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Factors determining the knowledge related to tuberculosis in a rural community, a community based cross sectional study

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ABSTRACT

Background: Tuberculosis (TB) remains a major public health problem. It is reported that, globally, about 9 million people developed tuberculosis and about 1.5 million people died due to tuberculosis across the globe in 2013. **Methods:** A descriptive cross sectional study was conducted in the Rural Health Training Center, SRM Medical College to assess knowledge and practice regarding tuberculosis using a pretested Interview schedule. Adult population, who are residing in the field practice area were considered as study population. The study period was between August 2013 to February 2014.

Results: A total of 246 study subjects were included in the final analysis with the majority of the participants to be between 21 to 40 years (39.40%). Cough and expectoration as symptom of TB was known to 82.5% of study subjects. Only 22.8% of the study subjects are aware of at least one extra pulmonary for of tuberculosis. The proportion of subjects with good overall knowledge about TB was highest in subjects aged 61 and above, lowest in 41 to 60-year age group. The proportion of subjects with good knowledge had gradually increased with increasing socio economic status.

Conclusions: Culture specific IEC interventions and their delivery mechanisms need to be designed, considering the highly heterogeneous nature of population in India.

Keywords: Factors determining, Knowledge, Tuberculosis, Rural community

INTRODUCTION

In many developing countries, including India, Tuberculosis (TB) remains a major public health problem.^{1,2} It is reported that, globally, about 9 million people developed tuberculosis and about 1.5 million people died due to tuberculosis across the globe in 2013. The estimate number of incident TB cases in India are 2.6 million during the same period.³ The case finding process in under Revised National TB Control Program (RNTCP) of India is passive in nature.⁴ Even though the programme is in place for last few decades, patients involvement in the programme is far from desirable.⁵ Various kinds of the stigma associated with tuberculosis and poor knowledge in the community on various important aspects of the disease are responsible for this.^{2,6}

Many previous studies conducted in the past have documented very poor public awareness regarding tuberculosis.⁷⁻¹⁴ Low awareness levels were documented for various important aspects of the disease including mode of transmission, prevention methods, treatment services etc.^{2,7-15} Considering the highly heterogeneous nature of population subgroups in countries like India, the knowledge levels about tuberculosis can vary widely across different geographic regions and population subgroups.^{4,16,17} Hence uniform strategies formulated at national or regional level may not have desired impact. Thus, the current study is conducted with the following objectives.

Objectives

- To assesses the knowledge and practice regarding tuberculosis in a rural community in South Indian state of Tamilnadu.
- To assess the factors influencing the knowledge regarding the tuberculosis in the study population.

METHODS

The current study was a Community based Cross Sectional survey, conducted in the field practice area of Rural Health Training Center, under Department of Community Medicine, SRM Medical College Hospital and Research Centre. Adult population, who are residing in the field practice area were considered as study population. The data collection for the study was conducted for a 6 month period, between One-year period from August 2013 to February 2014.

Inclusion criteria

- Permanent Resident of all the 9 village's
- Age above 18 years

Exclusion criteria

Visitors and temporary resident from other areas

Sample size: Considering prevalence of proportion of subjects with appropriate overall knowledge of tuberculosis as 17%, as per study by Sagili K. D et al, taking 95% confidence level & 5% absolute precision, the required sample size would be about 217 subjects.⁵ Considering the 10% non-participation rate, it was decided to include not less than 239 subjects in the study. A total of 246 subjects were included in the final analysis.

Sampling method: The list of all the adults living in the field practice area was procured from the family folder maintained at rural health centre, which has been updated from time to time. The required number of subjects were selected by simple random sampling from this list of adult population using computer generated random numbers.

Study procedure: The selected study participants were contacted for the data collection at their house. Any subject is not available at house at first visit, two more visits have been made in the evening or early morning. The subjects who were not available even after three visits were dropped from the study. For all available study subjects, informed written consent was obtained. Subjects giving consent to participate were included in the study and administered with the study questionnaire.

For those who refuse to give consent, reasons for the same were documented.

Data collection tools: The data was collected using a structured proforma, developed and validated. The questionnaire was developed in English and was distributed to five public health experts to assess the face validity and content validity. Questionnaire was modified according to the inputs of the experts. The final version of the questionnaire was translated into local language (Tamil). The questionnaire was retranslated by independent experts to ensure validity of the translated version.

