FACTORS INFLUENCING TUBERCULOSIS TREATMENT INTERRUPTIONS

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ABSTRACT

A quantitative, descriptive study was used to investigate factors contributing to the treatment interruption of tuberculosis (TB) patients in four Tembisa clinics in South Africa. A structured interview schedule was used to collect data from 30 patients who had interrupted their TB treatment.

Factors influencing treatment interruptions included socio-economic, TB policy-related and health care worker-related issues. The findings revealed that TB management requires a multi-sectoral approach and joint efforts to control this disease which is curable but continues to kill many people.

KEYWORDS: Direct observed treatment short course (DOTS); multi-drug resistant tuberculosis (MDR-TB); tuberculosis (TB); TB treatment interruption; TB re-treatment

INTRODUCTION

Tuberculosis (TB) is infectious but curable. In South Africa, TB treatment is free of charge at clinic level. However, many patients do not complete their treatment and develop multi-drug resistant TB (MDR-TB) and extensive drug resistant TB (XDR-TB) which is very expensive to treat and can be fatal. The researcher was therefore prompted to investigate how TB patients perceived the disease and its treatment and why they interrupted their treatment. The findings of this study can be used to identify problems contributing to the interruption of TB treatment.
BACKGROUND INFORMATION

TB has been a worldwide problem since the eighteenth century and is still a leading cause of death (Pallangyo, 2001:488). In the 1980s the incidence of TB in developed countries declined. However, with the outbreak of HIV/AIDS the incidence of TB increased and an epidemic of HIV-associated TB is now affecting Africa. HIV infection gives rise to an estimated 10% of global TB cases and 70% of cases in the sub-Saharan African (SSA) region (WHO, 2004:36). Approximately three-quarters of all TB cases worldwide are concentrated in the economically productive age group, between the ages of 15 and 59 years (Department of Health, 2004:7). South Africa is one of the countries with the highest incidence of TB with more than 100 000 TB cases reported annually (Department of Health, 2004:7).

Tembisa is a big township situated in the north of the Ekurhuleni Metropolitan Municipality in the Gauteng province. Tembisa has a population of approximately 1 million people. The population of Tembisa is highly mobile/migrant and many people live in informal settlements. This situation creates problems in managing TB effectively. Tembisa has four clinics where TB patients are treated. For the purpose of this study, only smear-positive patients were considered. During 2006, only 286 out of 395 registered smear-positive patients completed their treatment in the four clinics in Tembisa (Ekurhuleni District Annual Report, 2005–2006:14).

PROBLEM STATEMENT

Patients receive free TB treatment at four clinics in Tembisa. However, TB treatment outcome reports in Tembisa indicated that some TB patients interrupted their treatment. This could lead to the spread of TB as well as MDR-TB and XDR-TB (Ekurhuleni District Annual Report, 2005–2006:14).

OBJECTIVES OF THE STUDY

The objectives of the study were to: determine TB patients’ levels of knowledge in Tembisa about TB as a disease and about the treatment of TB; determine TB patients’ opinions, perceptions of and attitudes towards TB; determine what factors contributed to their interruptions of TB treatment; make recommendations to decrease interruptions of TB treatment in Tembisa and for further research.

LITERATURE REVIEW

Health systems in South Africa in relation to TB

In South Africa, public health services are decentralised from national and provincial levels to district levels. The planning, administration and implementation of health
functions are executed at district level. TB services are integrated with primary health care, resulting in an increase in the overall number of health workers whose mandate includes TB control. In Tembisa clinics, specific TB registered nurses provide TB services in “fast lanes” to prevent long waiting hours and prevent the spread of the disease (Ekurhuleni Metropolitan Municipality Annual Report, 2006-2007:4). Tembisa has four clinics, and patients are encouraged to attend the clinics nearest to their places of residence, to avoid travelling long distances and reduce treatment interruptions.

Health personnel are the most important component in the management of TB. Dedication to the national TB control programme and a positive attitude towards TB patients contribute to the effective management of TB. In South Africa it was found that the negative attitudes of health workers towards TB patients contributed to the spread of TB (Escott, et al., 2001:12). Also in South Africa, regular in-service training in TB management is conducted. The WHO TB training manual ensures that pre-service training reflects the changing terms of reference of health staff and that technically sound training in TB control is included (WHO, 2003:36).

