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## Healthcare-seeking behaviour among clinic-based tuberculosis patients

This study investigated the factors influencing recourse to healthcare in a sample of 220 tuberculosis (TB) patients. Data collection was by means of face-to-face interviews. Patients sought help mainly from primary healthcare clinics (46%) and private doctors (40%). The mean patient delay was seven weeks, with only 21% of patients seeking professional healthcare within less than two weeks. The results show that lack of awareness of TB and use of a home remedy were significantly associated with a delay of longer than two weeks in seeking healthcare. These findings indicate an urgent need to educate communities on the signs and symptoms of TB, as well as the need to attend designated health facilities for early diagnosis and proper treatment.

### Gesondheidsorggedrag by kliniekbesoekende tuberkulose pasiënte

Hierdie studie het faktore wat die soeke na gesondheidsorg in 'n steekproef van 220 tuberkulose (TB) pasiënte beïnvloed, ondersoek. Data is deur middel van persoonlike onderhoude ingesamel. Pasiënte het hoofsaaklik primêre gesondheidsorgklinieke (46%) en privaatsdokters (40%) genader vir hulp. Die gemiddelde pasiëntevertraging was sewe weke en net 21% van pasiënte het professionele mediese hulp binne twee weke gesoek. Die resultate dui daarop dat 'n gebrek aan bewustheid van TB en die gebruik van tuismedikasie beduidend verband hou met 'n vertraging van langer as twee weke in die soeke na gesondheidsorg. Hierdie bevindinge dui op 'n ernstige behoefte om gemeenskappe te onderrig in die herkenning van die tekens en simptome van TB en ook die belang daarvan om aangeduide gesondheidsorgfasiliteite te besoek vir vroeë diagnose en behoorlike behandeling.

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South Africa currently has one of the highest tuberculosis (TB) prevalence rates in the world.<sup>1</sup> The incidence of TB in the country was about 440 per 100 000 in 2003 and is set to rise because of high TB/HIV co-infection rates (Bamford *et al* 2004; MRC NEWS 2003; Redelinghuys & Van Rensburg 2004). Early detection and treatment of infectious TB cases is one of the key components of global TB control programmes (Huggett *et al* 2003; MacNeil *et al* 2005; Xu *et al* 2004). While many factors contribute to the transmission and spread of TB, there is increasing recognition of the need for better understanding of the role of behavioural factors, such as healthcare-seeking behaviour, in TB control.<sup>2</sup>

Studies have shown that there is often considerable delay between the onset of symptoms and contact with healthcare providers.<sup>3</sup> In respect of TB, there are significant differences between countries in the median patient delay periods (the time from the onset of symptoms until specific contact with healthcare providers). It has been shown to be 12 weeks in Botswana (Steen & Mazonde 1999), 10 weeks in South Africa (Pronyk *et al* 2001), 8 weeks in Ethiopia (Demissie *et al* 2002), 4 weeks in Australia (Ward *et al* 2001), and 3 weeks in India (Rajeswari *et al* 2002).

Factors affecting healthcare-seeking delay identified in studies worldwide include gender, age, education, economic constraints, self-treatment and access to health care.<sup>4</sup> Godfrey-Faussett *et al* (2002) also found a relation between patient delay and underlying illness, poor perception of health services, and long distances to clinics. The literature further indicates that self-care, socio-cultural barriers and taboos associated with TB have been found to be major hindrances to patients seeking help for the disease.<sup>5</sup>

- 1 This article has been developed from an unpublished doctoral thesis (Matebesi 2004).
- 2 Cf Enwuru *et al* 2002; Liefoghe 2000; Matebesi 2004; Steen & Mazonde 1999; Xu *et al* 2004.
- 3 Cf Cheng *et al* 2005; Ngamvithayapong *et al* 2001; Pronyk *et al* 2001, Salaponi *et al* 2000; Steen & Mazonde 1999; Thorson *et al* 2000.
- 4 Cf Borgdorff & Maher 2001; Godfrey-Faussett *et al* 2000; Johansson *et al* 2000; Liefoghe *et al* 1997; Twaddle & Hessler 1987; Segar 1997.
- 5 Cf Liefoghe *et al* 1997: 817; Mata 1985; Rubel & Garro 1992; Twaddle & Hessler 1987.

No studies on the healthcare-seeking behaviour of TB patients in the Free State have been identified. The primary aim of this study was thus to investigate the factors that influence healthcare-seeking behaviour among a sample of pulmonary TB patients. The objectives of the study were to examine the level of awareness of TB among patients before their own diagnosis with the disease; the initial symptoms experienced; the healthcare provider initially consulted, and the diagnosis provided. A better understanding of patients' healthcare-seeking behaviour could possibly help to reduce delays in diagnosis, improve treatment adherence and offer suggestions for the improvement of intervention strategies.

