

# Gender perspectives on knowledge and practices regarding tuberculosis in urban and rural areas in Pakistan

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خصائص الجنسين من حيث المعارف والممارسات المتعلقة بالسل في المناطق الحضرية والريفية في باكستان

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**الخلاصة:** لقد قمنا بتقصي الفروق بين الجنسين فيما يتعلق بالمعارف والمواقف تجاه السل في المجتمعات الريفية والحضرية في ولاية السند بباكستان. وأتضح لنا أن هناك بشكل عام نقصاً في المعارف المتعلقة بالأعراض و لاسيما بين النساء الريفيات. فقد ذكرت 5.6% فقط وجود دم في البلغم. أما في ما يتعلق بالوقاية من السل، فقد أشار 22.4% من الذكور في الريف و14.4% من الذكور في الحضر إلى أهمية إتمام المعالجة، ووافقهم في الرأي 9.8% من النساء في الريف و7.1% من النساء في الحضر. ويعتبر الأطباء مصدراً هاماً للمعلومات في المناطق الريفية، فقد ذكر 60.9% من الذكور في الريف أنهم لن يوقفوا المعالجة إلا بناءً على مشورة الطبيب. وعلى النقيض نجد أن أكثر من 65% من المستجيبين في المناطق الحضرية ذكروا أنهم سيتوقفون عن المعالجة عند انتهاء الأعراض. ومن ثم تُبرز هذه الدراسة أهمية توعية السكان حول مرض السل في السند.

**ABSTRACT** We investigated gender differences in knowledge of and attitude towards tuberculosis (TB) in urban and rural communities in Sindh province, Pakistan. Knowledge of symptoms was generally deficient, particularly in rural females. Regarding TB prevention, 22.4% of rural and 14.4% of urban males said completing treatment was important; only 9.8% of rural and 7.1% of urban females agreed. Doctors were an important source of information in rural areas and 60.9% of rural males said they would only stop treatment on a doctor's advice. In contrast, > 65% of respondents in urban areas said they would stop treatment when symptoms ended. Our study highlights the need to increase population awareness about TB in Sindh.

## Sexospécificités dans les connaissances et les pratiques concernant la tuberculose en milieu urbain et rural au Pakistan

**RESUME** Nous avons examiné les différences selon les sexes dans les connaissances et les attitudes concernant la tuberculose dans des communautés urbaines et rurales de la province du Sindh (Pakistan). La connaissance des symptômes était faible de manière générale, notamment chez les femmes rurales. En ce qui concerne la prévention de la tuberculose, 22,4 % des hommes ruraux et 14,4 % des hommes urbains ont déclaré que le fait de suivre le traitement jusqu'au bout était important ; seulement 9,8 % des femmes rurales et 7,1 % des femmes urbaines en convenaient. Les médecins représentaient une source d'information importante dans les zones rurales et 60,9 % des hommes ruraux ont déclaré qu'ils n'interrompraient le traitement que sur avis d'un médecin. Par contre, plus de 65 % des répondants en milieu urbain ont déclaré qu'ils interrompraient le traitement à l'arrêt des symptômes. Notre étude souligne la nécessité de sensibiliser la population de la province du Sindh à la tuberculose.

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## Introduction

Tuberculosis (TB) is one of the most important infectious causes of mortality in the developing world. Estimated annual global incidence is 8 million cases and there are 2 million deaths yearly [1,2]. The total number of TB cases is predicted to increase in all regions up to 2005, with the expected increase 3% per year on average. Pakistan has the 6th highest TB burden globally and accounts for 44% of the TB burden in the WHO Eastern Mediterranean Region [2]. It is currently estimated that there are around 1.5 million TB patients in Pakistan, while every year 250 000 people develop the disease [3]. In Sindh province, 88 000 persons get this disease every year, including 44 000 smear-positive cases [3,4].

Tuberculosis kills more women than all causes of maternal mortality combined [5]. In 1998, about three-quarters of a million women died from TB and over 3 million contracted the disease, accounting for about 17 million disability adjusted life years [6]. A number of studies have shown that in high prevalence countries women in their reproductive years (15–40 years) have higher rates of progression to disease than men of the same age. This may be related to the physiological changes associated with reproduction [7–9]. As TB affects women mainly in their economically and reproductively active years, the disease has a severe impact on their children and families [10]. Women also face obstacles to gaining access to diagnostic facilities, investigation of the disease and completing treatment. In addition, the added burden of housework, childcare and employment allows them very little time to access health care and TB care for themselves [10–12].

