Perception of tuberculosis in Pakistan: findings of a nation-wide survey

Sara Ijaz Gilani,[1] Muhammad Khurram[2]

Gallup Pakistan, Islamabad,[1] Department of Medicine, Rawalpindi Medical College, Rawalpindi,[2] Pakistan.

Abstract

Objective: To assess knowledge about symptoms, diagnosis, treatment, transmission, and impact of tuberculosis in Pakistan.

Methods: This nationwide survey was carried out by face to face interviews with 2742 men and women from December 2009 to June 2010. Multiple stage random area probability sampling was used for this purpose. Trained interviewers conducted interviews using structured questionnaire focusing knowledge, diagnosis, treatment, and impact of TB. Data was weighted to correspond with census distribution of population across rural and urban areas of all four provinces. SPSS 10 was used for data analysis.

Results: Ninety percent (2478) of the respondents were familiar with the term TB. Common symptoms associated by respondents were cough (59%), haemoptysis (51%) and fever (40%). Majority (61%) mentioned that TB can be diagnosed by clinical examination by a doctor, 45% laboratory analysis of sputum, and 33% X-ray chest as a diagnostic modality. Ninety-three percent were of the opinion that TB is treatable; 90% were in favour of treatment by doctor, and 16% by homeopathic or hakim treatment. About 91% favoured to continue TB treatment according to doctor's advice, 4% thought it can be stopped within 1-2 months of resolution of symptoms, while 73% regarded TB as a communicable disease. More than 33% respondents considered that TB affects education, occupation, getting married, and having children.

Conclusion: Pakistani population has deficient knowledge and misconceptions regarding symptoms, diagnosis, treatment, and impact of TB.

Keywords: Tuberculosis, Survey, Knowledge, Symptoms, Diagnosis, Impact (JPMA 62: 116; 2012).

Introduction

Globally, tuberculosis [TB] continues to be a major killer. One third of the World's population is infected with mycobacterium tuberculosis.[1] Estimated TB deaths in 2009 were 1.3 million globally.[2] Pakistan ranks sixth among countries with a high TB burden. Prevalence of TB in Pakistan is 420,000 and incidence is 231 per 100,000 population.[3]

Multidrug resistant [MDR] TB is caused by mycobacteria that are resistant to two main anti TB drugs, isoniazid and rifampicin. MDR-TB is difficult to control. Cost of treating an average MDR-TB patient is 50-200 times than that of treating a drug-susceptible TB patient. According to an estimate, 440,000 cases of MDR TB emerged globally in 2008. Pakistan is among the 27 countries with high burden of MDR TB.[4] According to a 2008 estimate there were 15000 MDR TB patients in Pakistan.[3]

Delayed presentation is considered as a reason for growing burden of TB in developing countries.[5] One of the objectives of 'Stop TB' programme is to make diagnosis and treatment of TB universally available and accessible.[6] People can only access these facilities if they are aware of the symptoms of disease, seek early care, and adhere to treatment. Early diagnosis and adherence to treatment may decrease emergence of drug resistant strains.

To the best of our knowledge very few studies have been conducted on assessing public awareness of TB in community setting in Pakistan.[7] These studies were limited in their geographic scope. Present survey was carried out throughout Pakistan with the aim of assessing knowledge about symptoms, diagnosis and treatment of TB among general population. Moreover, perceptions about its transmission and some social stigmas associated with TB were also explored.

Subjects and Methods

This nationwide survey was carried out by Gallup Pakistan on behalf of Gilani Research Foundation as a public service during December, 2009. Adults (18 years and above) (2742) from population of four provinces of Pakistan were included. Multi stage random area probability sampling method was used for this purpose. Sample included both rural and urban locations and was representative of population belonging to varied age groups,

gender and socio-economic characteristics.