In Section 1 Rosenstock's Health Belief Model (HBM) (1966) and Mechanic's General Theory of Help-seeking Behaviour (1978) are discussed. Section 2 describes the research design and the methods employed. Section 3 reports the findings, which are discussed in Section 4. Finally, the conclusions are presented in Section 5.

## 1. The Health Belief Model and the General Theory of Help-seeking Behaviour

This section attempts to put two models on healthcare-seeking behaviour into perspective in order to determine their applicability to the study. The first perspective, the Health Belief Model, is a psychosocial approach first proposed by Rosenstock (1966) and elaborated by Becker & Maiman in 1975, among others (Siegrist 2000: 101). The model was developed in response to the failure of a free TB health screening programme conducted by Godfrey Hochbaum (Landry & Solmon 2002, Resource Centre for Adolescent Pregnancy Prevention 2002). The HBM focuses on two aspects of health behaviour: threat perception and behavioural evaluation (Rosenstock 1966; 1974). Threat perception includes two components: susceptibility to TB infection and the anticipated severity of the consequences of the infection (the likelihood of multi-drug-resistance or death). Behavioural evaluation also involves two distinct sets of beliefs, those related to barriers to healthcare-seeking (inconvenience and the negative side-effects of TB medication) and those concerning benefits (the reduced risk of multi-drug-resistance TB). In addition to threat perception and behavioural evaluation, "cues to action" component was incorporated into the HBM.

“Cues to action” are what trigger patients to use TB medication (such as the printed materials, the death of a family member due to TB, or supporter visits in Directly Observed Therapy, for instance).

Briefly, the HBM postulates that before one will accept a diagnosis of TB and follow a prescribed treatment regimen, one must believe that one can have the condition without the symptoms (be susceptible), that TB can lead to death (being a severe illness), and that taking the prescribed medication for six months at least will reduce the risk of re-infection (a benefit) despite negative side-effects or excessive difficulty (barriers). Printed materials or DOT-supporter visits may function as cues to action promoting consistent adherence. Considering the HBM in the context of TB, it has been found that TB is generally regarded as a serious contagious disease.<sup>6</sup> Yet many regard themselves as being at low personal risk. As Caroll (1992: 51) points out, individuals are overly optimistic about their own invulnerability. This certainly creates obstacles to behavioural change. For instance, if individuals regard the symptoms in question (a persistent cough, lack of appetite and night sweats, for example) as serious and yet do not take their own symptoms seriously, they will not readily seek care.

The second perspective is Mechanic’s General Theory of Help-seeking Behaviour. A central theme of this theory is that care-seeking is a culturally and socially learned response. According to Mechanic (1978), individuals respond to symptoms according to their contextualised definition of the situation. Family members, friends and colleagues may influence their definition of the situation. More important roles are played by learning, socialisation, and past experiences as mediated by social and cultural background (Cockerham 2001). This, however, does not guarantee careseeking. For instance, while household contact is widely recognised as a risk factor for TB infection, people in this situation are always inclined to seek appropriate care. Perhaps advice on help-seeking could be more effective if it were based on a clearer understanding of the cultural norms informing health beliefs, attitudes and practices. Mechanic proposes ten determinants on which the decision to seek medical care is based.<sup>7</sup> These are: the visibility and recognition of symptoms; the extent to which symptoms are perceived as dangerous (as in the

6 Cf Johansson *et al* 1996; Liefoghe 2000; Mata 1985; Ngavithayapong *et al* 2000.

7 For a detailed discussion of these determinants, cf Cockerham 2001: 131.

case of the HBM); the extent to which symptoms disrupt family, work, or other social activities; the frequency and persistence of symptoms; the subject's degree of tolerance towards the symptoms; the subject's available information, knowledge, and cultural assumptions; the basic needs that lead to denial; other needs competing with the response to illness; competing interpretations that can be given to symptoms once they are recognised, and the availability of treatment resources, their physical proximity, and the subject's psychological and financial ability to take action (Mechanic 1978: 286).