Gender, culture and personal experience are generally said to influence health-seeking behaviour. Several authors agree

that the human element in TB control has often been overlooked and suggest that there would be significantly better control if more attention were given to the health culture of the population [13–15]. Local surveys on knowledge and attitude towards TB greatly benefit the planning, health education and implementation of TB control programmes. Research has shown that several health interventions have failed because they were designed without ascertaining any knowledge of the health behaviour of the target population [16]. For successful TB control, it is important to target women and to elicit the beliefs and knowledge of women regarding TB as well as their health-seeking behaviour.

To help in the baseline assessment of the differences in knowledge about TB in males and females, we conducted a study in urban and rural areas of Sindh province in Pakistan with the following objectives: to study the differences in knowledge of cause, spread and treatment of TB; to compare male and female health-seeking behaviours; and to compare urban and rural perspectives regarding knowledge of and attitude towards TB.

## Methods

This was a cross-sectional, descriptive study. The study was conducted in 1 urban site in Karachi known as Baldia Town and 1 rural site in Hyderabad division known as Tando Jam. Two hundred households (100 urban and 100 rural) were selected from the data-base of voters using a table of random numbers. All family members 20–45 years were included in the study. The questionnaire was given to every adult male and female between 20 and 45 years of age living permanently in these households. Anyone who had been staying for less than 6

months was not interviewed. In the urban area, 455 individuals (229 males and 226 females) were interviewed, while in the rural area 299 individuals (156 males and 143 females) were interviewed, giving a total of 754. The mean number of persons per household in the urban area was 9.6, while in the rural area it was 8.4. Consent was obtained from the respondents before administering the questionnaire and there were no refusals.

Data were collected using semi-structured questionnaires having both closed and open-ended questions. Questionnaires were translated into the national language, Urdu, and the local language, Sindhi. The household questionnaire included questions on age, sex, literacy and socioeconomic status of the respondents. The individual questionnaires contained questions regarding knowledge of TB, including causes and factors responsible for its spread, signs and symptoms of TB, parts of the body affected, investigations needed in such cases, reasons for stopping treatment and sources of information. Health-seeking behaviour was also determined for both males and females.

Open-ended questions were asked concerning the individual's attitude towards TB and the sociocultural stigmas associated with the disease. The community's attitude towards females who develop TB was also elicited. The questionnaire was administered by interviewers who underwent a 2-day training on questionnaire administration techniques. In the case of male respondents, a male interviewer was used and for females, a female interviewer. The entire questionnaire was completed in 40 minutes. The raw data from open-ended questions was categorized into open codes. These open codes were applied by 2 independent researchers and the results were

discussed with the whole team. *P*-values were calculated using chi-squared.

## Results

Of the 754 people interviewed, 385 were male, 62% of them married, and 369 were female, 74.3% of whom were married. The greatest proportion of the households (42% in urban and 43% in rural areas) had an income of 2000–5000 Pakistan rupees per month (US\$ 33–83). Radio and television ownership varied from 50% to 70% in urban areas and 45% to 65% in rural areas. Nearly 78% of women in rural areas were illiterate compared with 51% in urban areas. Male literacy was higher, urban 88% and rural 45%.

Observations were made regarding the symptoms of TB as perceived by males and females. In the urban area, cough was the most commonly cited symptom for both males (67.2%) and females (76.5%). Blood in sputum was again cited by both males (17.9%) and females (18.6%). Prolonged fever was most commonly reported by females (29.6%). Anorexia and night sweats were not reported by either males or females. In the rural area, a significant difference was seen between male and female perceptions of symptoms; 57.7% of males cited cough as a predominant symptom compared to 21% of females. Again, 25.6% of males gave blood in sputum as an important symptom compared with only 5.6% of females. Prolonged fever was cited by 19.2% of males but only 4.9% of females. Neither males nor females reported night sweats, anorexia or weight loss as symptoms before probing (Table 1).

