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## Knowledge and Attitude of Rural Population Towards TB and Perception of Barriers in Accessing to TB Services in Two Provinces of Afghanistan

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## Abbreviations

TB	Tuberculosis
MoPH	Ministry of Public Health
NTP	National Tuberculosis Programme
CHW	Community Health Workers
MDG	Millennium Development Goal
SSN	Social Support Network
DOTS	Directly Observed Treatment Short Course
MICS	Multiple Indicator Cluster Survey
UNICEF	The United Nations Children Fund
WHO	World Health Organization
PTB	Pulmonary Tuberculosis

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## ABSTRACT

The study aimed to explore i) the awareness and knowledge on tuberculosis (TB), ii) knowledge on TB diagnosis and treatment, iii) attitudes towards TB, and iv) perception of barriers in accessing to TB services. The approach adopted for this study was cross-sectional, multi-stage 30-cluster sampling method, face to face interview with adult male and female (aged +15 year) in Badghis and Balkh provinces of Afghanistan. The total sample size was 900. The general awareness about TB was high in both the provinces (around 96%). TB was perceived widely as dangerous (81%), and incurable (85%) by the population in both the provinces. A misperception that 'TB is a disease of female' was also observed in these provinces (78%). Though the knowledge on symptom suggestive of TB (chronic cough) was high (91%), they lacked knowledge on other associated symptoms of TB. Knowledge on microbiological cause of TB was totally absent. However, they had different cultural explanations for the causation of TB. The knowledge on transmission and prevention was not comprehensive and varied by province and gender. Knowledge on diagnostic test was high (85%), but when to test sputum was poor (26%). Knowledge on place of diagnosis was lacking. Respondents had also poor knowledge on management of TB (e.g., treatment duration, place of treatment). Tendency to seek care from government facilities for TB treatment was low (18%) in Afghanistan despite TB services offered free at government health facilities. Population had less access to community health workers (CHW) and public facilities for obtaining TB information. TB patients in both the provinces prioritized work over taking TB treatment. Besides, financial problem, shame and fear of isolation were found to be important deterrents in accessing to TB care. Health education content and materials should be reviewed and redesigned appropriately for disseminating comprehensive information on TB causation, transmission, prevention, diagnostic place and misperception associated with TB as well. A social support network (SSN) should be established within the community to support the TB patients to overcome the barriers.

## EXECUTIVE SUMMARY

Tuberculosis (TB) has always been a major public health problem in Afghanistan. WHO estimates more than 50,000 new cases of TB occur in Afghanistan, with more than 10,000 of cases resulting in death each year. The fair progress in TB control has been observed due to improvement of health infrastructure recently, but the infrastructure may not always be sufficient to sustain the success. Population's knowledge towards TB disease is also a crucial element for TB control. Appropriate knowledge of the community towards TB and its management is a prerequisite and are the pillars of success in TB control programme. The information on social science aspects of TB in Afghanistan is limited. The knowledge of community people on TB, its prevention and management will help programme to develop informed intervention components and strategies for further progress. Thus, the study aimed to explore i) the knowledge/awareness on TB, ii) knowledge on TB diagnosis and treatment, iii) attitudes towards TB, and iv) perception of barriers in accessing to TB services.

### Methods

The approach adopted for this study was cross-sectional, multi-stage 30-cluster sampling method, face to face interview with adult male and female (aged +15 year) in Badghis and Balkh provinces of Afghanistan. The sampling procedure, used in MICS 2003, Multiple Indicators Cluster Survey conducted by UNICEF was followed. The total sample size was 900.

### Key findings and implication for programme

The key findings from the study can be summarized as follows:

- More than 90% of study population was aged between 20-59 years. Over two-thirds of adult population (81%) never went to school. Gender variation in schooling was wide-spread. Around 84% were married. Farming was the most common occupation among the adult male in both the provinces (69% in Badghis and 52% in Balkh). Females were mostly housewife (84%). Average income and expenditure of household were the same (3,000 Afs). Around 41% household economy was always deficit throughout the year. The average family size in household was 8.4.
- The general awareness about TB was high in both the provinces (around 96%); TB was widely considered as respiratory disease (85%). It was perceived widely as dangerous (81%), fatal and incurable (85%) by the population in both the provinces. A misperception that 'TB is a disease of female' was also observed in these provinces (85% in Badghis and 70% in Balkh).
- Though the knowledge on symptom suggestive of TB (chronic cough) was high (91%), they lacked knowledge on other associated symptoms of TB. Knowledge on microbiological cause of TB was totally absent. However, they had different cultural explanations for the causation of TB. The knowledge on transmission and prevention was not comprehensive and varied by province and gender.
- Knowledge on sputum test (diagnostic test for TB) was high (85%), but when to test sputum was poor (26%). Knowledge on free test was quite impressive in both the provinces (87% in Badghis and 83% in Balkh). Knowledge on place of diagnosis was lacking. Respondents had also poor knowledge on management of TB (e.g., treatment duration, place of treatment). But knowledge on free TB treatment was inspiring (88%).

## INTRODUCTION

### TB: AFGHAN PERSPECTIVE

Tuberculosis has always been a major public health problem in Afghanistan. More than two decades of war had a disruptive effect on all aspects of health sector including tuberculosis control programme (Khan and Laaser 2002). Despite the complex emergency situation in Afghanistan, the health infrastructure has been improved recently when the new government came to power. Adequate resources and health infrastructures are also essential pre-requisites to achieve success in TB control in TB burden countries (Fox 1988). Total number of health facilities applying DOTS increased from 36 in 2001 to 803 by 2006 in Afghanistan and reflects the fair progress in TB control. WHO recently declared that the mortality rate due to TB has been reduced to half (from 20,000 to 10,000) in Afghanistan but the epidemic continues. Still Afghanistan is the one of the 22 high TB burden countries and TB is a major public health problem. WHO estimates more than 50,000 new cases of TB occur in Afghanistan, with more than 10,000 of cases resulting in death each year. Over 32,500 TB cases are with women, a highly vulnerable group, which accounts for 65% of all cases of TB presenting to public clinics.

### TB and social science

Although the TB service facilities have been increased during the last few years and statistics suggested the progress in TB control recent years, but the health facilities and the infrastructure may not always be sufficient to sustain the success. Human knowledge towards disease is also a crucial element, especially in TB disease. Correct knowledge and positive perception of the community towards TB and its management is a pre-requisite to early treatment-seeking and are also the pillars of success in TB control programme in any TB burden countries. Different studies conducted in high TB burden countries suggested that there is increasing recognition of the need to have a better understanding of the role of knowledge, attitudes and behaviour factors in TB control (Rubel and Garro 1992, Sumartojo 1993, Liefoghe *et al.* 1995). Knowledge about general management of tuberculosis has well been recognized as an important factor influencing compliance with tuberculosis treatment (Van Der Werf *et al.* 1990). A low knowledge on tuberculosis is a likely cause of the delay in seeking treatment (Mangesho *et al.* 2007). Social-cultural context of TB patients are necessary to understand to control TB effectively (Rouillon 1972, Sumartojo 1993). Even cultural factors in gender difference in TB control have been described elsewhere (Hudelson 1996, Nathanson 1977, Holmes *et al.* 1998). But several authors agreed that the human element in TB control has been overlooked in TB burden countries (Grange and Festenstein 1993, Westaway and Wolmarans 1994). According to Rubel and Garo (1992) TB control could improve significantly if more consideration were given to the health culture of the population, knowledge, attitude and practice. Grange and Festenstein commented in their article (1993) that information on knowledge and attitude towards TB are of great benefit in planning and implementation of control programme. Researches from the last decades show that health interventions failed because they were designed without knowledge of health behaviour of the target population (Godin and Shepard 1983, Godin 1989).