## 2. Methodology

### 2.1 Research design

This cross-sectional study was undertaken among pulmonary TB patients at primary healthcare (PHC) clinics in three health districts of the Free State province of South Africa: Goldfields (a gold mining area); Qwaqwa (a previously "independent" black homeland area); and Thaba Nchu (a typical small town in the vicinity of a large African settlement) (cf Van Rensburg & Redelinghuys 2001). The areas were purposively selected to represent different regions of the Free State, including rural and urban areas. Three PHC clinics with a high burden of pulmonary TB were selected from each of the health districts. The focus was on highly burdened clinics, given the need to recruit as many patients as possible for the study.

### 2.2 Participants and sampling

The participants in the study were clinic-based pulmonary TB patients aged 16 and above. The sampling frame comprised a list of clinics in the three selected health districts with a high burden of pulmonary TB patients during the initial two quarters of 2001. A stratified random sample technique was employed to select the patient sample. To ensure that specific characteristics were represented, the sample was stratified according to the category of patient and the phase of treatment: new patient — intensive phase/new patient — continuation phase; re-treatment patient — intensive phase/ re-treatment patient — continuation phase. The patients were then sampled in proportion to the total

number of each type of patient on the TB register at each clinic. In total, 220 pulmonary TB patients were selected. This sample size was calculated as 35% of the 634 pulmonary TB cases registered at the time. The sample size was limited largely by financial constraints.

### 2.3 Data collection and analysis

Interviews were conducted between October and November 2001 by five trained fieldworkers at the selected clinics and in the languages of the patients. The interview schedule included socio-demographic data (category of patient, gender, age and marital status); socio-economic data (educational level, employment status, and monthly income), and data on health-seeking behaviour. It should be noted that the data on health care-seeking behaviour is based on answers to questions on the actions taken by patients.

Patient delay was defined as the time (in weeks) from the onset of symptoms to their first seeking care from a professional healthcare provider. Bivariate analysis was used to compare patients with a delay of two weeks or less and those with a delay longer than two weeks in terms of certain key characteristics, including socio-demographics and a number of possible determinants of patient delay. The *chi*-square test was used to assess the statistical significance of these differences. Data analysis was by means of SPSS 10.1.

## 3. Results

### 3.1 Socio-demographic characteristics of patients

Of the 220 patients 121 (55%) were male and 99 (45%) female. Table 1 shows the socio-demographic characteristics of the respondents. The median age was 38 years (range 16-67 years). The school attendance rate was not significantly different for men and women. However, more males (63%) than females (52%) had attended school until Grade 4 or earlier. Their literacy rate was similar. Slightly more females than males were unemployed. Females came from households with a mean monthly income of R892 while for males the figure was R994. Male subjects were significantly more likely to be re-treatment patients. More females (33%) than males (17%) had family members who had previously been treated for TB ( $p < 0.001$ ).

Table 1: Characteristics of patients by gender

Characteristic	Male	Female	Total
Gender	121 (55)	99 (45)	220 (100)
Mean age (years)	41	33	38
Education of Grade 4 or less (%)	76 (63)	51 (52)	127 (58)
Able to read in own language (%)	109 (90)	89 (90)	198 (90)
Married (%)*	63 (52)	35 (35)	98 (45)
Unemployed (%)	80 (66)	73 (74)	153 (70)
Mean monthly household income (Rand)	994	892	946
Re-treatment patient (%)*	13 (11)	5 (5)	18 (8)
Previous mine work (%)	49 (41)	4 (4)	53 (24)
Previously in jail (%)	24 (20)	1 (1)	25 (11)
Family member treated for TB (%)*	21 (17)	33 (33)	54 (25)
Travel time to nearest clinic < 30 minutes (%)	94 (78)	81 (82)	175 (80)
Aware of TB before own treatment for the disease (%)	51 (42)	51 (52)	102 (46)

\*P&lt;0.05

### 3.2 Patient categories

The four categories of patients were divided into two: new patients and re-treatment patients. Table 2 shows there to be a significant statistical association between patient category and gender. More males (37%) than females (25%) were re-treatment patients. An analysis of their previous treatment history revealed that more females (80%) than males (71%) had previously successful TB outcomes (*i.e.* were cured or had completed treatment). Substantially more males (22%) than females (8%) had previously interrupted their treatments.

Table 2: Category of patient by gender

	Male	Female	Total
Category of patient:			
New patients*	76 (63)	74 (75)	150 (68)
Re-treatment patients	45 (37)	25 (25)	70 (32)
Total	121 (100)	99 (100)	220 (100)
Type of re-treatment patient:			
After previous cure	24 (53)	13 (52)	37 (53)
After previous completion of treatment	8 (18)	7 (28)	15 (21)
After previous interruption of treatment	10 (22)	2 (8)	12 (17)
After previous failure of treatment	3 (7)	3 (12)	6 (9)
Total	45 (100)	25 (100)	70 (100)

\*P<0.005

### 3.3 Awareness of TB before own diagnosis

Only 46% of the 220 patients indicated that they had been aware of TB before their own diagnosis. Thus, more than half of the patients (54%) had not been aware of TB before diagnosis. Of the patients who indicated that they had been aware, 25% had observed the disease among family members, 16% among friends, and 14% among neighbours. The remaining patients said they had had no experience of TB in other people.

