



Perceptions of tuberculosis and health seeking behaviour in rural Inner Mongolia, China[☆]

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Abstract

Purpose: This study aimed to explore perceptions of TB, and health care seeking pathways, among poor rural communities in Inner Mongolia.

Methodology: Twenty focus group discussions (FGDs) were held and 105 farmers were included. Six hundred and fourteen randomly selected respondents were surveyed through interview questionnaire, in three poor rural counties with a high TB prevalence.

Main findings: A substantial proportion of community members were unclear or misinformed as to how TB was transmitted. Sixty percent of respondents identified prolonged cough as a main symptom of TB, while only 40% perceived TB to be caused by 'close interaction with TB patient'. In addition, 70% could not afford TB treatment and fell into debt as a result of having to seek medical care. Social stigma associated with TB influenced marriage prospects and impeded important social interactions within the community. Respondents' perceptions of TB were associated with their socio-economic status. Women, young people, low-income groups and those with less education tended to be less knowledgeable about TB. All farmers in the study reported only seeking health care after they failed to treat themselves; and most of them then sought care from less qualified village level health care providers. Less educated people, low-income groups and old people were identified as less likely to seek care, or more likely to seek care at village level where it is cheaper. Both financial and structural barriers were found to stop farmers seeking health care.

[☆] The field survey was carried out in Inner Mongolia Autonomous Region, China, by T. Zhang and X. Liu. The paper was drafted whilst the first author was a senior visiting fellow in the Department of Public Health, University of Liverpool.

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Conclusions and policy implications Perceptions of TB and social stigma associated with the disease, together with socio-economic factors, shape the health seeking behaviour of poor farmers. Accessibility and affordability of TB health care issues should be dealt with through a multi-pronged approach, including health promotion in addition to expansion of the DOTS strategy and rural health insurance schemes.

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1. Introduction

Tuberculosis (TB) is one of the top 10 causes of death in China, and mortality rates from TB are especially high in rural areas, where the prevalence of active pulmonary TB is double that in urban areas [1]. In 2000, there were an estimated 5 million active pulmonary TB cases in the country, of which 1.5 million cases were estimated to be sputum smear-positive [2].

The Chinese government initiated the internationally recommended WHO DOTS strategy during the early 1990s, in 12 provinces with a population of 696 million [3]. From 1990 to 2000, DOTS implementation led to a decreased prevalence rate of active pulmonary TB in DOTS-covered counties by about 30% [2]. The Chinese government issued the National Tuberculosis Control Plan in 2001. The plan commits the government to expanding DOTS to cover 90% of rural counties in the country [2,4], in order to cut TB prevalence by 50% before 2015, the target adopted as one of the UN Millennium Development Goals [1].

However, as Dye and others have argued, low and delayed case detection is a major barrier to TB control [1,3,5,6]. It is a particular problem for developing countries, where passive case finding approaches are usually adopted [7]. China is no exception to this, facing the challenge of low and delayed case detection throughout the country. However low case detection is a particular problem in areas not covered by the DOTS strategy. In these areas, case detection rates have been recorded as low as 32% in 2000 [2].

Case detection is complicated and affected by many factors. The literature indicates that case detection is related to cultural, socio-economic, political, geographical, structural and financial factors [6,8–10,13]; that local and regional cultural factors shape the interpretation of people's symptoms and the ways in which individuals seek care [9,11]; and that socio-economic

factors, including gender, income and education levels, also impact on the interpretation of symptoms and health seeking behaviours [6,10,12].

Therefore better understanding of community perceptions of TB, and factors which influence that perception could help identify reasons for low or delayed accessing of health care in China. However, few studies of this kind have been conducted in China, and even less examine the situation in rural areas [5]. The most recent National Tuberculosis Epidemiological Survey in China noted that relatively low case detection rates were related to factors such as gender, ethnicity, income, education, occupation and living standards. However, the data were not detailed enough to explore why and how these factors were interrelated and functioned [2]. A qualitative study in two relatively wealthy rural counties, found that financial difficulties were the most serious barrier for TB patients in accessing health care. Lack of TB knowledge ranked as the second. Female and elderly patients were less likely to seek health care, and where they did seek care, were more likely to access lesser qualified, lower level health care providers [5]. Other studies in China have also demonstrated similar results [14,15].