## **TB communication**

BRAC is involved in implementing TB control programme as a component of Performance Based Partnership Agreement (PPA) in Badghis, Balkh, Nimroj and community based health programme in Parwan and Ningarhar provinces of Afghanistan (BAR 2006). It mainly provides diagnostic, curative as well as preventive services. Additionally, BRAC exclusively ensures implementation of TB DOTS through FIDELIS programme in all aforementioned provinces. Besides, BRAC is also involved in improving health-seeking behaviour by creating awareness about TB. Mainly community health workers (CHW) of BRAC are the prime workers in the community to improve the health-seeking behavior of the population through awareness by interpersonal communication. However, TB programme organizers (PO) in most of the health facilities, also facilitate sessions on health-seeking behaviour and community awareness on TB in different community forums i.e. Shura-i-sehi, local health committees, during mobile team outreach. In some areas, BRAC uses the local radio for broadcasting messages related to awareness of the community about TB. BRAC is involved in some policy related forums also. National Tuberculosis Programme (NTP) is mainly playing the role of stewardship, supervision and monitoring the TB control programme.

Studies of the knowledge and attitude of community people about various aspects of TB in Afghanistan are lacking though TB is a major public health problem there. There is also a need to assess the modification of the existing health education in the health facilities. To sustain the recent achievement in TB control in Afghanistan, it is important to understand the perception/knowledge of most illiterate rural people about TB and their attitudes where multi socio-cultural dimension occur in different provinces. Our study sought to understand community awareness and knowledge on causation, transmission, symptoms of TB, TB management, and barriers in accessing to TB services. Our findings should enable the TB authorities to design and implement an intervention to the perception of TB in the community.

## **OBJECTIVES OF STUDY**

This study aims to explore the socio-demographic profile of adult community people in Badghis and Balkh provinces of Afghanistan, and also to:

- explore the awareness and basic knowledge about TB;
- explore the knowledge on TB diagnosis and treatment and knowledge sources;
- explore the attitudes towards TB diagnosis and treatment; and
- explore the perception of people on barriers in accessing to TB service.

## MATERIALS AND METHOD

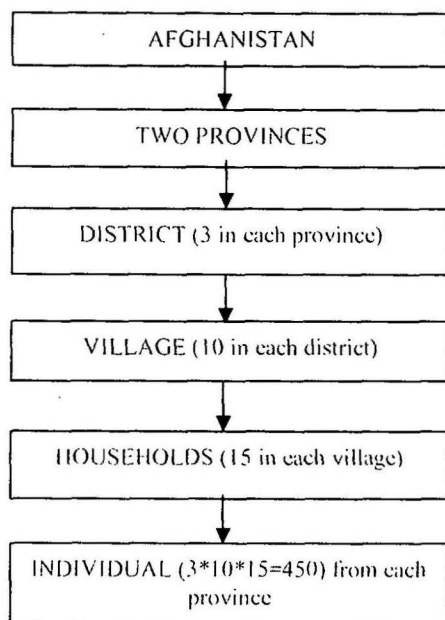
### STUDY AREA

BRAC has TB control programme in Badghis, Balkh, Nimroj, Parwan, and Ningarhar. The study was conducted in Badghis and Balkh provinces of Afghanistan. A purposive selection was made of two provinces on the basis of logistic convenient.

### SAMPLING STRATEGY

Multi-stage 30-cluster sampling technique was employed. The approach adopted for this study was cross-sectional, face-to-face interview with adult male and female Afghan population (aged 15+ years) in Badghis and Balkh provinces. The sampling frame for this survey was the districts in Balkh and Badghis provinces. The procedure began by selecting five districts initially from each province at random. The sampling procedure, used in MICS 2003, Multiple Indicator Cluster Survey conducted by UNICEF was followed.

Figure1. Diagrammatic presentation of sampling procedure



Due to security problem during the study period, we reduced districts from five to three in both provinces. From each selected district, ten villages/clusters were taken at random which provided 30 clusters. In each cluster, 15 households were selected by systematic random sampling.

### SAMPLE SIZE

The total household sample size was (30\*15) or 450 households in each province (Fig.1) One adult either male or female was selected from each household and total respondents were 450 from 450 households in each province. Thus, a total of 900 respondents from both provinces

were to be included in the study. Among them 418 were male and 492 were female who were interested to participate.

## TOOLS DEVELOPMENT

Pre-coded structured questionnaire was developed to collect all relevant information from study participants. The questionnaire was thoroughly pre-tested, modified and edited on the basis of feedback received before finalization. The questionnaires were pre-tested in a village outside our sample for ascertaining consistency, appropriateness of languages, sequencing of questions, and to have an insight into the field operation procedure. Questionnaire has five sections: A) Household sociodemographic information, B) awareness and basic knowledge on TB, C) Knowledge on TB diagnosis and treatment, and knowledge sources, D) Attitude towards diagnosis and treatment, and E) Barriers in accessing to TB services.

## RECRUITMENT, TRAINING AND DEPLOYMENT OF INTERVIEWERS

The team comprised of experienced interviewers and their supervisors. Thirty female interviewers with twelve grade of schooling (minimum) conducted the interviews in each province. The research teams organized a five-day intensive training consisted of didactic lectures, mock interviews, role-play and field practice both in classroom and at field setting for the interviewers.

## FIELD OPERATION

Before the actual survey, the teams of interviewers, each led by an experienced supervisor, were deployed in the study villages about one or two days before beginning of the survey for rapport building and for listing the households. In each village, the study team drew a map. Fifteen households were chosen each village through a systematic random sampling process. During this time villagers were informed about the purpose and activities of the survey and seek their cooperation. All the present members of the households were listed. One individual (aged > 15 years) from each household was enrolled in this study (Table 1).

**Table 1. Way of selection**

HH1	HH2	HH3	HH4	HH5	HH6	HH7	HH8	HH9	HH10	HH11	HH12	HH13	HH14	HH15
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M

Or

HH1	HH2	HH3	HH4	HH5	HH6	HH7	HH8	HH9	HH10	HH11	HH12	HH13	HH14	HH15
F	M	F	M	F	M	F	M	F	M	F	M	F	M	F

Note: F= Female, M= Male, HH= Households

The respondents were free to participate. Each interview took 30 to 45 minutes to complete. These interviews were carried out during August to October 2007.

## QUALITY CONTROL

Efforts to improve the reliability and validity of data included the use of locally spoken language, and deploying an independent quality control team to randomly spot-check the households within three days of the main survey. The members of the research team from central office at Kabul made frequent field visits for spot-checking. Immediately after completion of the session, interviewer checked the notes to assess its completeness before leaving the interview place.