The Survey was carried out according to standard protocols and guidelines of European Society of Opinion and Marketing Research (ESOMAR) and World Association of Public Opinion Research (WAPOR). Face to face in-house interviews were conducted with inducted persons. A pre-tested structured questionnaire in Urdu was used for this purpose. Questionnaire focused on knowledge (have you heard of disease called TB?), symptoms (what are symptoms of TB), diagnosis (in your view, how, TB is diagnosed?), treatment (is TB a treatable disease, if so, by whom is it treated; medical doctors, alternative medical care providers, or spiritual healers?), duration of TB treatment, transmission (is TB a contagious disease) and impact (does TB affect life in terms of getting education, being employed, getting married, having children and maintaining social contacts?) of TB.

To ensure quality of field-work, there were training sessions of Interviewers and Supervisors. All field-teams were accompanied by a field supervisor. At least 10% interviews of each Interviewer were back-checked by Supervisor. Data obtained in this way was analyzed using SPSS Version 10. Description statistics i.e. weighted percentage were calculated for different variables. To determine an association between socio-demographic variables and knowledge of TB, chi square test was performed and p value of <0.05 was taken as significant. For consistency, data was entered twice and cross checked. All results were weighed to get national average, according to the rural-urban share of population obtained from last census conducted during year 1998. The error margin was estimated to be ± 3-5% at 95% confidence level.

Results

Of the 2742 respondents, 1422 (52%) were male and 1320 (48%) female. Mean age of respondents was 34 ± 10.26 years. After weighing, 57% respondents belonged to Punjab province, and 67% to rural areas, 71% respondents' monthly income was ≤ 15000 Pakistani rupees. Details of socio-economic profile of the respondents are given in Table-1. Details of respondents' awareness about knowledge, symptoms, diagnosis, treatment and transmission of TB are given below:

Knowledge of Tuberculosis: About 2478 (90%) of the respondents had heard of TB. Whereas 237 (9%) had not heard of it, and 27 (1%) gave no answer. Rest of questions were asked from the respondents who had heard of TB.

In Symptoms of Tuberculosis: Cough was the most frequently reported symptom, followed by blood in sputum, and fever. Details in this regard are given in Table-2.

In Diagnosis of Tuberculosis: About 1509 (61%) respondents said that TB is diagnosed by medical checkup by a doctor, 1109 (45%) by laboratory examination of sputum, 817 (33%) by chest X-ray, 691 (28%) by a blood test, and 28 (1%) by examination of fluid taken from a lump. Eighty (3%) respondents were not aware of any modality for TB diagnosis.

Treatment of Tuberculosis: According to 2306 (93%) respondents TB is a treatable disease. Seventy (3%) believed that there is no treatment for TB, and 101 (4%) did not give an answer. Of those who considered TB a treatable disease, 2065 (90%) mentioned it can be treated by allopathic medicines, 178 (8%) by homeopathic medicines, 192 (8%) by hakims, and 19 (1%) by spiritual healing. Sixty-two (3%) could not name any type of TB treatment.

Regarding Duration of Treatment: Majority 1375 (56%) reported that medications should be taken as long as prescribed by the doctor, 563 (23%) thought that these medications should be taken for 6-12 months, and 394 (16%) said that these should be taken till symptoms resolve.

Table-1: Socio-demographic Profile of the respondents. (N= 2742).

Characteristic		Number (%)
1. Gender	Male	1422 (52%)
	Female	1320 (48%)
2. Age (Years)	< 30	965 (35%)
	30-50	1363 (50%)
	>50	212 (8%)
	No Response	202 (7%)
3. Location	Rural	1832 (67%)
	Urban	910 (33%)
4. Province	Punjab	1571 (57%)
	Sindh	643 (23%)
	Khyber Pakhtoonkhwa	378 (13%)
	Balochistan	150 (5%)
5. Monthly Household Income	≤ Rs. 7000	921 (34%)
	Rs. 7001- 15,000	1014 (37%)
	Rs. 15,001-30,000	431 (16%)
	> Rs. 30,000	156 (6%)
	No Response	220 (7%)

Table-2: Symptoms of tuberculosis reported by the respondents.