Most people in rural China are not covered by health care insurance, and therefore have to pay their medical expenses on an out-of-pocket basis. Smear-positive TB patients qualify for free or partly free TB treatment in DOTS covered counties [3,5].

The health care system in rural China is organised hierarchically, so that the population of a county may access care at various levels of quality and expense (from county general hospitals, to township health centres and village clinics). County general hospitals are public, partly government subsidized and renowned for their high quality services, but they are expensive. Township health centres and village clinics provide primary care and referral services. The staffs of the latter

two are less skilled than the former, and the price is usually cheaper than at the county general hospitals. Health care providers at all levels are responsible for referring TB suspects to the county TB dispensary, to be registered and treated. However, health care reforms such as decentralization and privatization have been introduced to township and village levels. As a result, most village doctors are private practitioners and it is difficult to regulate or monitor their behaviour.

The World Bank and Department of International Development UK (DFID) provided a blended loan to support the Chinese government in expanding DOTS implementation in 16 poor provinces, between 2002 and 2009. The first part of the plan to increase DOTS implementation is to gain a baseline understanding of the social and economic barriers to accessing TB diagnosis and care. Understanding the barriers will enable effective interventions to be implemented and case detection rates to be increased.

This paper reports the results of the baseline pilot study, which was carried out in three poor, rural counties in Inner Mongolia Autonomous Region, China. The aim of the study was to explore the understandings, beliefs, perceptions and stigma related to TB, and to understand pathways to seeking care among groups of people who are of different age, gender, ethnicity, education and income background. The intention was to provide household-based evidence for further policy making on TB control in China.

2. Methodology

2.1. Setting

Inner Mongolia Autonomous Region was chosen as the pilot province, because it has a large minor-

ity ethnic population and is relatively poor. GDP per capita is US\$ 645, which ranks it 22nd out of the 31 Chinese provinces [16]. The annual per capita disposable income for a farmer is US\$ 212 [17]. According to the 5th National Census, the Mongolian population accounts for 16.96% of the total population of Inner Mongolia, the rest being predominantly Han Chinese. Three rural counties with high TB prevalence and low case detection rates were purposely selected, to represent a range of economic and geographical circumstances within the region. The counties were already in the process of implementing the DOTS programme.

2.2. Methods

In order to collect a wide range of data, mixed methods were adopted for the study by a multi-disciplinary team consisting of social scientists, epidemiologists and TB control specialists. The main methods used were focus group discussions (FGDs) and a structured interview questionnaire survey.

FGDs were designed to provide insights into community beliefs, values and understandings of health problems [18]. The data from the FGDs were also used to refine the questionnaire. In total, 20 FGDs were held, made up of 105 farmers of different ages, gender and ethnic groups. The age span was from 15 to 77-years old. One quarter were illiterate, of whom, most were women. The group participants were recommended by the village chief and selected by the team on the basis of their agreement to participate (Table 1).

Based on the information generated from the FGDs, a structured questionnaire survey was designed and pre-tested. Multi-stage random sampling was adopted in the 3 counties, 6 townships and 12 villages. Fifty to fifty-two people aged 18–60 years were randomly selected from each village. In total, the questionnaire

Table 1
Focus group characteristics

Group of participants	Number of FGDs	Total number of participants	Age range of participants	Number who were illiterate
Older Mongolian men	3	17	40–75	3
Older Han men	2	13	40–77	7
Older Mongolian women	3	14	40–70	8
Older Han women	2	10	40–67	7
Younger Mongolian men	3	12	17–40	0
Younger Han men	2	11	30–40	0
Younger Mongolian women	3	17	15–40	2
Younger Han women	2	11	25–40	2

was administered to 614 farmers in the rural communities. Eleven percent of the interviewees were Mongolian.

2.3. Data collection

The research team developed a focus group topic guide. A local moderator who had been specially trained led the focus group discussion, assisted by a local note-taker. FGDs were run in all three counties. Each focus group was tape-recorded and notes were taken.

A structured face-to-face survey by questionnaire was conducted. Local interviewers were recruited and trained to conduct the house-to-house survey. Questionnaires were checked daily for completeness.