## **DATA PROCESSING AND ANALYSIS**

The data were edited, coded and cleaned in SPSSWIN (version 11.5) statistical package. In this report, data are presented in univariate and bivariate tables with frequencies and percentages. A maximum of 10% the respondents did not respond to some questions.

## **LIMITATION OF THE STUDY**

The study was conducted in BRAC TB control areas in two provinces of Afghanistan. The findings could not be generalized for whole of Afghanistan but it had provincial representation. It would be very helpful for the programme to design and implement evidence-based prevention, management and control strategies for TB.



## **FINDINGS**

The results begin with a brief profile of the socio-demographic and economic characteristics of the study population and their households, which is followed by key findings on self-perceived TB awareness, basic knowledge on TB, investigation and treatment and socio-cultural barriers in accessing to TB services.

### **SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS**

The Socio-demographic characteristics of the study population are presented in Table1. More than 90% of the populations was aged between 20-59 years. Only 7% of population exceeded 60 years of age. Females were younger than male in both the provinces. Over two-thirds of adult population (81%) never went to school. Gender variation in schooling was wide-spread . The literacy rate in Balkh was higher than that in Badghis (23% vs 16%).

Farming was the most common occupation among the adult male in both the provinces (69% in Badghis and 52% in Balkh). Females were mostly housewife (84%). Prevalence of married women was higher in Badghis province than in Balkh (92.9% vs 75.1%). This could be a threat to Afghan health services for chance of more pregnancies. The average family size in household was 8.4, and the sizes in both the provinces were almost equal.

### **ECONOMIC CHARACTERISTICS OF THE RESPONDENTS**

Table 2.1 indicates that 49% of households income per month was between Afs. 2500-5000. The median income and expenditure of household in both the provinces were the same (3,000 Afs). The income being higher in Balkh province (3500 Afs) compared to Badghis (3,000 Afs). Around 41% household economy was always deficit last one year, the proportion was higher in Badghis (63%) compared to Balkh (20%) (Table 2.2). The socioeconomic profile of rural population in Balkh was comparatively better than rural population in Badghis province.



**Table 1. Socio-demographic characteristics of the study population by province and sex (%)**

Demographic Variables	Provinces						All
	Badghis			Balkh			
	Sex		Total	Sex		Total	
Male	Female	Male		Female			
<b>Age</b>							
15-19	0	0.5	0.2	5.8	3.8	4.7	2.4
20-59	92.1	94.1	93.1	85.3	89.6	87.8	90.4
60+	7.9	5.4	6.7	8.9	6.5	7.6	7.1
Mean age (SD)	39.2 ±12.0	36.8 ±11.0	38.0 ±11.4	40.3 ±13.5	37.7 ±12.2	38.8 ±12.8	38.4 ±12.1
<b>Year of schooling</b>							
None	71.5	97.3	84.2	65.8	85.4	77.1	80.7
I-V	9.6	0.9	5.3	7.9	3.5	5.3	5.3
VI+	18.9	1.8	10.4	26.3	11.2	17.6	14.0
<b>Occupation</b>							
Jobless	0.9	0.9	0.9	24.2	1.9	11.3	6.1
Housewife/household activities	1.8	84.2	42.4	0.0	84.2	48.7	45.6
Farmer	69.3	1.4	35.8	52.1	3.8	24.2	30.0
Business	7.0	12.2	9.6	8.9	5.0	6.7	8.1
Teacher	5.7	0.9	3.3	6.3	3.8	4.9	4.1
Others I	15.4	0.5	8.0	8.4	1.2	4.2	6.1
<b>Marital status</b>							
Currently married	99.6	86.0	92.9	77.9	73.1	75.1	84.0
Unmarried	0.4	4.5	2.4	21.1	14.6	17.3	9.9
Ever married	0.0	9.5	4.7	1.0	12.3	7.6	6.1
<b>Household members (Mean ± standard deviation)</b>							
Children <5	4.0 ± 2.1	3.6 ± 2.1	3.8 ± 1.9	3.7 ± 1.7	4.1 ± 2.1	3.9 ± 2.1	3.9 ± 2.0
Total members	8.6 ± 4.7	7.9 ± 3.8	8.3 ± 4.3	8.6 ± 4.1	8.7 ± 3.8	8.5 ± 3.9	8.4 ± 4.1
n	228	222	450	190	260	450	900

Cross tabulation considered

**Table 2.1. Economical background of household by province and sex (%)**

Economical Variables	Provinces						All
	Badghis			Balkh			
	Sex		Total	Sex		Total	
Male	Female	Male		Female			
<b>Household income (Afs/month)</b>							
< 2500	44.3	48.2	46.2	25.8	29.2	27.8	37.0
2500-5000	43.4	36.0	39.8	63.7	55.4	58.9	49.3
5000+	12.3	15.8	14.0	10.5	15.4	13.3	13.7
Median income	3000	2950	3000	3000	3500	3500	3000
<b>Household expenditure (Afs/month)</b>							
< 2500	28.1	36.0	32.0	29.5	31.5	30.7	31.3
2501-5000	53.9	50.9	52.4	60.0	54.6	56.9	54.7
5000+	18.0	13.1	15.6	10.5	13.8	12.4	14.0
Median Exp	3500	3000	3000	3800	3500	3500	3000

**Table 2.2. Perceived economy last one year by province and sex**

Perceived economy last one year	Province						All
	Badghis			Balkh			
	Sex		Total	Sex		Total	
Male	Female	Male		Female			
Surplus	9.6	22.5	16.0	16.8	16.9	16.9	16.4
Even	18.9	23.0	20.9	44.2	52.3	48.9	34.9
Sometimes deficit	0.4	0.5	0.4	16.3	12.3	14.0	7.2
Always deficit	71.1	54.1	62.7	22.6	18.5	20.2	41.4
n	228	222	450	190	260	450	900

Cross tabulation considered

## GENERAL AWARENESS ABOUT TB

Table 3 shows the awareness and gender susceptibility to TB. The respondents were found to be well aware about the name of TB (100% in Badghis and 93% in Balkh). TB was widely considered as a respiratory disease (88% in Badghis and 83% in Balkh). When they were asked who was more susceptible to TB, the most frequently mentioned susceptible was female (85% in Badghis and 70% in Balkh), and when asked who spread quickly, the most commonly mentioned in Badghis were female (65%), both male and female (21%), and male (11%). In the case of Balkh, they were female (44%), both (34%), and male (14%).

**Table 3. Awareness/knowledge about TB by province and sex (%)**

Knowledge Variables	Provinces						All
	Badghis			Balkh			
	Sex		Total	Sex		Total	
Male	Female	Male		Female			
Heard the name of TB	100.0	100.0	100.0	91.6	93.5	92.7	96.3
Medical aspect							
Respiratory disease	94.2	81.7	88.1	83.2	81.7	82.3	85.3
Heart disease	6.2	22.8	14.4	14.5	17.9	16.5	15.4
Abdominal disease	6.2	23.3	14.6	19.7	15.8	17.4	16.0
Do not know	2.7	8.2	5.4	5.2	3.3	4.1	4.8
Gender perception mostly affected							
Female	78.1	91.4	84.7	74.7	67.2	70.4	77.5
Male	22.8	9.5	16.2	35.3	42.1	39.2	27.7
Do not know	7.9	4.1	6.0	9.5	13.9	12.0	9.0
Quickly spread							
Male	14.0	7.7	10.9	12.6	14.2	13.6	12.2
Female	63.2	66.2	64.7	52.6	39.6	45.1	54.9
Equal	19.3	23.4	21.3	28.4	33.8	31.6	26.4
Do not know	3.5	2.7	3.1	6.3	12.3	9.8	6.4
n	228	222	450	190	260	450	900

Multiple response and cross tabulation considered

TB was considered as dangerous disease widely (79% in Badghis and 83% in Balkh) (Table 4). The most common reason reported by respondents in both the provinces was 'incurability of disease and sureness of death' (88% in Badghis and 84% in Balkh). The other reasons were highly contagious (31%), public shame (13%), and bleeding sputum (12%).

