUSSION OF RESEARCH RESULTS

Demographic data

The age of the respondents ranged from 15 to 74 years, with 70.0% (n = 91) aged 25–54 years. Of the respondents, 53.1% (n = 69) were males and 53.1% (n = 61) were females. Of the males, 43.5% (n = 30) were defaulters and 56.5% (n = 39) were non-defaulters, while of the females, 31.1% (n = 19) were defaulters and 68.9% (n = 42) were non-defaulters. In the United Kingdom, Peate (2004:540) found that men were often unwilling

to access healthcare services and took many risks with their health. This study's findings appeared to be similar because more males than females were defaulters.

The majority of the respondents were single, divorced or widowed. Only 20.8% (n = 27) of the respondents were married. Of the 130 respondents, only 5.4% (n = 7) had no dependants, the remaining 94.6% (n = 123) had 1–8 dependants. Of the 130 respondents, 48.5% (n = 63) were unemployed. The relatively high number of unemployed respondents points to the general poverty level amongst TB patients in the study area.

The findings of the study are further discussed according to the objectives of the study.

Objective 1: Patients' understanding of TB and its treatment

The findings indicated that the majority (71.6%; n = 58) of non-defaulters and only 14.3% (n = 7) of the defaulters knew the symptoms of TB; that TB is an infectious disease that is curable; that treatment is available at the chest clinic; and that people can die from TB. At the same time, many of the defaulters did not know that germs cause TB; how TB is transmitted; and that vaccination can prevent TB. Several of the defaulters were superstitious about the disease and thought it is caused by witchcraft. Of the respondents, 79.6% (n = 39) of the defaulters knew that the chest clinic provides free treatment for TB. Only 49% (n = 24) of the defaulters knew that it takes eight months to complete the TB treatment.

Thus, the defaulters had less knowledge about TB than the non-defaulters. This finding seemed to emphasise the importance of providing adequate health education about TB to the TB patients, their families, their DOTS supervisors and their communities.

Objective 2: Factors contributing to patients defaulting on DOTS

Table 2: Comparison of findings – factors influencing patients defaulting on treatment (n = 130)

Factors influencing patients defaulting on treatment	**Defaulters (n = 49)**		**Non-defaulters (n = 81)**	
	n	**%**	**n**	**%**
Experienced service providers' attitudes as being unfriendly	13	26.5	4	4.9
Experienced service providers' indifference	22	44.9	67	82.7
Not consulted on the choice of treatment supporter	38	77.6	57	70.4
Experienced adverse effects of TB treatment	12	24.5	21	25.9

Of the respondents, 26.5% (n = 13) of the defaulters and 4.9% (n = 14) of the nondefaulters perceived service providers as being unfriendly. Similarly, 82.7% (n = 67) of the nondefaulters and 44.9% (n = 22) of the defaulters reportedly found the service providers to be indifferent. In Pakistan, Khan, Walley, Witter, Shah and Javeed (2005:13) reported healthcare workers' negativity posed strong barriers to patients' adherence to TB treatment. The majority of the respondents, namely 77.6% (n = 38) of the defaulters and 70.4% (n = 57) of the nondefaulters, were not consulted on the choice of a treatment supporter. Non-involvement of patients in the management of their treatment could contribute to non-adherence to treatment regimens. Of the respondents, 24.5% (n = 12) of the defaulters and 25.9% (n = 21) of the nondefaulters reported having adverse effects from taking TB medication. This emphasised the importance of communication between patients and care givers in promoting knowledge of sideeffects and promoting adherence to treatment.

Regarding the distance from the clinic, 25.9% (n = 21) of the non-defaulters and 79.6 % (n = 39) of the defaulters had problems with the distances they had to travel to the clinic. Corresponding with this finding, 12.3% (n = 10) of the nondefaulters and 91.8% (n = 45) of the defaulters reported finances as posing barriers to TB treatment. Most respondents were unemployed and therefore poor. Bock, Sales, Rogers and De Voe (2001:96) also reported that financial incentives improved adherence to treatment. It was found that 72.8% (n = 59) of the nondefaulters and 87.8% (n = 43) of the defaulters felt ashamed of suffering from TB and perceived that a stigma was attached to TB.

CONCLUSION

This study confirmed that TB patients' knowledge and perceptions contributed to their defaulting on DOTS in the Kwaebibirim district. Adherence to TB treatment in the Kwaebibirim district is a complex behavioural issue involving different factors. To ensure the success of interventions to reduce the default rate of DOTS implementation, a holistic view must be taken of all these factors.

The findings should help the Ministry of Health and District Health Management Team design patient-centred approaches for implementing DOTS programmes. Finally, the findings should be relevant for designing TB advocacy programmes in the community, and thereby eventually leading to a reduction in the default rate of DOTS implementation as well as the numbers of MDR TB cases.

RECOMMENDATIONS

Based on the findings, the authors make the following recommendations for practice and further research:

Recommendations to enhance TB treatment compliance

The Ministry of Health and the District Health Management Team should: develop and implement patientcentred interventions that encourage shared decisionmaking regarding TB treatment. Given the relatively low level of patient literacy, efforts should be made to foster and improve patient autonomy in the treatment process; provide ongoing (in-service) training to health staff to improve and upgrade their competencies with regard to health education; strengthen patient support, and community advocacy programmes aimed at eradicating the stigma associated with TB. Emphasise the particular needs of individual patients and tailor the role of support systems to their needs; and Plan interventions to reduce the influence of poverty and gender on patients and their treatment adherence by organising economic packages for patients in need of financial assistance.

Recommendations for further research

The following topics should be considered for further research: a qualitative investigation into the factors responsible for patients defaulting on TB treatment; factors responsible for patients' defaulting on TB treatment in Ghana; service providers' experiences and perceptions of factors impacting on TB treatment default; and service providers' views on improving patients' adherence to TB treatment.

LIMITATIONS OF THE STUDY

The study was restricted to the Kwaebibirim district of Ghana. Accordingly, the findings cannot be generalised to other districts or to the whole country. The use of structured interviews prevented the interviewers from probing certain aspects of patients' behaviours and attitudes. The population for this study was generated from one chest clinic. TB patients not registered at the participating chest clinic, but residing in the district, were not included in the study. Those TB patients who did not participate in this study might have had similar and/or different experiences affecting their adherence/nonadherence to TB treatment.

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