According to the WHO (2003:35), a policy on human resources states that there should be sufficient staff to detect and diagnose patients, administer treatment, maintain recording and reporting forms, provide health education to patients, oversee TB treatment supporters, trace patients who default from treatment, monitor drugs and coordinate activities with partners.

The national TB programme (WHO, 2003:12) requires that equipment should be available for the management of TB including literature in the form of posters and pamphlets; protocols and TB management guidelines; accredited laboratory services; stationery (including TB suspect registers), TB registers, patients’ records; uninterrupted supplies of TB drugs; computers and transport. Provision of supplies and equipment is also confirmed by the five key elements of DOTS namely: government commitment to the national TB programme; case detection through smear microscopy; standardised treatment of TB cases via the DOTS strategy; regular, uninterrupted drug supplies; a system of monitoring and evaluation (DOH, 2000:9).

Management and control of TB

In South Africa there are several acts regulating the management of TB as well as the Patient’s Rights Charter and the Batho Pele principles. South Africa has one of the highest recorded rates of TB in the world. The National Department of Health reported smear-positive rates of 163 per 100,000 of the total population (Department of Health, 2004:19).

It is estimated that approximately 23 million people in Africa are infected with HIV and a third of these are also infected with TB (Escott et al., 2001:12). According to Nunn (2001:330) in SSA alone, nearly 1.6 million cases of active TB occur every year, with HIV infection being the leading cause for the increased cases. According to the
Department of Health (DOH 2004:217), the objectives of the management of TB are to prevent and cure the disease; prevent the spread of infection from infected adults to children; prevent the progression of TB infection and TB disease in children; prevent MDR-TB and promote DOTS. At the time of the study (2006), the cure rate for TB in Tembisa was 56% and the interruption rate was 17% (Ekurhuleni Metropolitan Municipality Health and Social Development Annual Report, 2002-2003:28).

South Africa follows the WHO guidelines for diagnosing and treating TB patients. All patients who present with the following symptoms are screened for TB (DOH, 2000a:12): persistent cough for two weeks or more; sputum production which may be blood stained; shortness of breath and chest pain; loss of appetite and loss of weight; fatigue; night sweats and fever.

There are three main categories of TB patients determining the type of treatment (DOH, 2000:28): a patient who has never had treatment for TB or who has taken the treatment for less than four weeks; a patient who had previously been treated for TB; and a TB patient aged eight years or younger. In South Africa there are three regimens of treatment which include the combination of TB drugs, classified as follows (DOH, 2000:28): regimen 1, for new patients; regimen 2, for re-treatment of adult patients; regimen 3, for children under eight years old. Every country should have a register for TB patients. According to the register, TB patients have one of the following outcomes: cured; treatment completed; treatment failure; died; treatment interrupted; transferred out.

Factors contributing to treatment interruptions

Table 1 indicates the treatment interruption rates for specific provinces in South Africa during 2005. The factors that influence TB treatment interruptions include poverty, unemployment, overcrowding and homelessness, alcoholism, migration, non-prioritisation of TB and cultural beliefs/attitudes (Holtz et al., 2006: 653).
Table 1: Treatment interruption rates in South Africa’s provinces during 2005

<table>
<thead>
<tr>
<th>PROVINCE</th>
<th>TREATMENT INTERRUPTION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Cape</td>
<td>9.0%</td>
</tr>
<tr>
<td>Free State</td>
<td>5.9%</td>
</tr>
<tr>
<td>Gauteng</td>
<td>6.9%</td>
</tr>
<tr>
<td>KwaZulu-Natal</td>
<td>14.7%</td>
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<tr>
<td>Mpumalanga</td>
<td>10.8%</td>
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<tr>
<td>Northern Cape</td>
<td>13.1%</td>
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<tr>
<td>Northern Province</td>
<td>7.4%</td>
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<tr>
<td>North-West</td>
<td>9.5%</td>
</tr>
<tr>
<td>Western Cape</td>
<td>11.1%</td>
</tr>
<tr>
<td>South Africa</td>
<td>9.9%</td>
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Poverty is the leading factor causing interruption of treatment in TB patients. In KwaZulu-Natal TB patients reported that TB treatment increased their appetites, but they did not have food, so they stopped taking their treatment. Patients also complained that they could not afford transport to collect their treatment (Holtz et al., 2006:653).