**Table 4. Knowledge on dangerous by province and sex (%)**

Variables	Province						All
	Badghis			Balkh			
	Sex		Total	Sex		Total	
Male	Female	Male		Female			
TB is considered as							
Not dangerous	19.3	22.5	20.9	15.3	18.1	16.9	18.9
Dangerous but not much	17.5	22.1	19.8	16.8	18.5	17.8	18.8
Dangerous	39.0	17.1	28.2	46.3	47.3	46.9	37.6
Very dangerous	24.1	38.3	31.1	21.6	16.2	18.4	24.8
n	222	228	450	190	260	450	900
Reasons for dangerous and very dangerous							
Not curable and must die	91.2	83.9	87.9	81.3	85.5	83.7	85.7
People spread other/ highly contagious	23.0	33.9	27.9	32.1	35.3	33.9	31.1
It cause bleeding sputum	2.0	11.3	6.3	18.7	16.8	17.6	12.3
People shame it	2.0	8.9	5.1	25.4	16.8	20.5	13.3
n	138	126	264	129	164	293	557
Reasons for not or not much dangerous							
TB treatment available	95.2	91.8	93.4	86.0	91.8	89.7	91.9
People do not die due to TB	9.5	34.7	23.1	9.3	28.8	21.6	22.5
Prognosis is good if take medicine	7.1	9.2	8.2	11.6	15.1	13.8	10.4
n	84	102	186	61	96	157	343

Multiple response and cross tabulation considered

**Table 6. Knowledge on causations of TB by province and Socio-demographic variables (%)**

Socio-demographic variable		Causes of TB				n
		Polluted environment	Cold	Congested living place	Infected persons	
	All	55.0	45.0	13.0	41.0	815
Province	Badghis	62.0	67.0	17.0	12.0	450
	Balkh	47.0	17.0	7.0	76.0	365
Sex	Male	51.0	39.0	14.0	40.0	356
	Female	58.0	50.0	12.0	42.0	459
Age	15-19	56.0	19.0	6.0	81.0	16
	20-59	55.0	46.0	13.0	40.0	743
	60+	53.0	34.0	11.0	41.0	56
Year of schooling	None	55.0	47.0	13.0	39.0	662
	Some	54.0	36.0	13.0	48.0	153
Household income Per month	<2500	54.0	50.0	12.0	37.0	310
	2500-5000	54.0	41.0	13.0	44.0	390
	5000+	64.0	44.0	16.0	42.0	115
Marital status	Unmarried	52.0	22.0	9.0	71.0	68
	Married	57.0	47.0	13.0	38.0	747
Perceived economy last one year	Surplus	58.0	50.0	9.0	44.0	130
	Even	55.0	32.0	11.0	50.0	270
	Deficit	55.0	52.0	15.0	34.0	415

Multiple response and cross tabulation considered

### Route of transmission

The populations were also asked about the main transmitting route of spreading TB from person to person (Table 7). The main routes of transmission were breathing, sneezing and coughing. The most frequently reported routes of transmission by respondents in Badghis were patients' beddings and utensils (75%), breathing (71%), coughing (25%) and sneezing (15%). In the case of Balkh, they were breathing (69%), patients' bedding and utensils (60%), sneezing (57%) and coughing (53%). Female and younger had better knowledge compared to male and adult as well as older.

**Table 7. Knowledge on transmission of TB by province and Socio-demographic variables (%)**

Sociodemographic Variables		Route of transmission				n
		Breathing	Sneezing	Coughing	Patients' beddings and utensils	
	All	70.0	35.0	39.0	68.0	862
Province	Badghis	71.0	15.0	25.0	75.0	449
	Balkh	69.0	57.0	53.0	60.0	413
Sex	Male	65.0	30.0	34.0	70.0	400
	Female	74.0	39.0	42.0	66.0	462
Age	15-19	63.0	63.0	58.0	63.0	19
	20-59	71.0	34.0	39.0	68.0	782
	60+	61.0	36.0	28.0	71.0	61
Year of schooling	None	70.0	34.0	37.0	68.0	695
	Some	70.0	40.0	47.0	68.0	167
Household income per month	<2500	64.0	30.0	32.0	66.0	323
	2500-5000	72.0	39.0	43.0	68.0	421
	5000+	78.0	36.0	39.0	72.0	118
Marital status	Unmarried	65.0	56.0	53.0	56.0	78
	Married	70.0	33.0	37.0	69.0	784
Perceived economy Last year	Surplus	80.0	42.0	41.0	66.0	142
	Even	66.0	39.0	44.0	66.0	289
	Deficit	69.0	30.0	34.0	70.0	431

Multiple response and cross tabulation considered

## Prevention of TB

They were asked about the knowledge on the ways of prevention. Majority of the respondents (89% in Badghis and 97% in Balkh) had different ideas on prevention (Table 8). The most common preventive measure reported was vaccination (67% in Badghis and 75% in Balkh). Negative trend was observed with increasing age. Other preventive measures reported were by avoiding TB patients (24% in Badghis and 27% in Balkh), by avoiding patients' bedding and utensils (34% in Badghis and 42% in Balkh), and by keeping clean environment (24% in both areas).

**Table 8. Knowledge on prevention of TB by province and socio-demographic variables (%)**

Sociodemographic Variables		Ways of prevention of TB					n
		Vaccination	Avoid TB patients	Avoid patient's beddings and utensils	Clean environment	Do not know	
Province	All	71.0	26.0	38.0	24.0	7.0	864
	Badghis	67.0	24.0	24.0	26.0	11.0	450
	Balkh	75.0	27.0	53.0	22.0	3.0	414
Sex	Male	68.0	24.0	34.0	24.0	9.0	401
	Female	74.0	27.0	42.0	24.0	6.0	463
Age	15-19	90.0	16.0	53.0	11.0	1.0	19
	20-59	71.0	26.0	37.0	24.0	7.0	748
	60+	67.0	25.0	44.0	26.0	8.0	61
Year of schooling	None	70.0	24.0	38.0	24.0	8.0	696
	Some	76.0	30.0	39.0	24.0	4.0	168
Household income per month	<2500	72.0	22.0	33.0	22.0	7.0	324
	2500-5000	71.0	27.0	40.0	24.0	6.0	422
	5000+	67.0	32.0	45.0	28.0	11.0	118
Marital status	Unmarried	87.0	19.0	41.0	10.0	1.0	78
	Married	70.0	26.0	38.0	25.0	9.0	786
Perceived economy last one year	Surplus	79.0	30.0	30.0	18.0	8.0	142
	Even	69.0	28.0	49.0	28.0	4.0	290
	Deficit	70.0	22.0	33.0	23.0	9.0	432

Multiple response and cross tabulation considered

## BASIC KNOWLEDGE ON DIAGNOSIS OF TB

Populations in both the provinces were asked the questions on diagnostic test of Pulmonary tuberculosis (PTB), when to test sputum, place, cost of examination, and their sources of knowledge.