Questions in both the FGDs and the questionnaire included: TB related knowledge (for example cause and transmission), the social consequences of suffering TB, attitudes towards TB patients and patterns of health seeking behaviour.

All participants gave informed consent prior to taking part in the study, by signing or making a finger-print on the consent form. Those who did not agree to take part in the interview or who did not feel comfortable during the interview were allowed to leave. The data were gathered between March and August 2003.

2.4. Data analysis

FGDs were transcribed immediately after the interview, and entered into a word processing package. Analysis of transcripts proceeded based on coding and a framework for analysis, based on the main themes arising from the data, was developed. Questionnaires were checked and entered into data analysis software (SPSS v. 11.0). Data were stratified by age, gender, ethnicity, education and income. Appropriate statistical tests (Mantel–Haenszel, χ^2 and multivariate analysis) were applied.

2.5. Quality assurance procedures

A team of international and national researchers (social scientists, epidemiologists and TB control specialist) developed the research protocol, topic guides for the FGDs and the questionnaire. All research instruments were translated and back translated from Chi-

nese to English, and checked for accuracy of meaning and interpretation. The research instruments were pre-tested in the field prior to the study commencing.

2.6. Limitations

Like other studies, this study has some limitations. Firstly, our conclusions apply to the Autonomous Region of Inner Mongolia only. Further generalisations to other provinces should be made carefully, and only after considering their unique cultural, geographical and institutional situations. Secondly, we selected only three rural counties (out of 69) in Inner Mongolia. This sampling process leads to risk of non-representativeness. Due to operational difficulties, we did not design for balanced representativeness between two types of Mongolian: those settled in a village and those who shift seasonally. Therefore the former may be overrepresented and the latter underrepresented. The former, as with their Han majority neighbours, can access health care more easily than can the latter. Finally, this paper has focused on community understandings only. Perceptions and attitudes of health care providers, patients and suspects are to be presented elsewhere [19].

3. Main findings

The results of both the qualitative and quantitative parts of the study were broadly complementary. The results of the study are therefore presented together.

3.1. Community perceptions of TB

Although they were familiar with the term TB, farmers lacked specific knowledge of TB. Most survey respondents had heard of the term TB (96%), although only 60% knew that the main symptom of TB was a prolonged cough (see Table 2). The focus group discussion participants identified ‘Fei Lao’ as the local term for TB, which refers to a weak person with little energy, a prolonged cough with or without sputum, night sweats, blood-stained sputum and shortness of breath.

Similarly, although most survey respondents thought of TB as contagious, only a small number displayed a thorough knowledge of the means of trans-

Table 2
Community knowledge of TB from the questionnaire survey ($n = 614$)

Knowledge	Answers	Number of respondents	Percentage
Have ever heard of TB	Yes	590	96
TB is contagious	Yes	501	82
Causes of TB	Close interaction with TB patients	245	40
	Common cold or excessive heavy work	145	24
	Inherited	189	31
Effective measures to prevent TB transmission	Stay away from TB patients	319	52
	Do not share eating utensils with TB patients	185	30
Main early symptoms of TB	Prolonged cough	355	59
Curability of TB	Yes	535	87

mission. While 82% of respondents recognised TB as contagious, only 40% stated that TB could be transmitted by ‘close interaction with TB patients’. Thirty-one percent thought it was an inherited condition, whilst 24% cited heavy labour and the common cold as mechanisms of transmission (Table 2). In the FGDs, all participants (younger, older, Han and Mongol ethnic groups, men and women) stated that TB was inherited, and therefore the community as a whole generally discouraged TB patients from having children: ‘TB can be inherited by children so married couples should not have babies’ (Older Han Women Group, no. 2). This belief was common not only amongst farmers, but also amongst village doctors [19]. It is likely that this notion was established and perpetuated during interactions between village residents and village doctors. Drinking cold water immediately after stopping hard labour was also commonly mentioned as a cause: ‘Worked very heavily . . . and drunk cold water immediately after it, the lung would split into pieces. That is the reason for TB’ (Younger Mongolian Men Group, no. 2).