### 3.4 Symptom experience

In total, patients reported up to eighteen different symptoms that prompted them to seek care. These symptoms were classified into five broad categories: persistent cough, general fatigue, heavy sweating, bodily pains, and vomiting (Table 3). There was no significant difference in the types of initial symptoms mainly experienced by male and female patients. For both genders, the four most frequently reported initial symptoms were a persistent cough, general fatigue, bodily/physical pains and heavy sweating.



Table 3: Self-reported main initial symptom presentation by gender

Symptom	Gender		Total
	Male	Female	
Persistent cough	47 (39)	35 (35)	82 (37)
General fatigue	27 (22)	21 (21)	48 (22)
Bodily/physical pains	23 (20)	20 (20)	43 (20)
Heavy sweating	21 (17)	21 (21)	42 (19)
Vomiting	3 (2)	2 (2)	5 (2)
Total	121(100)	99 (100)	220 (100)

P=0.949

### 3.5 Pre-diagnosis healthcare-seeking behaviour

88% of patients (n=193) reported discussing their symptoms with someone before seeking medical care. The majority of them (66%) discussed their initial symptoms with relatives, usually a husband/wife/partner (26%), or parents/grandparents (24%) or other relatives (16%). Friends were the second most important social group with whom patients discussed their initial symptoms (13%).

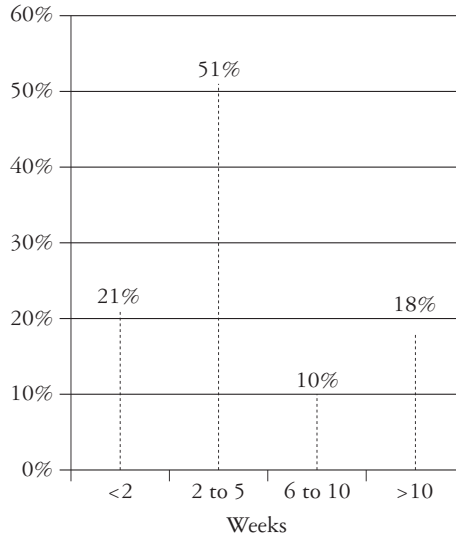
A quarter (26%) of the patients tried some form of home remedy before seeking medical care. Traditional medicines were the most frequently mentioned home remedies used (52%). The second most popular was benarade — a traditional oil mixed with other substances (20%). Over-the-counter medications were also used (9%).

### 3.6 Delaying behaviour and behavioural responses

According to Figure 1, only 45 (21%) of the patients had sought help from healthcare providers less than two weeks after noticing the initial symptoms. Half of the patients (51%) indicated that they had waited between two and five weeks, 10% between six and ten weeks, and 18% more than ten weeks (range: one day to 156 weeks). The mean delay from the onset of symptoms to the first visit to a healthcare facility/provider was seven weeks. Patients sought healthcare from clinics (46%), private medical doctors (40%), and hospitals (14%).

Among those who had not attempted to visit a healthcare facility within two weeks of the onset of symptoms, 110 (63%) said that this was because they did not regard the symptoms as serious, 42 (24%) attributed it to self-medication and 16 (9%) to lack of money, while seven (4%) gave no specific reasons.

Figure 1: Delay in seeking healthcare



Socio-demographic characteristics and other variables approximating the determinants of patient delay are presented in Table 4. There were no significant differences between the groups for gender, age, marital status, or educational level. Two variables produced statistically significant differences between patients who sought help from healthcare facilities within the first two weeks of noticing symptoms and those who waited longer. First, among the patients who were aware of TB before their own diagnosis with the disease, 51% had delayed longer than two weeks before seeking healthcare ( $p < 0.003$ ). Secondly, patients who had used a home remedy were more likely to report a delay of longer than two weeks ( $p < 0.036$ ).