Very few people were aware of the causative agent of TB, especially rural females. In the urban area 30% of males and

Table 1 Male and female (urban and rural) perceptions regarding symptoms of TB

Symptom	Urban			Rural		
	Male %	Female %	P-value	Male %	Female %	P-value
Cough	67.2	76.5	>0.05	57.7	21	<0.001
Blood in sputum	17.9	18.6	>0.05	25.6	5.6	<0.001
Weight loss	7.9	8.8	>0.05	4.5	1.4	>0.05
Prolonged fever	7.4	29.6	<0.01	19.2	4.9	<0.0001
Persistent cough	7.0	0.4	<0.05	1.3	0	<0.0004
Anorexia	0.4	1.3	>0.05	3.8	1.4	>0.05
Night sweats	0	0	–	0	0	–
Other	1.3	8.0	>0.05	1.3	0	–

35% of females cited “germs” as causing TB, while in the rural areas 18.6% of males and 9.8% of females mentioned “germs”. X-ray as a diagnostic test for TB was indicated by nearly 51% of males and females in the urban area, 69% of males in the rural area and 30% of rural females. Sputum testing, however, was not well known, with only 24% of urban males, 28.8% urban females, 23.1% of rural males and only 6.3% of rural females being aware of it.

We investigated the knowledge of the participants regarding spread of TB (Table 2). In the rural area, 37.2% of males and 24.5% of females said that TB is spread by droplets while in the urban area this was cited by 38.9% of males and 28.8% of females. Spitting as a means of spreading TB was given by 29.5% of males and only 4.2% of females in the rural area. In the urban area, only 9.2% of males and 11.5% of females said that TB is spread by spitting. More rural males (22.4%) than females (6.3%) said that using the same eating utensils as a TB patient can facilitate the spread of TB. In the urban area, 14.2% of females and 3.1% of males felt the same. Other reasons for the spread of TB includ-

ed drinking dirty water, reusing syringes and sexual relations (Table 2).

Regarding protective measures against TB, there were significance differences between urban and rural groups (Table 3). In the urban area knowledge about bacille Calmette-Guérin (BCG) was negligible in males, 1.7% compared to 32.7% in rural males. About a quarter of all respondents said that staying away from a TB patient was the best protective measure; while in men the difference between the urban and

Table 2 Male and female (urban and rural) perceptions on how TB is spread

Spread of TB	Urban		Rural	
	Male %	Female %	Male %	Female %
Droplet	38.9	28.8	37.2	24.5
Spitting	9.2	11.5	29.5	4.2
Utensils	0.9	0.9	22.4	6.3
Dirty water	2.6	4.9	3.2	0.7
Sexual relations	3.1	14.2	1.3	0.7
Syringes	0.4	0	7.7	2.1

**Table 3 Male and female (urban and rural) perceptions on protective measures against tuberculosis (TB)**

Measures to protect against TB	Male			Female		
	Urban %	Rural %	P-value	Urban %	Rural %	P-value
Stay away from patient	27.9	22.4	0.002	23.9	25.2	0.6
Complete treatment at home	14.4	22.4	<0.0001	7.1	9.8	<0.0001
Use anti-TB drugs	6.1	4.5	<0.0001	10.6	0.7	<0.0001
Have separate utensils for TB patient	5.7	8.3	<0.0001	13.7	2.1	<0.0001
Use boiled water	3.5	3.2	<0.0001	3.5	0	<0.0001
bacille Calmette-Guérin	1.7	32.7	<0.0001	4.9	8.4	0.0002
Other	0.4	0.6	–	1.6	0.7	–

rural areas was significant ( $P = 0.002$ ), it was not so for women ( $P = 0.6$ ). Only 7.1% of the urban females said that completion of treatment at home was the best protective measure. This figure was 22.4% for rural males (Table 3)

Urban–rural disparity was evident in gauging knowledge as to which part of the body TB affects (Table 4). More urban males (39.9%) than rural males (26.9%) said the lungs were involved. Some men, 59.8% urban and 45.5% rural, said that TB affects the chest. Urban females were more knowledgeable than rural; 47.8% said that lungs were involved compared with only 13.3% of rural females. Around 41.2% of females in the urban area said the chest was involved compared with 19.6% in the rural area ( $P < 0.05$ ). In both areas, neither males nor females were aware that kidneys, bones, the digestive system and the reproductive system could also be affected.