Farmers also believed that sharing eating utensils would spread the disease. Thirty-one percent of survey respondents agreed that in order to protect themselves from TB, they would not share eating utensils with a TB patient. Only 52% of them would choose to ‘Stay away from TB patients’ (Table 2). In the FGDs, participants said they got the information mainly from ‘doctors’ and ‘older family members and TB patients’ (Younger Mongolian Women Group, no. 2). Forty-four percent of survey respondents obtained their information about TB through word of mouth.

In the household interview survey, most respondents said that TB was curable (87%), although in the FGDs, most participants stated it was difficult to cure.

They described TB as a long-term, agonising and cumbersome disease, needing continuous treatment and a ‘strong financial source’ to support treatment. Some TB patients had to stop their treatment in order to earn more money for further treatment: ‘The brothers all suffered TB and used up their family savings. Therefore they went to the city working as seasonal labour’ (Older Han Women Group, no. 1). Alternatively, other family members have to sell their labour: ‘This guy suffered TB . . . his mother has to herd sheep for others to feed the family’ (Older Mongolian Women Group, no. 3).

3.2. Affordability of health care

TB represents a financial disaster for farmers’ families, resulting in reduced income from lost productivity and increased expenditure for medical care. The questionnaire survey showed that 98% of the 614 respondents were not covered by health insurance of any kind. The resulting debt may continue for many years. Survey respondents estimated that to cure a TB patient, the median of total cost (including medical expenditure and opportunity cost) was about 5000 Yuan (US\$ 610). This cost is roughly equal to 70% of annual household disposable income (7136 Yuan or US\$ 870) in a middle-income family [17]. However, because most TB patients were from poor families, the problem of affordability was more serious. Seventy percent of survey respondents said their family could not afford TB treatment. The survey also showed that 80% of families who could not afford treatment would have to borrow money in order to pay for treatment. Nine percent of respondents said that they would have to stop having treatment: ‘They [those can not afford the treat-

ment] have to stop having treatment and wait for death, because they have run out of all borrowed money and are unable to return it: nobody would lend them any more' (Older Mongolian Women Group, no. 1). Many older FGDs participants could identify someone they had known who had died of TB because of their inability to pay for treatment.

3.3. Experience of stigma

Community members in the study reported that people with TB experienced two types of stigma: difficulty in finding a marriage partner and loss of social connection with their neighbourhood. Unmarried young men felt that it would be difficult for them to find a marriage partner if they were diagnosed with TB, at least until they were completely cured. The reason for this was the perception that TB would harm their offspring, and TB treatment would be unaffordable, as mentioned above. In contrast to unmarried men, unmarried women felt that even if they had TB they would still be able to find a marriage partner, even during diagnosis and treatment, but their parents would receive fewer betrothal gifts than usual. Although FGDs participants said they would not treat TB patients differently to anyone else, they admitted that they would avoid visiting them at home, even though this is a normal and necessary social activity among rural neighbours: 'If the patient come to visit, the neighbours would provide food and drink as usual, and try to identify the utensils that the patient used, and afterwards, wash them thoroughly and separately' (Older Han Women Group, no. 2).

In order to protect themselves from stigma, most FGDs participants said they would try and keep it a secret if a member of their family had TB. Some even said they would not tell their spouse if they were diagnosed, for fear of divorce, particularly if the relationship was not harmonious. Engaged young men would not inform their future in-laws of their condition, for fear of the engagement being broken off.

3.4. Factors related to knowledge and perception

3.4.1. Age, gender and ethnicity

In the study, women and young participants tended to know less about TB than men and older participants. Thirty-six percent of surveyed women (and 44% of men) claimed that TB was spread by close interac-

Table 3

Percentages of farmers who have knowledge of TB, by age, gender, ethnicity, income and education levels

	Cases	Percentage knew TB was infectious	Percentage knew TB was infected by close interaction with TB patients
Total	614	82	40
Gender			
Male	314	87	44
Female	300	83	36 ^a
Age group			
25 and over	428	86	40
Less than 25	53	75 ^a	34
Ethnicity			
Han	545	85	41
Mongolian	65	84	32
Annual household income			
High	204	89	45
Middle	201	83	46
Low	204	83	29 ^b
Education			
Literate	496	88	43
Illiterate	118	72 ^b	25 ^b

Mantel–Haenszel χ^2 -test.

^a $p < 0.05$.