Table 4: Socio-demographic characteristics of patients and duration of delay

Variable	Delay of 2 weeks or less	Delay longer than 2 weeks	P value
Gender			0.933
Male	25 (56)	96 (55)	
Female	20 (44)	79 (45)	
Mean age (years)	37	39	0.469
Marital status			0.189
Married	21 (47)	63 (36)	
Single	24 (53)	112 (64)	
Mean years of education	8	9	0.475
Other members of household having TB	12 (27)	42 (24)	0.711
Able to read newspaper in own language	41 (91)	4 (90)	0.781
Mean monthly household income (Rand)	1116	1239	0.464
Re-treatment patient	12 (27)	58 (33)	0.405
Employed at the time of experiencing symptoms	54 (81)	121 (79)	0.798
Aware of TB before own diagnosis	12 (27)	90 (51)	0.003
Discussed symptoms with someone	39 (87)	156 (89)	0.641
Used home remedy	6 (13)	50 (27)	0.036
Place of first professional care-seeking after onset of symptoms			0.659
Clinic	34 (42)	66 (48)	
Private medical doctor	33 (41)	54 (39)	
Public hospital	14 (17)	19 (14)	
Travel time to health facility (minutes)	23	26	0.492

An examination of the diagnosis made after the first contact with healthcare providers after the onset of symptoms revealed that 86% of the visits produced a diagnosis. Overall, 56% of the patients were diagnosed as having TB on their first contact with a medical practitioner. The remainder were diagnosed as having non-respiratory illnesses (16%) or other respiratory-related illnesses (15%), while 14% indicated that they had not been provided with any explanation of their symptoms.

#### 4. Discussion

The primary aim of this study was to investigate healthcare-seeking behaviour among a sample of pulmonary TB patients. The findings point to significant factors that need to be addressed in order to facilitate early recourse to healthcare and prevent the transmission and recurrence of TB.

The majority of the patients in the study were not aware of TB before their own diagnosis. It has previously been shown that low levels of knowledge and awareness exist in newly diagnosed patients with TB in Nigeria (Enwuru *et al* 2002), Malawi (Liam *et al* 1999) and in certain high-risk populations (Marinack *et al* 1998). The low level of awareness is likely to have two causes: the fact that TB health education and advocacy programmes do not reach the community at large, and the general culture of patients passively receiving instructions rather than being actively involved in their own treatment. Enwuru *et al* (2002) found that low levels of knowledge and awareness influence initial healthcare-seeking behaviour after the onset of symptoms.

The general trend in respect of symptoms reported by patients was similar for males and females. The majority had discussed their symptoms with relatives at some stage. This is encouraging because another study found that the main factor contributing to delay in seeking healthcare among TB patients was the fear of social isolation from their family or community (Johansson *et al* 2000). According to Steen & Mazonde (1999), an episode of illness concerns not just the sick person but all who are close to him/her. In this regard, family members can exert substantial influence in motivating healthcare-seeking behaviour.

Slightly less than half the patients initially visited a clinic, while 40% visited a private medical practitioner. A high preference for private medical practitioners was also found among TB patients in India (Uplekar & Rangan 1993) and Vietnam (Lonroth *et al* 1999). This contrasts with a previous study undertaken in South Africa, where the role of private practitioners as a first point of contact was relatively minor (Pronyk *et al* 2001). The reason for the preference for private medical practitioners in the present study suggest that patients may perceive treatment from private doctors as likely to be of higher quality than that from the public health service.

It is interesting to note that 14% of the patients were not provided with any diagnosis during their first contact with health services after the onset of symptoms. Furthermore, only 56% of the patients were diagnosed as having TB. This finding indicates that healthcare providers may also contribute to patient delay as patients who do not receive a satisfactory explanation for their symptoms may embark on “medical shopping”. Studies in Pakistan (Marsh *et al* 1996; Liefoghe 2000) showed that TB was often incorrectly diagnosed by doctors who relied mostly on less specific X-rays. This may be due to private doctors being alienated from national efforts to control TB (Uplekar & Rangan 1993).

This study confirms that there is a considerable delay between the onset of symptoms and healthcare contact among pulmonary TB patients. A review of the research on health care-seeking behaviour indicates that the median patient delay varies from three to seventeen weeks in developing countries.<sup>8</sup> The overall median patient delay in this study is relatively similar to those reported in Botswana (Steen & Mazonde 1999) Ethiopia (Demissie *et al* 2002) and Malawi (Salaniponi *et al* 2000).

No demographic variables or individual characteristics appeared to correlate with patient delay. No statistically significant association was found between mean monthly household income and patient delay either. This was surprising, since many studies have found income to be an important determinant of healthcare access (cf Campbell & Ballantyne 2004).