In the urban area, 81.4% of females preferred to go to a private clinic for treatment of minor illnesses compared to 21.7% of rural females. The majority of the rural

females (62.9%) preferred to visit the tertiary care hospital compared to only 13.3% of urban females ( $P < 0.05$ ). In males, a similar pattern was seen with 84.7% of ur-

**Table 4 Male and female (urban and rural) perceptions regarding which part of the body tuberculosis affects**

Body part affected	Male		Female	
	Urban %	Rural %	Urban %	Rural %
Chest	59.8	45.5	41.2	19.6
Lungs	39.9	26.9	47.8	13.3
Kidney	10.5	0	12.8	3.5
Digestive system	2.6	2.6	8.8	2.1
Anywhere	2.6	6.4	31.7	4.2
Neck	1.3	0.6	0	2.1
Bones	0.4	0	3.1	2.1
Skin	0.4	10.9	0	3.5
Ribs	0.4	1.3	2.1	11.9
Reproductive organs	0	0	0	0
Liver	0	0.6	0	1.4

ban males preferring to go to a private clinic compared with only 39.7% of rural males. The most favoured type of health facility for rural males was the tertiary care hospital (50.6%). Rural males also went to the *hakim* (traditional healer) and homeopath more often than women (rural and urban) and urban males (Table 5).

When asked about stopping treatment, the majority of urban respondents (> 65%), males and females, said that they would stop treatment when the symptoms ended. This view was also expressed by 43.4% of rural females but only 32.1% of rural males. In rural males, 60.9% said they would follow the advice of the doctor on when to stop the treatment but in the urban areas < 25% of the respondents emphasized the role of the doctor in this respect. A very small percentage said they would stop treatment if they could not afford it (Table 6).

When asked with whom they would visit the health facility, only 28.7% of rural females said they would go alone while 53.0% said they would go with their husband or a family member (35.0%). The

**Table 5 Male and female (urban and rural) health-seeking behaviour**

Health facility	Urban areas		Rural areas	
	Male %	Female %	Male %	Female %
Private clinic	84.7	81.4	39.7	21.7
Tertiary hospital	7.9	13.3	50.6	62.9
Government dispensary	3.9	4.0	10.9	21.0
<i>Hakim</i> <sup>a</sup>	2.6	0	5.1	1.4
Homeopathic	0.9	0.4	0.6	0.7
NGO clinic	0	0.9	0.6	0

<sup>a</sup>Traditional healer.

NGO = nongovernmental organization.

**Table 6 Male and female perceptions (urban and rural) about when to stop anti-tuberculosis treatment**

When to stop treatment	Male		Female	
	Urban %	Rural %	Urban %	Rural %
When symptoms end	65.5	32.1	66.8	43.4
When doctor advises	23.6	60.9	23.0	21.0
Cannot afford it	0	1.9	1.3	0.7

majority (72.0%) of rural males said they would go alone. In the urban area, only 35.8% of females were willing to go alone but 33.6% said that they would need to be with their husband while 55% said they could be accompanied by any family member. A majority of the urban males (77%) also said that they would go to the health facility alone.

To ascertain if it would be possible to get to hospital to get treatment for TB on a regular basis, nearly 30.5% of urban females said that they would not be able to go to the hospital, while 90% of males said they would go. In the rural areas, 65% of males said that they would be willing to go to the hospital to get treatment, while 70% of females did not agree to go to the hospital to get treatment. Only 27% of males and 38% of females in the urban area said that they would allow an outsider to come and give the medicine to a TB patient. Of these, half said that only a doctor could come, while nearly a quarter said that only a female could come. In contrast, in the rural area nearly 63% of males and 86% of females said that an outsider could come and provide the TB medicines. However, 80% of them said it should be a doctor or a woman.

Only 12%–14% of the respondents (except rural males, 34.8%) had received information about TB from either the radio or television (Table 7). About 15% of men, both urban and rural, had received information from newspapers. Very few rural women (3.5%) received any knowledge about TB from newspapers. However, 66.0% of rural men acquired knowledge about TB from their local doctor, compared with 31.0% of urban men. Friends were also an important source of information in urban areas (Table 7).