^b $p < 0.01$.

tion with TB patients. Fewer young people than older age groups knew that TB was infectious (75% versus 86%). No difference was found between different ethnic groups (Table 3). Results from the FGDs suggested that older villagers and those living in higher TB prevalence areas knew more about TB than younger participants. Mongolian participants perceived themselves as vulnerable to TB, because of their unique lifestyle, including working excessively hard (especially in winter), drinking dirty water and too much alcohol. Women blamed TB on their heavy workloads, and perceived that they were more vulnerable to hereditary factors than men.

3.4.2. Income and education

These were significant contributing factors for TB knowledge. Among low-income survey respondents, 29% knew TB 'was spread by close interaction with TB patients', whereas 45% and 46% of high and middle-income groups, respectively, know this. Similarly, illiterate people were less likely to know that TB 'was spread by close interaction with TB patients' (25%), compared to that of the literate group (43%). They

also were less likely to know that ‘TB is infectious’, compared to that of the literate group (72% versus 88%). Multivariate analysis showed that both the level of education and the amount of family assets were positively related to correct understandings of TB contagion (Table 3). FGDs participants suggested that people in very poor areas were more vulnerable, either due to lack of access to health facilities or financial barriers in paying for health care, both of which could lead to delays in diagnosis and treatment.

3.5. Health seeking behaviour

Generally most participants treated themselves before they went to see a doctor. In the FGDs, many participants said ‘We went to the village doctor once we felt bad, just for buying medication. So we could resist the disease for a period of time ourselves. Usually minor disease⁴ would go. If the medication did not work, we would go to village or township doctors again [for diagnosis and treatment]’ (Older Mongolian Women Group, no. 2). As with behaviours towards other minor diseases, patients with symptoms suggestive of TB (such as prolonged cough) usually self-treated with anti-cough medications for up to 6 months, before seeking care.

When they decided to see the doctor for diagnosis and treatment, 51% of survey respondents said they would choose the village doctor as the first point of contact because of proximity, convenience and good service. Village doctors were especially popular in remote areas, as they are easier to access in terms of time and cost: ‘The village doctors would come soon in 15 min if you picked him up by motorcycle, or he came by motorcycle himself when you called. If you’ve got no cash at the time, he may sell on credit or barter’ (Younger Han Men Group, no. 1). However, patients with symptoms suggestive of TB did not receive a correct diagnosis due to limitations in the village doctor’s knowledge. Focus group participants said that some patients could be delayed at village level for up to 12 months.

Although villagers understood that the county hospital provided high quality services, they were reluctant to go there, mainly because of the direct and indirect costs, such as high medical costs and long travelling

times to the hospital. In rural areas such as Inner Mongolia, good quality means more expense and increased inconvenience. User fees at the county hospital are five times higher than the township and village providers [20]. In addition, patients have to pay for transportation and accommodation: ‘The county hospital has good equipment. The doctors can make correct diagnosis. . . [However,] we need to spend more than 1 day and a lot of money if we travel to the county hospital, because there is only one coach per day going back and forth from the county hospital’ (Younger Han Women Group, no. 2).

When hospitalization was required, only a few richer respondents could afford the medical costs and hospital accommodation in a county hospital. Poorer people could only return to their village: ‘I have no more money to allow me to stay in the county hospital, so I have to resort to the village doctor for [an antibiotic] drip’ (Younger Han Man Group, no. 1).

3.6. Factors relating to health seeking behaviours

3.6.1. Age and gender

Age is a factor that influences health care seeking, with young people being given priority for health care within the family. Among survey respondents, 86% of people over 50 years said they would ‘go to see a doctor when suspected as having TB’, whereas 96% of those younger than 25 years said they would do so (Table 4). Many FGD participants agreed that children with any illness were prioritised for treatment, because of the common view that ‘children have not begun their life, but the elderly have almost lived theirs’ (Older Han Men Group, no. 1). Age is also related to where to go when seeking a doctor. Sixty-three percent of people over 50 years would go to the village doctor, whereas only about a third (34%) of the younger generation would go there. Although the FGDs participants revealed that women were less likely to seek care than men, gender difference was not statistically significant in the survey. For a typical six-person family, the priority order for seeking health care was: baby boy, baby girl, father, grandfather, mother and lastly grandmother.