Two main factors contributing to delays of longer than two weeks were identified: awareness of TB before the current illness and use of a home remedy. Surprisingly, patients who were aware of TB before their own diagnosis with the disease experienced a longer delay. This finding is in contrast with the theoretical models, which suggest that awareness and past experience of illness contribute to early healthcare-seeking (Mechanic 1978; Rosenstock 1966). Lack of knowledge or awareness about TB was found to cause a longer delay in healthcare-seeking (Demissie *et al* 2002). One possible explanation for this finding is provided by Meyer-Weitz *et al* (2000), who argue that knowledge and behavioural change have no simple, direct relationship, and that other intervening and circumstantial variables may lead to behaviour consistent or inconsistent with knowledge.

8 Cf Demissie *et al* 2002; Pronyk *et al* 2001; Rajeswari *et al* 2002; Steen & Mazonde 1999; Ward *et al* 2001.

Although the majority of the patients did not use a home remedy prior to seeking healthcare, the findings indicate that those who did experienced a longer delay. Asch *et al* (1998) made a similar finding in an investigation of the healthcare behaviour of TB patients in California. Some traditional remedies have been reported to have potential for the treatment of TB; however, they are often associated with high levels of toxicity or adverse side effects (Enwuru *et al* 2002).

Although this survey provides insight into the nature of TB patients' healthcare-seeking behaviour, it is limited in certain ways. The sample was drawn from three areas in the Free State and is unlikely to be representative of TB patients throughout the province. It was a cross-sectional study, and thus of limited ability to determine cause-and-effect relationships. Finally, the measure of delay in seeking care was necessarily self-reported, and may therefore suffer from recall bias.

## 5. Conclusion

This paper has outlined the healthcare-seeking behaviour of TB patients from initial symptom recognition to eventual contact with healthcare providers. These results have several implications for public health policies. First, the long delay before seeking healthcare contributes significantly to increased transmission of TB and needs to be reduced by means of improvements in the quality and coverage of the control programme. This can be achieved by incorporating some active case finding interventions, such as contact tracing, in the programme. Secondly, lack of awareness has been associated with delay in seeking care. Thus, public education is paramount in raising people's awareness of TB from an early age. Targeted campaigns using elements of the Health Belief Model and the General Theory of Help-seeking Behaviour, aimed at high-risk groups in clinics, churches or schools in the community, may be a first step. Such campaigns must consider the intervening and circumstantial variables that may lead to behaviour inconsistent with knowledge about TB. Thirdly, it is important to identify the home remedies or alternative treatments that patients use before presenting to healthcare providers because these therapies may cause, complicate or exacerbate the problem. It is recommended that future studies explore the utility of traditional home remedies, noting with caution that such substances may be harmful if improperly administered.

Fourthly, the widespread use of private providers indicates the need for government regulation to ensure private-sector quality and affordability. One option would be for the state to develop collaborative arrangements with private providers. It would be prudent, however, to mention that other studies from South Africa suggest that private practitioners are not as knowledgeable as they should be about TB prevention and early detection (Uplekar & Rangan 1993). Proper integration of the TB programme with the frequent use of private practitioners may serve to promote early recourse to healthcare among TB patients.

## Bibliography

- ALBRECHT G L, R FITZPATRICK & S C SCRIMSHAW (eds)  
2000. *The handbook of social studies in health & medicine*. London: Sage.
- ASCH S, B LEAKE, R ANDERSON & L GELBERG  
1998. Why do symptomatic patients delay obtaining care for tuberculosis? *American Journal of Respiratory and Critical Care Medicine* 157: 1244-8.
- BAMFORD L, M LOVEDAY & S VERKUIJL  
2004. Tuberculosis. *South African Health Review 2003/04*. Durban: Health Systems Trust: 213-28.
- BECKER M H & L A MAIMAN  
1975. Sociobehavioral determinants of compliance with health and medical care recommendations. *Medical Care* 13: 10-24.
- BORGENDORFF M W & D MAHER  
2001. Health-seeking behaviour for cough. *The Lancet* 357(9267): 1532-3.
- CAMPBELL M E & P J BALLANTYNE  
2004. Who advocates for patients when healthcare systems fail? Ensuring access to essential medicines in South Africa (and the US). *Research in the Sociology of Health Care* 22: 239-60.
- CAROLL D  
1992. *Health psychology: stress, behaviour and disease*. London: The Farmer Press.
- CENTER FOR DISEASE CONTROL (CDC)  
2002. South Africa: tuberculosis and HIV — A deadly duo. *CDC News Update* October 2.
- CHENG G, R TOLHURST, R Z LI, Q Y MENG & S TANG  
2005. Factors affecting delays in tuberculosis diagnosis in rural China: a case study in four counties in Shandong Province. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 95: 355-62.