## Discussion

Overall knowledge regarding TB has been found to be extremely deficient in both sexes, but especially in rural females. The respondents' perceptions about the disease indicate the sociocultural trends prevalent in society as well as lack of correct information on the disease. Several important trends regarding basic knowledge as well as the social perceptions pertaining to gender differences and urban–rural disparity have been highlighted through this study.

**Table 7 Sources of information on tuberculosis (TB) stated by males and females in urban and rural areas**

Source of information	Male		Female	
	Urban %	Rural %	Urban %	Rural %
Doctor	31.0	66.0	12.8	25.9
Friends	27.5	3.8	16.8	1.4
Newspaper	15.3	14.7	12.8	3.5
Radio/television	14.8	34.6	14.6	11.9
TB patient	6.1	1.3	15.9	1.4
School	1.7	0	0.9	0
Leader/religious man	0	0	0	0.7

The perceived causes of TB varied from “germs” to dirty water, many respondents, however, also associated TB with drug addiction, which is an interesting observation. Smoking and alcohol consumption have also been cited in several other studies conducted in Kenya, Philippines and Bombay [17–19]. Rural males were more concerned about the sharing of utensils than rural females. Most respondents were aware that TB is a contagious disease and “sharing with a TB” patient was considered a major factor in its spread. This finding is supported in studies from Kenya and India [17,19].

Knowledge about BCG vaccination as a preventive measure was very limited, except in rural men (32.7%). Again, a substantial proportion of rural men (22.4%) and some urban men (14.4%) said that completing the treatment helped in preventing others from developing TB. Rural females generally had less knowledge on means of protection against TB than the other 3 groups.

The disparity in health-seeking behaviour between the urban and rural population was quite apparent in this study; the urban respondents generally frequented private clinics while the rural respondents, especially males, visited government public hospitals more frequently. Females were found to be more likely to discuss their medical problems with their husbands or other family members while the males were found to chiefly discuss these issues with their doctors. It was seen that rural males followed the advice of the doctor regarding when anti-TB treatment should be stopped. This health-seeking behaviour explains the better knowledge level of the rural males. Doctors appear to play a limited role in providing health education in urban areas. In the urban area, males and females frequently visit private practitioners and in slum ar-

eas, many private practitioners are unqualified health care providers. Even if qualified, they do not participate in continuing medical education programmes and are unaware of the recent trends in disease and they do not have time to give health education messages to their patients. Since public health programmes such as directly observed treatment short-course (DOTS) are not implemented through the private system, many are not even aware of these strategies. Hence, in the urban areas, knowledge of males as well as females was limited.

In the rural areas, most public health strategies are implemented at the public health facilities, where the doctors are well versed in the public health programmes and provide health education messages to all patients. Since rural males visit these public health facilities, they have a better perception of the disease and are more knowledgeable about various issues pertaining to TB. Rural females are not allowed to venture out of the house freely, hence their exposure is limited, and not only do they have a narrow vision of the disease implications, their understanding and perception of the disease are also very limited. They tend to view TB as a "punishment from God" and strongly stigmatize the disease. These observations are further strengthened by the finding that the media (radio, television, newspapers) were not an important source of information on TB except for rural males. This is a manifestation of groups of rural men watching television in hotels in villages. In the case of rural males (66%), the doctor plays an important part in im-

parting knowledge. Hence, contrary to the general belief, it was the rural males who were more aware of the disease implications of TB.

The DOTS strategy is the recommended treatment for TB in Pakistan. This strategy involves supervised administration of TB drugs and may require daily visits of the TB patient to a health facility for administration of the drug or supervised drug administration at home in the presence of the health worker. We found that both rural and urban females were generally reluctant to visit health facilities alone, more so rural females. Rural women would not be allowed to visit the health facility unless accompanied by husbands or other family members. Rural respondents were, however, more open to allowing outsiders to come to the house to provide medicines.

Health-related beliefs and practices play a very important role in the success of any health intervention strategy. For the success of DOTS in Pakistan, it is important ascertain the willingness of the patients to take the TB medicines in the presence of health personnel. Our study outlines the constraints that females, especially rural females, may face in regular visits to the health facility. The urban restraint, i.e. unwillingness to allow outsiders into the house, should also be taken into consideration. Female health workers, either lady health workers or female community workers, could be employed in this capacity. However, this would need to be strengthened by forceful motivation from the Government.

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