3.6.2. Income and education

Income influenced the participant’s decision to visit a doctor, and also where they should go. Compared

⁴ ‘Minor disease’ referred to the situation when suffered people could walk, eat and work.

Table 4
Percentage of farmers who seek health care when suspected of having TB, by age, gender, ethnicity, income and education level

	Cases	Percentage going to see a doctor when suspected as having TB	Percentage going to see village private doctor
Total	614	92	48
Gender			
Male	314	93	50
Female	300	92	47
Age group			
<25	53	96	34
25–49	428	94	46
50 and over	133	86 ^a	63 ^b
Ethnicity			
Han	545	93	49
Mongolian	65	90	49
Household annual income			
High	204	95	39
Middle	201	93	45
Low	204	88 ^b	60 ^b
Education			
Literate	496	94	47
Illiterate	118	86 ^b	55

Mantel–Haenszel χ^2 -test.

^a $p < 0.05$.

^b $p < 0.01$.

with the high-income group, the low-income group was less likely to see a doctor when suspected of having TB (88% versus 95%) (Table 4), and they were more likely to seek care at village level (60% versus 39%). Compared to literate people (94%), only 86% of illiterate people would go to see a doctor when suspected of having TB. The FGDs showed that, for less educated and poor people, the county hospital was considered a cultural and structural barrier. One participant said ‘I am illiterate; I can’t find the right place to go in such a huge building of the hospital. There are so many doctors’ offices and all the doors are closed. All the offices have a nameplate, but I can’t read them. I have no acquaintance in the hospital so that I have to ask when I opened a wrong door. I have been blamed and scolded when I made mistakes’ (Older Mongolian Women Group, no. 2). Poor participants also experienced unfriendly attitudes of medical staff: ‘You would be scolded and discriminated against if you did not dress properly [if dressed

as usual as a farmer]’ (Older Han Women Group, no. 2).

4. Discussion

‘Case detection’ discussed in this paper specifically refers to TB cases which are referred to the TB dispensary and registered there. Any treatment of TB cases outside the dispensary system are considered undetected [1]. However, ‘low detection rate’ doesn’t simply mean a substantial proportion of people with TB being treated elsewhere, it also means a large proportion of people with TB have never sought any health care during the course of their disease. For example, by using a randomly selected sample, the National Tuberculosis prevalence survey found 1278 new cases in 2000 nationwide; 651 cases or 51% among them had never seen a doctor [2]. In short, low case detection is linked closely with lack of health care seeking due to perceived barriers to care.

Personal and community knowledge of TB and interpretation of health beliefs influences attitudes and health seeking behaviours significantly [9,10,12]. Our research findings support this statement. In addition, the interactions of TB perceptions, health care seeking behaviour and socio-economic factors clearly affected TB case detection in this study. There are four possible factors that influenced health care seeking in the community: perceptions of TB; socio-economic status such as income and education; health care provider factors; and perceived health care expenditure. We summarize the interaction between these factors in Fig. 1.

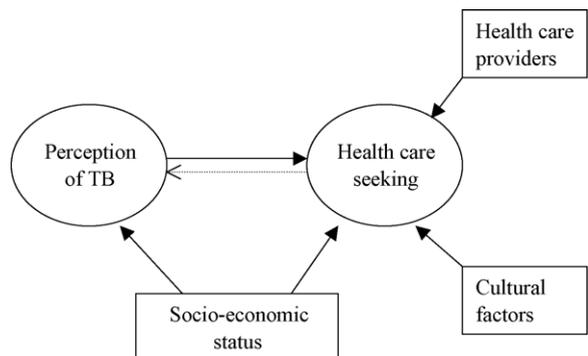


Fig. 1. Factors related to health care seeking of TB patients.

Firstly, a lack of knowledge of the main symptoms of TB, its transmission and its curability make participants in Inner Mongolia reluctant to seek health care promptly. Considering their disease to be ‘minor’ and fearing stigmatisation, they delay seeking health care. Instead, they self-treat first. According to the FGDs among health care providers in county general hospitals [19], this delay may continue for up to 6 months and be further exacerbated by socio-economic factors. **Women, low-income and less educated groups may delay longer than the others, because they are less likely to have TB-related knowledge.** Women’s lack of information is in line with previous studies [6,9]. This is especially worrying, because women usually play the role of carer, thus influencing the health status of all family members [20].