Symptom	% Respondents* (Number)
Cough	59% (1472)
Blood in sputum (Haemoptysis)	51% (1270)
Fever	40% (992)
Weight Loss	28% (705)
Loss of appetite	18% (451)
Pain in body	18% (436)
Generalized weakness	17% (414)
Pain in chest	13% (318)
Lump in neck	1% (33)
Don't Know/ No response	6% (149)

* Multiple Responses were allowed.

Table-3: Impact of Tuberculosis on later life.

Aspect of Life	% (n) Negative Impact	No Negative Impact	No Response
Getting Education	39% (958)	59% (1473)	2% (46)
Getting Job/ Employment	38% (942)	60% (1484)	2% (50)
Getting Married	40% (984)	58% (1442)	2% (51)
Having Children	37% (914)	61% (1506)	2% (57)
Maintaining Social Contacts	39% (967)	59% (1457)	2% (53)

Table-4: Association of knowledge of TB with socio-demographic variables.1, 2

Characteristics	Have you ever heard of TB?		Is there any treatment for TB?		Do you think TB is a contagious disease or not?	
	Yes	No	Yes	No	Yes	No
*Urban	846	62	776	70	593	126
Rural	1632	175	1530	237	1224	321
P value	**0.013**		**0.0001**		**0.07**	
**Male	1316	105	1218	156	930	269
Female	1162	132	1089	151	888	178
P value	**0.010**		**0.514**		**0.001**	
+<30 Years	875	85	807	108	592	185
30-50 Years	1206	136	1128	174	903	206
> 50 Years	197	14	179	19	165	20
P value	**0.214**		**0.243**		**0.0001**	
++ Up to 7000 Rs. #	796	115	747	130	600	144
7001-15,000 Rs.	897	101	821	137	622	184
15,001-30,000 Rs.	419	11	389	24	317	58
ABOVE 30,000 Rs.	149	7	143	8	109	25
P value	**0.0001**		**0.0001**		**0.027**	

Notes: * area of residence of respondent, ** gender of respondent, + age of respondent, ++ monthly household income of respondent, # Rs. Rupees
1. Numbers denote weighted frequencies.
2. P value is of Pearson Chi square test performed by SPSS Version 10.

About 145 (6%) were not aware of the duration of treatment.

For Transmission of Tuberculosis: Around 1817 (73%) respondents said that TB is a contagious disease, 447 (18%) said it is not contagious, and 212 (9%) did not know about contagiousness of TB. Of those who regarded TB to be a contagious disease, 1207 (66%) said that it can be transmitted through saliva, 767 (42%) through breath, 665 (37%) via used eating utensils, 633 (35%) via blood, and 167 (9%) by sharing clothes/everyday items and casual contact with patient. One hundred seventy one (9%) said that TB can be transmitted from an infected mother to child and 18 (1%) were not aware of any mode of transmission.

In Terms at Impact of Tuberculosis on Life: Nearly one third of respondents believed that TB can affect ones' life in terms of education (39%), occupation (38%) and marriage (40%). Detailed answers to the questions in this regard are given in Table-3.

Association between socio-demographic variables and key knowledge questions on TB was done by performing chi square test. The results are shown in Table-4.

Discussion

Pakistan is included in countries with highest burden of TB.[3] A person's response to TB is affected by his prior knowledge of the disease.[8] Better knowledge of TB is related with better health-seeking behavior.[9] In Pakistan where 26% of TB patients have not heard about the disease before diagnosis, it is not surprising to note that 10% of general population has not heard of TB.[10] In studies from neighbouring country India, 56-99% of population were aware of the disease TB.[11-13] Our results in this regard are alarming as poor knowledge is considered to be one of the reasons for high burden of TB in Pakistan.[14] It is thus important to create awareness about TB in order to control it.