### Knowledge on the time of sputum examination

On average 26% had correct knowledge (32% in Badghis and 20% in Balkh) about the correct time (+2 weeks) to test sputum (Table 9).

### Knowledge on diagnostic test

The most common knowledge on diagnostic test for PTB was found to be sputum examination (82% in Badghis and 89% in Balkh) (table 10). Female had little higher knowledge than male (88% vs 82%). Other tests mentioned by the respondents were blood (37% in Badghis and 39% in Balkh) and stool (15% in Badghis and 7% in Balkh). The knowledge variation was observed by other socioeconomic variables.

**Table 9. Knowledge on time to test sputum examination by province and socio-demographic variables (%)**

Socio-demographic variables		Time of sputum examination					n
		<1 week	<2 week	+2 weeks	+3 months	Do not know	
Province	All	15.0	43.0	26.0	15.0	8.0	813
	Badghis	16.0	31.0	32.0	17.0	7.0	448
	Balkh	13.0	59.0	20.0	12.0	11.0	365
Sex	Male	12.0	46.0	25.0	13.0	4.0	353
	Female	17.0	42.0	27.0	13.0	1.0	460
Age	15-19	29.0	71.0	12.0	6.0	1.0	17
	20-59	14.0	42.0	28.0	15.0	18.0	739
	60+	19.0	49.0	12.0	16.0	18.0	57
Years of schooling	None	15.0	42.0	26.0	15.0	8.0	662
	Some	11.0	47.0	25.0	14.0	10.0	151
Household income per Month	<2500	13.0	42.0	25.0	18.0	8.0	311
	2500-5000	16.0	43.0	26.0	14.0	9.0	387
	5000+	16.0	48.0	28.0	10.0	4.0	115
Marital status	Unmarried	12.0	59.0	28.0	10.0	3.0	69
	Married	15.0	42.0	26.0	15.0	9.0	744
Perceived economy last one year	Surplus	15.0	49.0	32.0	7.0	5.0	129
	Even	15.0	48.0	23.0	17.0	7.0	270
	Deficit	14.0	39.0	27.0	16.0	10.0	414

Multiple response and cross tabulation considered

**Table 10. Knowledge on TB diagnostic procedure by province and Socio-demographic variables (%)**

Socio-demographic Variables		Diagnostic tests				n
		Sputum	Blood	Stool	Do not know	
Province	All	85.0	38.0	11.0	4.0	863
	Badghis	82.0	37.0	15.0	6.0	449
	Balkh	89.0	39.0	7.0	6.0	414
Sex	Male	82.0	38.0	13.0	8.0	400
	Female	88.0	38.0	9.0	4.0	463
Age	15-19	95.0	47.0	5.0	5.0	19
	20-59	85.0	38.0	11.0	6.0	783
	60+	87.0	38.0	12.0	3.0	61
Year of schooling	None	86.0	38.0	11.0	6.0	695
	Some	85.0	40.0	12.0	7.0	168
Household income per month	< 2500	84.0	37.0	9.0	5.0	324
	2500-5000	86.0	38.0	13.0	6.0	421
	5000+	88.0	42.0	11.0	5.0	118
Marital status	Unmarried	95.0	42.0	4.0	3.0	78
	Married	84.0	38.0	12.0	6.0	785
Perceived economy last one year	None	90.0	46.0	11.0	3.0	142
	Even	86.0	34.4	10.0	6.0	289
	Deficit	83.0	39.0	12.0	6.0	432

Multiple response and cross tabulation considered

### Knowledge on the place of investigation

The populations were asked about the place of sputum examination (Table 11). Distinct differences were noted between the provinces. Most frequently mentioned places in Badghis were district hospital (33%), comprehensive health centre (31%), and basic health centre (28%). In the case of Balkh, these were district hospital (56%), basic health centre (43%), comprehensive health centre (32%). Private facilities were also mentioned by the respondents from Badghis (25%) and Balkh (18%). Variation was also observed by socio-demographically.

**Table 11. Knowledge on the place of sputum examination by province and Socio-demographic variables (%)**

Socio-demographic variables		Place of sputum examination				n
		Private centres	Basic Health Centre	Comprehensive Health Centre	District Hospital	
	All	22.0	35.0	32.0	44.0	864
Province	Badghis	25.0	28.0	31.0	33.0	450
	Balkh	18.0	43.0	32.0	56.0	414
Sex	Male	22.0	28.0	33.0	40.0	401
	Female	21.0	41.0	30.0	48.0	463
Age	15-19	16.0	63.0	26.0	42.0	19
	20-59	21.0	35.0	31.0	44.0	784
	60+	30.0	33.0	39.0	41.0	61.0
Year of schooling	None	20.0	36.0	32.0	42.0	696
	Some	27.0	31.0	32.0	50.0	168
Household income per month	<2500	20.0	35.0	32.0	35.0	324
	2500-5000	23.0	35.0	32.0	47.0	422
	5000+	23.0	38.0	29.0	57.0	118
Marital status	Unmarried	17.0	41.0	30.0	53.0	78
	Married	22.0	35.0	32.0	43.0	786
Perceived economy last one year	None	24.0	49.0	27.0	37.0	142
	Even	21.0	35.0	35.0	54.0	290
	Deficit	22.0	31.0	31.0	39.0	432

Multiple response and cross tabulation considered

### Knowledge on free TB test

National TB control programme provides sputum examination at free of cost. Table 12 shows that majority of the respondents had knowledge about free sputum examination facilities (87% in Badghis and 83% in Balkh). Knowledge variation was observed by sex (88% by female and 82% by male) and it was statistically significant ( $p < 0.05$ ). Level of knowledge was found to have a relationship with years of schooling but it was not significant. Married people had better knowledge compared to unmarried people ( $p < 0.05$ ).

**Table 12. Knowledge on free sputum test by province and Socio-demographic variables (%)**

Socio-demographic variables		Knowledge on free sputum test		Significance
		%	n	
	All	85.0	900	
Province	Badghis	87.0	450	$P < 0.05$
	Balkh	83.0	450	
Sex	Male	82.0	418	$P < 0.05$
	Female	88.0	482	
Age	15-19	86.0	22	$P < 0.05$
	20-59	85.0	814	
	60+	83.0	64	
Year of schooling	None	84.0	726	$p < 0.05$
	Some	89.0	174	
Household income per month	< 2500	84.0	333	$p > 0.05$
	2500-5000	86.0	444	
	5000+	84.0	123	
Marital status	Unmarried	79.0	89.0	$P < 0.05$
	Married	86.0	811	
Perceived economy last one year	None	88.0	148	$P < 0.05$
	Even	82.0	314	
	Deficit	86.0	438	

Multiple response and cross tabulation considered

## **Sources of information**

The respondents were asked about the sources of information about free sputum test (Table A1, annex). The most frequently mentioned sources were doctor and community health workers (CHW) (49% from doctor and 16% from CHW in Badghis, and 32% from doctor, 42% from CHW in Balkh). However, the proportion of doctor was replaced by community health workers with years of schooling and with increasing household income. Community people were found to be another most frequent source of information (21% in Badghis and 14% in Balkh). A tiny fraction of mass media (5%) and Mullah (3%) were also found as sources.