Social stigma, as a factor influencing low case detection, is a common feature of studies undertaken in Africa, South Asia and indeed, worldwide [12,13]. In this study, social stigma was related mostly to finding a marriage partner and to relationships within the community, especially for young men. We conclude that the stigmatising nature of TB influences access to health care, but this influence is subtle and difficult to uncover. Although Dorf [15] reported that—as a consequence of having TB—female TB patients might be divorced and rural migrant workers in urban areas might lost their jobs, Xu et al. [5] did not report significant social stigma towards TB patients in two rural counties in Jiangsu province, China.

Secondly, socio-economic factors clearly influenced the likelihood of accessing diagnosis and health care in Inner Mongolia. The most important factor was income, which was similarly found to be a barrier to health care in other areas [3,5]. A nationwide study on the income of TB patients [21] demonstrated that among 628 newly discovered TB cases in rural areas, 502 (80%) cases have a per capita annual income lower than the national average. In the present study, we discovered that poverty limited TB patients’ access to and affordability of health care, because of high treatment costs and opportunity costs. **When patients decided to seek care, they had to resort to low quality providers who charged lower prices.**

Thirdly, cultural factors have been found to be determinants of health care seeking. Although relatively well informed about TB, older people in this study were less likely to seek health care, or less likely to

seek higher quality health care. In rural China older people do not expect their children to accompany them to the doctor, or help them pay subsequent medical costs. The perception is that because they are no longer contributing to household income, they are not worthy of this kind of financial assistance.

Last but not least, structural factors may also contribute to health care seeking behaviour, such as the arrogant and patronising behaviour of health care staff [8]. In this study, community members complained of health care providers’ inappropriate attitudes towards poor and less educated people in county general hospitals. Complicated buildings and unfamiliar environments made the participants lose confidence in navigating the hospital. Similar structural barriers such as these were also identified in a study in Xinjiang Uygur Autonomous Region, China [22].

In order to access high quality health services, the patient may have to meet high medical costs and travel long distances to reach those services, thus adding to the indirect costs of care [23]. These costs are prohibitive for poor people, who instead have to seek health care of often-questionable quality from village doctors. However, the village doctors are flexible with payments, are accessible in terms of time and cost, and are good at communicating with community residents, regardless of their socio-economic situation; therefore they remain the main health care providers in rural areas.

4.1. Policy implications

Given the situation that a large proportion of villagers (especially those who are on a low income, less educated or elderly) consult private village doctors as their first point of contact, the performance of this sector with regard to detection, treatment and monitoring of TB is of critical importance. As mentioned above, the current Chinese TB control strategy relies exclusively on the TB dispensary system. If TB cases are not correctly diagnosed by the village doctor, they do not get referred to the TB dispensary and therefore remain undetected and inappropriately treated for a prolonged period of time. Decision makers working in the area of TB control in China should therefore urgently consider establishing a mechanism of motivating private village doctors to identify and refer TB patients to the dis-

pensary, especially in poor, rural, remote areas, where more people rely on these doctors. Tang and Squire [3] have suggested the establishment of a publicly financed community-based TB surveillance network, in which trained village doctors could cooperate in TB case detection and follow-up treatment. In addition, decision-makers should consider how to regulate and monitor the performance of village doctors as a whole.

Many beliefs about disease are culturally sensitive; therefore health education must also be culturally sensitive and adapted to the local context. Tuberculosis education should build on existing knowledge and focus on changing misconceptions about its cause and transmission, which could in turn reduce stigmatisation. The National Health Promotion Strategy (IEC strategy/Information, Education and Communication strategy, a part of WB/DFID UK TB Control Program), which is currently being drafted, should focus on local perceptions and interpretations of TB, such as understandings of the mechanisms of transmission and treatment. Health education needs to inform the public without raising additional fears, and should emphasize that TB is perfectly curable, in order to eliminate social stigma against TB patients. **Local key persons should be identified, such as TB patients and local health care providers. Ways of employing them to dispel myths about TB diagnosis and treatment could be explored. Health education training courses for patients, as well as local health care providers, should be considered.**

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