Cough, fever, and haemoptysis are considered to be important symptoms of TB. Most of our survey participants who had prior knowledge of TB were aware of pulmonary TB symptoms. Similar findings have been noted in studies from Pakistan, India, and Bangladesh.[7,13-15]

Knowledge about modes of TB transmission increases with increase in educational status of a population.[11] TB

transmission through saliva and sharing utensils is considered important in scenarios like ours.[7,11] Knowledge of the survey participants was deficient with regard to TB transmission; 18% think that TB is not a contagious disease. Most of the persons who were aware of contagiousness of disease associated TB spread through saliva, and sharing of eating utensils etc. Spread through droplets (coughing, sneezing etc) was mentioned by 42% only. Very few people were aware of vertical transmission of the disease. In a country where; fertility is high creating awareness about this route of transmission is important in its prevention.[16]

Knowing that a disease is curable, increases health care seeking behaviour of affected individuals.[17] More than 90% of our survey participants considered that TB is a treatable disease. Similar findings have been noted in a previously conducted local study.[10] Alternative medical treatments are frequently employed in Pakistani perspective because of easy availability, consideration of lower cost and non harmful mode of therapy. Of the survey participants 16% considered that TB can be treated by homeopathy, hakeems, and spiritual healing. These treatment modalities for TB have also been reported in a recent local study.[7] Treatment of TB with alternative modalities may delay seeking of proper medical care and leads to greater complications and spread of the disease in the community.

Multidrug resistant TB is a growing problem in Pakistan.[4] It has been a known fact that improvement in symptoms is the commonest reason for non compliance with TB medications.[18] Discontinuation of anti TB medication is considered an important reason for emergence of drug resistant TB strains. It is encouraging to know that most of our survey participants were of the view that TB treatment should be taken as long as prescribed or at least 6-12 months. However 16% said that treatment should be stopped once symptoms resolve. Our results in this regard are comparatively better than local data wherein more than two third of related study participants said that TB treatment should be stopped once symptoms resolve.[19] It is thus important to effectively educate masses in general and patients specifically about importance of duration and completeness of TB treatment.

Disease dissemination and social discrimination are common TB associated stigmas.[20] Such stigmas lead to a person feeling ashamed or fearful of his illness and hiding it from others instead of seeking proper treatment. End result is poor patient prognosis and disease spread. About one third of our survey participants thought that TB can affect ones later life in terms of education, marriage, family and social relations. Association of these stigmas with a curable disease is quiet unfortunate. Population based health education can be one way of managing this menace.

Association knowledge about TB with socio-demographic variables shows some association of knowledge with area of residence and monthly household income. Age and gender have weaker association.

This questionnaire based, cross sectional survey measured opinions and perceptions of Pakistani population about TB. It doesn't indicate practices of the population and is subject to sampling error of 3-5% with reference to national averages. Sub component wise, un-weighted sample size was smaller from the Balochistan province. Due to this data analysis in terms of age distribution, rural/urban population, and gender should be read with caution and requires further exploration.

Conclusion

This nationwide survey shows that Pakistani populations' knowledge of TB is insufficient in most aspects e.g. symptoms, diagnosis, treatment and transmission, and there are misconceptions about TB as well. TB awareness programs should incorporate these aspects with additional focus on reduction of TB associated stigmas.