## **BASIC KNOWLEDGE ON TREATMENT**

This section explored the knowledge of respondents on treatment places, duration of treatment, free treatment, local TB treatment providers, and sources of information.

### **Knowledge on place of treatment**

Three most frequently mentioned places in Badghis province were comprehensive health centre (42%), district hospital (34%) and basic health centre (30%) (table 13). In the case of Balkh they were district hospital (64%), basic health centre (42%) and comprehensive health centre (41%). The knowledge about comprehensive health centre was found to be common in both the provinces (41% vs 42%). The knowledge about basic health centres to be replaced by comprehensive and district hospital with years of schooling, with increasing age and household income.

### **Knowledge on duration of treatment**

Table 14 indicates that not much respondents had knowledge on 8-month TB treatment course (27% in Badghis and 54% in Balkh). The knowledge of study population of Badghis was disappointing. Study also showed male had less knowledge than female (38% vs 43%). Surprisingly, the teen-age and unmarried population was much aware compared to adult (68% vs 40%) and married population (56% vs 39%).

### **Knowledge on free TB treatment**

About 88% of the respondents had knowledge on free treatment provided by health services (Table A2, annex). Provincial difference was found (Balkh 92% vs Badghis 84%) significant ( $p < 0.05$ ).

### **Knowledge on local TB providers**

Though the community-based health workers are involved in implementing directly observed treatment short course (DOTS) in the provinces, the knowledge about community health workers was poor (28% in Badghis and 40% in Balkh) (Table A3). About 15% of population did not have any idea.



**Table 13. Knowledge on place of treatment by province and Socio-demographic variables (%)**

Socio-demographic variables		Place of treatment				n
		Basic Health Centre	Comprehensive Health Centre	District Hospital	Private clinic	
	All	36.0	41.0	48.0	11.0	864
Province	Badghis	30.0	42.0	34.0	8.0	450
	Balkh	42.0	41.0	64.0	13.0	414
Sex	Male	27.0	40.0	44.0	14.0	401
	Female	43.0	42.0	52.0	8.0	463
Age	15-19	58.0	21.0	47.0	11.0	19
	20-59	35.0	42.0	48.0	11.0	784
	60+	33.0	43.0	54.0	10.0	61
Year of schooling	None	37.0	41.0	47.0	9.0	696
	Some	30.0	44.0	54.0	18.0	168
Household income per month	<2500	34.0	41.0	41.0	8.0	324
	2500-5000	35.0	42.0	53.0	12.0	422
	5000+	42.0	41.0	52.0	14.0	
Marital status	Unmarried	47.0	30.0	56.0	12.0	78
	Married	35.0	43.0	47.0	11.0	786
Perceived economy last one year	Surplus	54.0	41.0	36.0	7.0	142
	Even	33.0	47.0	59.0	13.0	290
	Deficit	32.0	38.0	45.0	10.0	432

Multiple response and cross tabulation considered

**Table 14. Knowledge on 8-month duration of treatment by province and Socio-demographic variables (%)**

Socio-demographic variables		Knowledge on 8 month duration of treatment		Significance
		%	n	
	All	41.0	900	
Province	Badghis	27.0	450	P<0.05
	Balkh	54.0	450	
Sex	Male	38.0	418	p>0.05
	Female	43.0	482	
Age	15-19	68.0	22	p>0.05
	20-59	40.0	814	
	60+	45.0	64	
Year of schooling	None	41.0	726	p>0.05
	Some	41.0	174	
Household income per month	<2500	38.0	333	P<0.05
	2500-5000	44.0	444	
	5000+	37.0	123	
Marital status	Unmarried	56.0	89	P<0.05
	Married	39.0	811	
Perceived economy last one year	None	41.0	148	p>0.05
	Even	39.0	314	
	Deficit	42.0	438	

X<sup>2</sup> test considered

### Sources of information

Table 15 explores the sources of TB information on treatment place and free treatment services. Currently, CHW provides TB information through interpersonal communication at household level in both the provinces and considered as reliable source. The most frequently mentioned sources of information on treatment places by the respondents in Badghis were doctor (36%), community people (28%), and CHWs (20%). In the case of Balkh there were CHWs (41%), doctor (29%), and community people (28%). The most frequently reported sources of information on free treatment in Badghis were doctor (52%), community people (22%) and CHWs (16%) and in Balkh were CHWs (39%), doctor (30%), and community



people (26%). Thus, doctor was most frequently mentioned source in Badghis and CHW in Balkh. The mass media was not mentioned frequently (3%) in both provinces.

**Table 15. Sources of information about treatment place and free treatment by province and gender (%)**

Sources variables	Provinces						All
	Badghis			Balkh			
	Sex		Total	Sex		Total	
Male	Female	Male		Female			
<b>About the places</b>							
Community people	34.6	21.2	28.0	29.5	26.5	27.8	27.9
Doctor	29.8	43.2	36.4	26.8	30.8	29.1	32.8
Community health worker	19.3	21.6	20.4	42.1	40.8	41.3	30.9
Mullah	9.6	12.2	10.9	0.0	0.0	0.0	5.4
n	228	222	450	165	218	383	833
<b>About free TB treatment</b>							
Community people	26.8	16.2	21.6	30.5	23.5	26.4	24.3
Doctor	47.8	57.2	52.4	25.3	33.5	30.0	41.2
Community health worker	15.4	15.8	15.6	40.0	38.1	38.9	27.2
Relatives	5.3	2.7	4.0				2.2
Media	3.5	1.4	2.4	3.7	4.2	4.0	3.2
Mullah	0.4	6.3	3.3				1.7
n	228	222	450	174	243	417	897

Multiple response and cross tabulation considered

## ATTITUDE TOWARDS TB

Populations of both the provinces were asked about preferable sources of providers to whom they would like to go if they or any member of household suffered from coughing for long time and how long they would like to continue treatment if any one was diagnosed as a TB patient (Table 16). The most frequently mentioned providers to whom they would like to go in Badghis were qualified private doctors (56%) and traditional healers (48%). In the case of Balkh, they were traditional healers (77%), qualified private doctors (30%), and pharmacists (30%). Tendency to seek care from government healthcare facilities was lower in both the provinces (15%-22%).

Tendency to maintain 8 months of treatment if anyone was diagnosed as TB patient was found most unimpressive in both provinces (30% in Badghis and 59% in Balkh).