Unemployed people usually suffer from malnutrition which increases their chances of contracting TB. People would rather spend the little money they have on food, rather than travelling to the clinic to seek medical help (Sowetan, 2002:4). TB is rife in overcrowded places, including prisons. These places are usually unhealthy with many people sleeping in the same room. There is a high incidence of TB treatment interruption among patients (Driver et al., 2005:362) with no fixed place of residence. Naing et al. (2001:379) reported a 40% rate of TB treatment interruption among homeless alcoholics.

Migration is another factor influencing treatment interruption in TB patients. Some illegal refugees in South Africa had not completed their TB treatment in their own country, did not bring transfer letters and were afraid to present themselves to health facilities (Holtz et al, 2006:653). People also move from rural to urban areas, making TB control extremely difficult. In Pakistan as well as in South Africa, some TB patients believe that TB is a punishment from God and health workers find it difficult to convince patients to take their treatment as required (Khan et al., 2000:25).

RESEARCH DESIGN AND METHOD

This was a quantitative, descriptive study which addressed factors that might have contributed to the non-compliance of patients with TB treatment. Quantitative research is “the investigation of phenomena that lend themselves to precise measurement and
quantification, often involving a rigorous and controlled design” (Polit & Beck, 2008: 763). Descriptive research “has as its main objective the accurate portrayal of the characteristics of persons, situations, or groups and/or the frequency with which certain phenomena occur” (Polit & Beck, 2008:752).

**Population**

The study population for this research comprised positively diagnosed TB patients who were registered in any of the four clinics in the Tembisa area who did not complete their TB treatment. The total number of patients who interrupted their TB treatment from these four clinics (during the study period) was 69.

**Sample**

Purposive sampling was used because only TB patients who could be traced were interviewed if they agreed to participate in the study. The names and addresses of the TB patients who interrupted treatment were obtained from the TB registers of the four Tembisa clinics. The sample consisted of 30 defaulters who could be traced from these four clinics comprising 43.5% of the population of 69 patients.

**Data collection**

A structured data-collection approach was adopted, using a structured interview schedule. During the interviews, respondents who did not understand the language were assisted.

The interview schedule requested demographic information; information about the patient’s habits; TB history; reasons for interrupting treatment; health education received from nurses; knowledge of TB and its treatment; clinic services.

**Reliability and validity of the research instrument**

To ensure reliability, the researcher developed the questionnaire in consultation with the supervisor and the co-supervisor. The interview schedule was evaluated by nurses rendering TB services in the four clinics in the Tembisa area and by Tembisa’s TB co-ordinator.

The interview schedule was considered valid for the following reasons: the researcher referred to an existing interview schedule (Louw, 1995) investigating interruption of TB treatment in the Sebokeng area, and adapted it in consultation with two nurse researchers. These two nurse researchers also reviewed the instrument for content and face validity. Their corrections and recommendations were implemented and the interview schedule was constructed according to the objectives of the study and organised according to the literature reviewed.
Ethical considerations

Permission to conduct the study was obtained from the Director of Health Services of Ekurhuleni City. The researcher also obtained permission from the facility managers to access patients’ TB records and registers. Informed written consent was obtained from each respondent. The purpose and nature of the study were explained to the respondents and they were informed that participation was voluntary. The respondents were free to terminate their participation at any time without incurring any penalties whatsoever. Confidentiality was assured as no names were written on the interview schedules. The researcher would not divulge any information or names to anyone. The respondents were treated with respect and dignity. The completed interview schedules were kept locked up by the researcher. Only the researcher and the statistician had access to the raw data.

Data analysis and interpretation

As this was a quantitative study, descriptive statistical methods consisting of graphs, tables and diagrams were used (Brink et al., 2006:171). A statistician at Unisa performed the data analysis, using the Statistical Analysis System Version 9.1 for Windows.

RESEARCH RESULTS

Biographic data

The respondents’ ages ranged from 17-54 years. Of the respondents who interrupted treatment, 73.3% (n=22) were males and 26.7% (n=8) were females. The majority of the respondents were literate as 40.0% (n=12) had primary education and 60.0% (n=18) had secondary education. Of the respondents, 66.6% (n= 20) were unemployed, while 33.03% (n=10) were employed.

The research findings are discussed according to the four objectives of the study, namely to determine the level of knowledge of TB patients in Tembisa about TB as a disease and the treatment of TB; the patients’ opinions, perceptions of and attitudes towards TB; what factors contributed to the interruption of treatment at Tembisa clinics; and, what recommendations could be made to decrease the interruptions of TB treatment in the Tembisa area and for further research.