- COCKERHAM W C  
1992. *Medical sociology*. Englewood Cliffs, New Jersey: Prentice-Hall.
2001. *The Blackwell companion to medical sociology*. Malden, Mass: Blackwell.
- DEMISSIE M, B LINDTJORN & Y BERAHANE  
2002. Patient and health service delay in the diagnosis of pulmonary tuberculosis in Ethiopia. *BMC Public Health* 2(1): 23.
- ENWURU C A, E O IDIGBE, N V EZEObI & A F OTEGBEYE  
2002. Care-seeking behavioural patterns, awareness and diagnostic processes in patients with smear- and culture-positive pulmonary tuberculosis in Lagos, Nigeria. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 96: 614-6.
- GODFREY-FAUSSETT P, J KAUNDA, J KAMANGA, S VAN BEERS, M VAN CLEEFF, R KUMWENDA-PHIRI, V TIHON  
2002. Why do patients with a cough delay seeking care at Lusaka urban health centres? A health systems research approach. *International Journal of Tuberculosis and Lung Disease* 6: 796-805.
- HUGGETT J F, T D MCHUGH & A ZUMLA  
2003. Tuberculosis: amplification-based clinical diagnostic techniques. *The International Journal of Biochemistry & Cell Biology* 35: 1407-12.
- JOHANSSON E, N H LONG, V K DIWAN & A WINKVIST  
2000. Gender and tuberculosis control: perspectives on health-seeking behaviour among men and women in Vietnam. *Health Policy* 52(1): 33-51.
- LANDRY J & M A SOLMON  
2002. Self-determination theory as an organizing framework to investigate women's physical activity behaviour. *Quest* 54: 332-54.
- LEIGH H & M F REISER  
1980. *The patient: biological, psychological, and social dimensions of medical practice*. New York: Plenum.
- LIAM C K, K H LIM, C M WONG & B G TANG  
1999. Attitudes and knowledge of newly diagnosed tuberculosis patients regarding the disease, and factors affecting treatment compliance. *International Journal of Tuberculosis and Lung Disease* 3(4): 300-9.
- LIEFOOGHE R  
2000. The human dimension in TB control: myth or reality. Meulemans (ed) 2000: 41-56.
- LIEFOOGHE R, J B BALIDDAWA, E M KIPRUTO, C VERMEIRE & A O DE MUNYNCK  
1997. From their own perspective: a Kenyan community's perception of tuberculosis. *Tropical Medicine and International Health* 2(8): 809-21.



- LONNROTH K, L M THUONG,  
P D LINH & V K DIWAN  
1999. Delay and discontinuity — a survey of TB patients' search [for] a diagnosis in a diversified healthcare system. *International Journal of Tuberculosis and Lung Disease* 3: 992-1000.
- MACNEIL J R, C MCRILL,  
G STEINHAUSER, J B WEISBUCH,  
E WILLIAMS & M L WILSON  
2005. Jails, a neglected opportunity for tuberculosis prevention. *American Journal of Preventive Medicine* 28: 225-8.
- MARINAC J S, S K WILLISIE,  
D MCBRIDE & S C HAMBURGER  
1998. Knowledge of tuberculosis in high-risk populations: a survey of inner-city minorities. *International Journal of Tuberculosis and Lung Disease* 2(10): 992-1000.
- MARSH D, R HASHIM, F HASSANY,  
N HUSSAIN, Z IQBAL, A IRFANULLAH,  
N ISLAM, F JALISI, J JANOO &  
K KAMAL  
1996. Front-line management of pulmonary tuberculosis: an analysis of tuberculosis and treatment practices in urban Sindh, Pakistan. *Tubercle and Lung Disease* 1: 86-92.
- MATA J I  
1985. Integrating the client's perspective in planning a Tuberculosis Education and Treatment program in Honduras. *Medical Anthropology* Winter: 57-64.
- MATEBESI S Z  
2004. Living with TB: the 'career' of the tuberculosis patient in the Free State, South Africa. Unpubl PhD thesis in Sociology. Bloemfontein: University of the Free State.
- MECHANIC D  
1978. *Medical sociology*. 2nd ed. New York: The Free Press.
- MEULEMANS H (ed)  
2000. *Tuberculosis in Pakistan: the forgotten plague*. Leuven: Acco.
- MEULEMANS H, R LIEFOOGHE,  
P MERTENS, D MORTELMANS,  
S ZAIDI, M F SOLANGI & A DE  
MUNYNCK  
2000. The limits to patient compliance with Directly Observed Therapy for tuberculosis. Meulemans (ed) 2000: 73-93.
- MEYER-WEITZ A, P REDDY,  
H W VAN DEN BORNE, G KOK &  
J PIETERSEN  
2000. Healthcare-seeking behaviour of patients with sexually transmitted diseases: determinants of delay behaviour. *Patient Education & Counseling* 41: 263-74.
- MRC NEWS  
2003. Spotting the culprits — new tests for TB. South African Medical Research Council.  
<[www.sciencein africa.co.za/2003](http://www.sciencein africa.co.za/2003)>