**Table 16. Attitudes of community people towards seeking care by province and gender (%)**

Variables	Provinces						All
	Badghis			Balkh			
	Sex		Total	Sex		Total	
Male	Female	Male		Female			
<b>Health sources</b>							
Qualified private doctor	66.5	44.1	55.5	26.0	32.4	29.7	43.0
Traditional healers	29.1	67.1	47.9	78.0	75.9	76.8	62.0
Health facilities	10.6	18.5	14.5	22.5	20.7	21.5	18.0
Pharmacists	5.3	3.6	4.5	23.7	34.4	30.0	16.7
n	228	222	450	173	241	414	864
<b>Duration</b>							
- 7 months	32.9	31.5	32.2	12.1	12.8	12.5	22.8
8 months	26.8	32.4	29.6	59.0	58.7	58.8	43.6
- 8 months	38.6	34.2	36.4	16.2	15.7	15.9	26.6
Do not know	1.8	1.8	1.8	12.7	12.8	12.8	7.1
n	228	222	450	173	242	415	865

Cross tabulation and multiple responses considered

## PERCEPTION OF BARRIERS IN ACCESSING TO TB CARE

The study explored the perception about barriers the patients mostly confront in accessing and adhering to TB care in rural Afghanistan (Table 17). This study identified social, treatment, economical barriers and some personal characteristics that might have contributed to delay in seeking care and or postponed to adhere to TB care. The most frequently perceived barriers by respondents in rural Afghanistan were workload (57% in Badghis and 48% in Balkh), social shame when one got TB (46% in Badghis and 69% in Balkh), fear of social isolation (35% in Badghis and 37% in Balkh), limited health service facilities (27% in Badghis and 30% in Balkh), poverty (25% in Badghis and 35% in Balkh), waited for natural recovery (20% in badghis and 36% in Balkh), and fear of losing husband/wife (22% in Badghis and 23% in Balkh). Lack of knowledge about TB treatment (18%), stop treatment when feel better (16%), and lengthy course (9%) were also identified as barriers in accessing to TB services and adhering to treatment.

**Table 17. Perception of barriers in accessing to TB care by province and gender (%)**

Barriers	Provinces						All
	Badghis			Balkh			
	Sex		Total	Sex		Total	
Male	Female		Male	Female			
<b>Reasons for hiding TB</b>							
Fear of losing husband/ wife	12.7	32.0	22.2	22.2	23.7	23.0	22.6
Public shame	33.8	59.5	46.4	70.2	67.7	68.9	56.0
Fear of isolation	38.6	31.5	35.1	38.6	36.0	37.3	36.1
Chance to loose job	11.4	5.9	8.7	12.9	11.8	12.3	10.3
Not get married	9.6	15.3	12.4	14.6	18.3	16.5	14.3
n	228	222	450	171	186	357	807
<b>Reasons for delaying seeking care</b>							
Unavailability of centres to diagnose TB	23.2	31.1	27.1	20.0	35.8	30.4	29.0
Depends on traditional healers	5.3	3.2	4.2	11.2	20.4	17.3	10.1
Wait for natural recovery	25.0	15.8	20.4	34.4	36.7	35.9	27.0
Poverty	35.1	14.4	24.9	38.4	33.8	35.3	30.0
n	228	222	450	125	240	365	815
<b>Non-adherence to treatment</b>							
Workload	32.5	82.4	57.1	37.4	54.0	48.3	53.0
Job pressure	13.2	14.9	14.0	34.1	25.1	28.2	20.3
No money to continue treatment	36.0	18.9	27.6	22.0	33.9	29.8	29.0
Stop treatment when patient feel better	12.7	11.7	12.2	17.9	21.3	20.2	15.8
Lack of knowledge about treatment	26.3	8.6	17.6	13.0	20.9	18.2	17.9
Not interested for lengthy course	7.9	8.6	8.2	5.7	10.9	9.1	8.6
n	228	222	450	123	239	362	812

Multiple response and cross tabulation considered

## DISCUSSION

The role of social science research in designing and implementing of evidence-based prevention, management and control strategies for TB cannot be overemphasized in Afghanistan despite TB is a major public health issue. Afghanistan lacks this kind of data for designing of targeted interventions for prevention and control of TB. Recently the government of Afghanistan is much concerned about TB control and determined to achieve the goal of millennium development goal (MDG) by 2015. This research attempts to fill in the knowledge gaps in this regard by presenting data on knowledge, attitudes and barriers in accessing to TB services from a household survey in BRAC run TB control areas of two the provinces of Afghanistan (Badghis and Balkh). Findings revealed incomprehensive knowledge on TB and its diagnosis and treatment. TB patients' prioritizing work over treatment and social shame were identified important deterrents for TB patients in accessing to TB service. These findings with its implications for the program are described below.

### **TB awareness, knowledge on symptom, transmission and prevention**

TB was found a very well known disease in Afghanistan and the people were also highly familiar with the term 'Tuberculosis', as also seen in Kenya (Liefoghe *et al.* 1997). This would make the programme work easy in introducing TB control activities in the community. TB is considered a dangerous, often fatal and incurable disease in rural Afghanistan as well as many other parts of the world for long time (Klein man 1980), but the situation has been changed recently in some TB burden countries like India and Tanzania (Yadav *et al.* 2006, Wandwalo and Morkve 2000). An intensive appropriate community health education based on culture is required for a positive behavioural change towards TB. Globally more men than women are diagnosed with TB (Howson *et al.* 1996, Long *et al.* 1999, Demissie *et al.* 2002), but in Afghanistan more female are detected than male (68 female cases out of 100). In our study found the most common perception in both the provinces that TB was the disease of female. Does the perception has link with health-seeking? TB control programme needs to address the issues.

The observation in this study that chronic cough was considered as the main symptom of TB is a common knowledge in other TB burden countries such as Kenya, Tanzania, India, etc. (Liefoghe *et al.* 1997, Wandwalo and Morkve 2000, Mangesho *et al.* 2007, Yadav *et al.* 2006). This finding implies the good knowledge of population of both the provinces as regard to clinical manifestation. Microbiological knowledge on causation of TB was totally absent in both the provinces. Similar findings was observed in many TB burden countries such as Tanzania, Malawi, China, Kenya, South Africa (Mangesho *et al.* 2007, Banerjee *et al.* 2000, Gelaw *et al.* 2001, Dong *et al.* 2001, Liefoghe *et al.* 1997, Edginton *et al.* 2002) except in rural India (Malhotra *et al.* 2002). Regarding the knowledge on main route of transmission (Inhalation), Afghan community did not have comprehensive knowledge on all routes of transmission but the situation is little better compared to other TB burden countries such as Tanzania and Kenya (Wandwalo and Morkve 2000, Liefoghe *et al.* 1997).

Knowledge on BCG vaccination as a preventive measure against TB was lower in Afghanistan than Tanzania (Wandwalo and Morkve 2000), but the findings was encouraging compared to India ((Yadav *et al.* 2006, Subramanian *et al.* 1999). Health education interventions should be designed according to the existing knowledge and awareness of population and it should be implemented for sufficient length of time to be effective (Kroeger *et al.* 1996).

### **Knowledge on diagnosis and treatment**

The Afghan people's knowledge on main diagnostic test (sputum examination for PTB) was quite impressive than the knowledge of formal medical professionals in India (Rajpal *et al.* 2007), but the knowledge about the time when to test sputum was quite unimpressive compared to India (Yadav *et al.* 2006). Even the knowledge about the place of sputum examination was not comprehensive. This knowledge gap should be addressed by NTP. They should increase the visual activities of TB programme at different health services.