TB patients’ knowledge about TB and its treatment

The findings revealed that the respondents had some knowledge of TB, but gaps were identified in their knowledge. All the respondents (100%; n=30) knew the signs of TB and that it is an infectious disease. All 30 (100%) respondents knew that the lungs can be infected by TB but 100% (n=30) did not know that TB can also affect other parts of the body. Forty percent (n=12) of the respondents did not know that TB spreads easily in overcrowded places and 13.3% (n=4) did not know that TB is spread when TB patients...
do not cover their mouths when coughing. All the respondents (n=30) stated that the clinics were overcrowded, and therefore could contribute to the spread of TB.

All the respondents (100%; n=30) knew that TB treatment should be taken for six months or longer, but 13.3% (n= 4) did not know that patients who do not complete their treatment could develop MDR-TB. Of the respondents, 93.0% (n=28) agreed that TB is curable even if a patient should be HIV positive, while 7.0% (n= 2) disagreed. All the respondents obtained their knowledge from the clinic staff. However, there were gaps in the information that necessitates the development of key messages in the health education on TB.

Reportedly the clinics were overcrowded and there was a shortage of staff. This caused health personnel to give health education in a hurry and omit some vital information. According to Khan et al. (2005: 363), health workers’ negative attitudes could contribute to treatment interruptions by TB patients.

**Patients’ opinions, perceptions of and attitudes towards TB**

Of the respondents, 7.0% (n=2) defaulted treatment because they believed that they were bewitched and had to use “Imbiza”, a mixture usually given by traditional healers to their patients; or that they suffered from “Isidliso”, a sickness caused by intentional poisoning and they had to visit the traditional healer. Another 7.0% (n=2) of the respondents defaulted treatment because they were HIV positive and believed that they could not be cured. The respondents’ opinions, perceptions and attitudes regarding TB as a disease had no significant impact on treatment defaulting. No evidence, indicating that TB as a disease was stigmatised, was obtained during this study.

Of the respondents 40.0% (n=12) reported that staff members were always available, though 80.0% (n=24) reported staff members always to be in a hurry. When asked why they did not return to the clinic after interrupting their TB treatment, 24.0% (n=4) of the respondents reported that they were scared of the clinic staff.

**Factors contributing to the interruption of TB treatment at Tembisa clinics**

Even though 63.0% (n=19) of the patients experienced nausea and vomiting, 80.0% (n=24) did not stop treatment because of these side-effects of the medication. Of the respondents 40.0% (n=12) interrupted treatment because they felt better, while another 10.0% (n=3) stopped treatment because they felt worse on treatment.

Other reasons for interruption of treatment included leaving the area temporarily (10.0%; n=3) and another 10.0% (n=3) interrupted treatment because they had found jobs. Several factors contributed to the respondents’ TB treatment interruptions, including unemployment, lack of permanent addresses and socio-economic factors.
CONCLUSIONS

Various factors contributed to the interruption of TB treatment in Tembisa. The situation requires the combined efforts of stakeholders, namely the government, health care workers, patients and the community to reduce the rate of TB treatment interruptions.

LIMITATIONS OF THE RESEARCH

The study was limited to the Tembisa area in Ekurhuleni, Gauteng and a small sample was used, therefore the findings cannot be generalised to other areas. The presence of the researcher during the face-to-face interviews might have influenced the answers by respondents.

RECOMMENDATIONS TO DECREASE TB TREATMENT INTERRUPTIONS IN THE TEMBISA AREA

The findings call for a plan of action by all stakeholders to improve TB services in the clinics and decrease TB treatment interruption. Health education should be strengthened in locally spoken languages. A checklist must be used to ensure that no vital information is omitted during TB health education sessions.

Staff shortages should be addressed to allow sufficient time for health education. The follow-up system should be improved by making the necessary resources available, such as transport. Staff should be trained in customer care and the “Batho Pele” principles. Dedicated coordinators should be appointed to the TB programme. Suggestion boxes at clinics should enable patients to identify well-performing staff members as well as those with negative attitudes, to enable the implementation of action plans. Government should consider giving incentives to DOTS supporters in order to sustain them.

REFERENCES


FACTORS INFLUENCING TUBERCULOSIS TREATMENT INTERRUPTIONS


WHO – see World Health Organization