References

1. World Health Organization Media Center. Fact Sheet on Tuberculosis; 2010. (Online) (Cited 2011 Sep 5). Available from URL: http://www.who.int/mediacentre/factsheets/fs104/en/.
2. World Health Organization. Global tuberculosis control. WHO Report 2010. (Online) (Online) (Cited 2011 Sep 5). Available from URL: http://whqlibdoc.who.int/publications/2010/9789241564069_eng.pdf.
3. World Health Organization. Global TB Database; 2010. (Online) (Cited 2011, Sept 4). Available from URL: www.who.int/tb/data.
4. World Health Organization. Multidrug and extensively drug-resistant TB (M/XDR-TB): 2010 global report on surveillance and response. (Online) (Cited 2011 Sep 4). Available from URL: http://whqlibdoc.who.int/publications/2010/9789241599191_eng.pdf.
5. World Health Organisation. World Health Organization Global Tuberculosis Control: Surveillance, Planning, Financing WHO report 2006. Geneva, Switzerland; 2006.
6. World Health Organization and stop TB Partnership. The global plan to stop TB 2011-2015: transforming the fight towards elimination of tuberculosis; 2010. (Online) (Cited 2011 Sep 5). Available from URL: http://www.stoptb.org/assets/documents/global/plan/TB_GlobalPlanToStopTB2011-2015.pdf.
7. Mushtaq MU, Shahid U, Abdullah HM, Saeed A, Omer F, Shad MA, et al. Urban-rural inequities in knowledge, attitudes and practices regarding tuberculosis in two districts of Pakistan's Punjab province. Int J Equity Health 2011; 10: 8.
8. Williams G, Alarcon E, Jittimanee S, Walusimbi M, Sebek M, Berga E and Villa TS. Best Practice for the care of patients with Tuberculosis. A Guide for Low income Countries. International Union against Tuberculosis and Lung Disease 2007. Paris, France; 2007.
9. Hoa NP, Thorson AE, Long NH, Diwan VK. Knowledge of tuberculosis and associated health-seeking behaviour among rural Vietnamese adults with a cough for at least three weeks. Scand J Public Health Suppl 2003; 62: 59-65.
10. Khan JA, Irfan M, Zaki A, Beg M, Hussain SF, Rizvi N. Knowledge, attitude and misconceptions regarding tuberculosis in Pakistani patients. J Pak Med Assoc 2006; 56: 211-4.
11. Sharma N, Malhotra R, Taneja DK, Saha R, Ingle GK. Awareness and perception about tuberculosis in the general population of Delhi. Asia Pac J Public Health 2007; 19: 10-5.
12. Kar M, Logaraj M. Awareness, attitude and treatment seeking behaviour regarding tuberculosis in a rural area of Tamil Nadu. Indian J Tuberc 2010; 57: 226-9.

13. Malhotra R, Taneja DK, Dhingra VK, Rajpal S, Mehra M. Awareness regarding Tuburculosis in a rural population of Delhi. Indian Journal of Community Medicine 2002; 27: 62-8.
14. Ali SS, Rabbani F, Siddiqui UN, Zaidi AH, Sophie A, Virani SJ, et al. Tuberculosis: do we know enough? A study of patients and their families in an outpatient hospital setting in Karachi, Pakistan. Int J Tuberc Lung Dis 2003; 7: 1052-8.
15. Croft RP, Croft RA. Knowledge, attitudes and practice regarding leprosy and tuberculosis in Bangladesh. Lepr Rev 1999; 70: 34-42.
16. National Institute of Population Studies (NIPS) [Pakistan], and Macro International Inc. 2008. Pakistan Demographic and Health Survey 2006-07. Islamabad, Pakistan: National Institute of Population Studies and Macro International Inc.
17. Mohamed AI, Yousif MA, Ottoa P, Bayoumi A. Knowledge of Tuberculosis: A survey among Tuberculosis patients in Omdurman, Sudan. Sudanese J Public Health 2007; 2: 21-8.
18. Kaona FA, Tuba M, Siziya S, Sikaona L. An assessment of factors contributing to treatment adherence and knowledge of TB transmission among patients on TB treatment. BMC Public Health 2004; 4:68.
19. Agboatwalla M, Kazi GN, Shah SK, Tariq M. Gender perspectives on knowledge and practices regarding tuberculosis in urban and rural areas in Pakistan. East Mediterr Health J 2003; 9: 732-40.
20. Baral SC, Karki DK, Newell JN. Causes of stigma and discrimination associated with tuberculosis in Nepal: a qualitative study. BMC Public Health 2007; 7: 211.