Duration of treatment here refers to the 8-month short-course regimen recommended by the NTP. The knowledge of community people on duration was poor compared to other TB burdened countries such as Tanzania (Wandwalo and Morkve 2000). The knowledge variation was observed by gender. This underlines the importance of teaching community people to gain sufficient understanding of need to complete the treatment. Efforts must be made to ensure that both men and women in different socioeconomic contexts can access the information.

Community health workers (CHW) are involved in finding TB cases from households and in completing the DOTS. Mainly CHWs are the prime workers in the community to improve the health-seeking behaviour through community awareness on TB in both the provinces. But population had less access to CHWs to obtain information on TB. This issue should be taken seriously by the programme and CHWs should be given informative training on TB by using suitable communication channels to retain the knowledge and thus, they would be able to deliver the messages to illiterate community people.

### **Attitudes to wards TB treatment**

The respondents were unanimous about the use of informal healthcare providers for treatment of TB. They would seek treatment from traditional healers if they became TB patients. Seeking treatment from traditional healers is common in South Africa (Edginton *et al.* 2002). Financial and cultural practices appear to be the principal reasons (Sanou *et al.* 2004). Majority of Afghan population in two study provinces would not want to follow the standard treatment schedule for TB patients. This is might be the long treatment period of TB was poorly understood by patients (Khan *et al.* 2000, Johansson *et al.* 1999).

### **Perception of barriers of community people in accessing to care**

Health-seeking behaviour of population in two study provinces of Afghanistan could have been seriously hampered due to workload. It indicates that the population prioritize work over treatment. This is consistent with the findings in another study with TB patients in Bolivia (Greene 2004). The Programme should take initiative to create awareness on importance of seeking care timely and treatment completion. Strong family support are also required to adhere to full treatment course.

The public shame and fear of isolation were identified as significant barriers in seeking care in Afghanistan, Vietnam, Burkina Faso, Bali, South Africa and Honduras (Johansson 1999, Sanou 2004, Watkins 2004, Edginton 2002, Mata 1986). The community, household members, and health services could help to overcome public shame and fear and also could support in continuing treatment. Social support can help patients overcome structural and personal barriers, and may influence their knowledge, attitudes and beliefs.

Poverty was identified as a financial constraint in accessing to TB care and this was the risk of non-adherence. It indicates the poor knowledge of community people about free TB service in Afghanistan. The diagnostic facilities for sputum examination are widespread in Balkh and Badghis provinces but the information on availability of services was not well-known among the community people. They identified it as an important barrier for patients in accessing to TB care. This knowledge gap should be addressed by NTP.

## RECOMMENDATION

1. Health education content and materials should be properly used, if necessary it should be reviewed and redesigned appropriately. Thus, Information Education Communication (IEC) component of the programme should aim at disseminating comprehensive information on TB causation, transmission, prevention, diagnostic place and misperception associated with TB as well; combination of audio-visual and local popular media will be required to reach the targeted audience including the illiterate segment of the population.
2. The IEC campaign should emphasize the necessity of completing the full-course of TB treatment (8-month) so that community is convinced about the need for adhering to treatment. Trained health workforce to deliver TB messages on diagnosis and treatment for appropriate place should be assured.
3. TB forum should be organized by cured patients on regular basis to remove misperceptions related to severity and incurability of TB disease from other TB patients.
4. Equity focus in terms of gender and other socioeconomic variables should be maintained in every stage of programme implementation.
5. A social support network (SSN) should be established within the community to support the TB patients to overcome the barriers. This network would motivate TB patients to be adhered to full-course of treatment, accompany the patients to distant facilities, and reduce the workload of patients during the episode of illness. The members to be included from family and society for SSN.
6. Because community and family members' attitudes may influence a patient's decision to stop taking TB treatment or to continue. In such circumstances, community based TB treatment programmes and stronger involvement of local social networks to support TB patients may be justified.
7. SSN would be responsible to organize a fund locally for poor TB patients to meet up the indirect cost associated with TB treatment.
8. Establish more diagnostic facilities in TB prone areas.
9. Train and motivate CHWs to be actively involved in raising community knowledge and information regarding tuberculosis.

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ANNEXES

**Table A1. Sources of information on free test by province and Socio-demographic variables (%)**

Socio-demographic variables		Sources of information						n
		Community people	Doctor	Community health worker	Relative	Media	Mullah	
	All	18.0	41.0	29.0	3.0	5.0	3.0	867
Province	Badghis	21.0	49.0	16.0	4.0	5.0	5.0	450
	Balkh	14.0	32.0	42.0	1.0	6.0	1.0	417
Sex	Male	22.0	37.0	29.0	3.0	7.0	1.0	402
	Female	14.0	44.0	28.0	3.0	4.0	4.0	465
Age	15-19	11.0	47.0	37.0	0.0	5.0	0.0	19.0
	20-59	19.0	40.0	28.0	3.0	5.0	3.0	787
	60+	7.0	44.0	39.0	0.0	3.0	5.0	61
Year of schooling	None	17.0	43.0	28.0	3.0	3.0	3.0	698
	Some	20.0	31.0	34.0	1.0	12.0	1.0	169
Household income per month	<2500	20.0	46.0	24.0	3.0	3.0	4.0	324
	2500-5000	17.0	40.0	30.0	1.0	6.0	2.0	424
	5000+	14.0	30.0	35.0	8.0	7.0	3.0	119
Marital status	Unmarried	13.0	51.0	23.0	4.0	9.0	0.0	78
	Married	18.0	40.0	29.0	3.0	5.0	3.0	789
Perceived economy Last one year	None	11.0	47.0	29.0	4.0	5.0	3.0	143
	Even	16.0	33.0	36.0	2.0	6.0	3.0	292
	Deficit	21.0	44.0	24.0	3.0	5.0	3.0	432

Multiple responses considered

**Table A2. Knowledge on free treatment by province and socio-demographic variables (%)**

Socio-demographic variables	Knowledge on free treatment		Significance	
	%	n		
	All	88	900	
Province	Badghis	92.0	450	P<0.05
	Balkh	84.0	450	
Sex	Male	86.0	418	P>0.05
	Female	89.0	482	
Age	15-19	86.0	22	P>0.05
	20-59	88.0	814	
	60+	88.0	64	
Year of schooling	None	87.0	726	P>0.05
	Some	90.0	174	
Household income per month	<2500	89.0	333	P>0.05
	2500-5000	87.0	444	
	5000+	87.0	123	
Marital status	Unmarried	84.0	89	P<0.05
	Married	88.0	811	
Perceived economy last one year	None	91.0	148	P<0.05
	Even	83.0	314	
	Deficit	91.0	438	

Multiple responses considered

**Table A3. Knowledge on local TB providers by province and sex (%)**

Providers	Baghdhis			Balkh			All
	Male	Female	Total	Male	Female	Total	
Local providers							
Doctor	61.8	56.8	59.3	44.2	42.3	43.1	51.0
Community health worker	26.8	29.7	28.2	41.6	38.8	40.0	34.1
Do not know	11.4	13.1	12.2	14.2	18.8	16.9	14.6
n	228	222	450	172	238	410	860

Multiple responses considered