- NGAMVITHAYAPONG J, A WINKVIST & V DIWAN  
2000. High AIDS awareness may cause tuberculosis patient delay: results from an HIV epidemic area, Thailand. *AIDS* 14: 1413-9.
- PRONYK P M, M B MAKHUBELE, J R HARGREAVES, S M TOLLMAN & H P HAUSLER  
2001. Assessing health-seeking behaviour among tuberculosis patients in rural South Africa. *International Journal of Tuberculosis and Lung Disease* 5(7): 619-27.
- RAJESWARI R, V CHANDRASEKARAN, M SUHADEV, M SIVASUBRAMANIAN, S SUDHA & G RENU  
2002. Factors associated with patient and health system delays in the diagnosis of tuberculosis in South India. *International Journal of Tuberculosis and Lung Disease* 6(9): 789-95.
- REDELINGHUYNS N & H C J VAN RENSBURG  
2004. Health, morbidity and mortality: the health status of the South African population. Van Rensburg (ed) 2004: 252.
- RESOURCE CENTER FOR ADOLESCENT PREGNANCY PREVENTION  
2002. Theories and approaches. How the Health Belief Model was developed.  
<<http://www.etr.org/recapp/theories/hbm/HowDeveloped.htm>>
- ROSENSTOCK I M  
1966. Why people use health services. *Milbank Memorial Fund Quarterly* 44: 94-124.  
1974. Historical origins of the Health Belief Model. *Health Education Monographs* 2: 1-8.
- RUBEL A J & L A GARRO  
1992. Social and cultural factors in the successful control of tuberculosis. *Public Health Reports* 107: 626-36.
- SALANIPONI F M L, A D HARRIES, H T BANDA, C KANG'OMBE, N MPHASA, MWALEA, B UPINDI, T E NYIRENDA, A BANERJEE & M J BOEREE  
2000. Care-seeking behaviour and diagnostic processes in patients with smear-positive pulmonary tuberculosis in Malawi. *International Journal of Tuberculosis and Lung Disease* 4: 327-32.
- SEGAR J  
1997. Hard lives and evil winds: illness aetiology and the search for healing amongst Ciskeian villagers. *Social Science & Medicine* 44(10): 1585-1600.
- SIEGRIST J  
2000. The social causation of health and illness. Albrecht *et al* (eds) 2000: 100-14.
- STEEN T W & G N MAZONDE  
1999. Ngaka ya setswana, ngaka ya sekgoa or both? Health-seeking behaviour in Batswana with pulmonary tuberculosis. *Social Science & Medicine* 48(2): 163-72.

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THORSON A, N P HOAA &  
N H LONG

2000. Health-seeking behaviour of individuals with a cough of more than 3 weeks. *Lancet* 356(9244): 1823-4.

TWADDLE A C & R M HESSLER

1987. *A sociology of health*. 2nd ed. London: Macmillan.

UPEKAR M W & S RANGAN

1993. Private doctors and tuberculosis control in India. *Tubercle Lung Disease* 74: 332-7.

VAN RENSBURG H C J (ed)

2004. *Health and health care in South Africa*. Pretoria: Van Schaik.

VAN RENSBURG H C J &

N REDELINGHUYS

2001. *Environmental scans: Goldfields, Thaba Nchu and Qwaqwa*. Bloemfontein: Centre for Health Systems Research and Development.

WARD J, V SISKIND &  
A KONSTANTINOS

2001. Patient and healthcare systems delays in Queensland tuberculosis patients, 1985-1998. *International Journal of Tuberculosis and Lung Disease* 5: 1021-7.

XU B, G FOCHSEN, Y XIU,  
A THORSON, J R KEMP &

Q W JIANG

2004. Perceptions and experiences of healthcare seeking and access to TB care — a qualitative study in Rural Jiangsu province, China. *Health Policy* 69: 139-49.