Ethical consideration: Considering the noninterventional nature of the study, no ethical approval was obtained. Informed written consent from all the study participant was obtained after thoroughly explaining purpose and nature of study. Only those participants who gave consent were included in the study. Confidentiality of the study participants was maintained during the conduction and reporting of the study results.

RESULTS

A total of 246 study subjects were included in the final analysis. The age distribution of the participants showed majority of the participants to be between 21 to 40 years (39.40%) and 41 to 60 years (28.5%). The proportion of participants below 20 years and above 60 years was 15.9% and 16.3% respectively. Males and females constituted 48.4% and 51.60% respectively. According to BG Prasad's socio economic scale majority (48%) of the study subjects belonged to middle class. Hindu's constituted 26% of the study subjects. Illiterates constituted 26% of the study population. The proportion of subjects, who have completed, primary school, higher secondary School, diploma and above was 37.8%, 21.1% and 15% respectively (Table 1).

Cough and expectoration as symptom of TB was known to 82.5% of study subjects. Loss of appetite and weight loss as associated symptoms was known to 67.9% of study subjects. Only 22.8% of the study subjects are aware of at least one extra pulmonary for of tuberculosis. The mode of transmission of pulmonary TB was known to 74% of the participants, but only 55.7% of the subjects know sputum examination as the most efficient diagnostic test. Availability of free treatment for TB in government health facilities is known to 80.1% of the study subjects. Only 51.2% of the participants are aware of the range of duration of treatment. Ill effects of the noncompliance to treatment are known only to 39.8% of the subjects and only 34.6% are aware of MDR TB. About 72.5% of the subjects are aware of ways of prevention of spread of TB. Overall, 33.7% of the subjects had overall good knowledge (knowledge score of > 5) (Table 2).

Table 1: Socio-demographic profile of study population.

Parameter	Frequency	Percent
Age-groups		
20 years and below	39	15.90%
21-40 years	97	39.40%
41 to 60 years	70	28.50%
61 and above	40	16.30%
Gender		
Male	119	48.40%
Female	127	51.60%
Socio economic status		
Lower	44	17.90%
Lower middle	58	23.60%
Middle class	118	48.00%
Upper middle & upper	26	10.60%
Religion		
Hindu	214	87.00%
Muslim	17	6.90%
Christian	15	6.10%
Education		
Illiterate	64	26.00%
Primary school	93	37.80%
Up to higher secondary	52	21.10%
Diploma, graduation and above	37	15.00%

The proportion of subjects with good overall knowledge about TB was highest in subjects aged 61 and above, lowest in 41 to 60-year age group. But the differences across the age groups in proportion of subjects with good TB knowledge was minimal and statistically not significant.

Table 2: Knowledge regarding various aspects of
tuberculosis.

Parameter	Yes	No
Cough with expectoration&	203	43
hemoptysis as presenting symptom	(82.5%)	(17.5%)
Loss of appetite and weight loss as	167	79
presenting symptom	(67.9%)	(32.1%)
Knowledge regarding extra	56	190
pulmonary forms of tuberculosis	(22.8%)	(77.2%)
Knowledge regarding droplet infection as most common mode of transmission	182 (74.0%)	64 (26%)
Knowledge regarding sputum examination as most important diagnostic test	137 (55.7%)	109 (44.3%)
Knowledge on availability of free	197	49
treatment in government facilities	(80.1%)	(19.9%)
Knowledge regarding duration of	126	120
treatment	(51.2%)	(48.8%)
Knowledge regarding ill effects of	98	148
noncompliance with treatment	(39.8%)	(60.2%)

Table 3: Factors affecting the knowledge regarding tuberculosis in study population.

Parameter	Overall knowledge		Chi aguana	D volue
	Good	Poor	Chi-square	P-value
Age-groups				
20 years and below	15 (38.46%)	24 (61.54%)		0.483
21-40 yrs.	33 (34.02%)	64 (65.98%)	2 456	
41 to 60 years	19 (27.14%)	51 (72.86%)	2.430	
61 and above	16 (40.00%)	24 (60.00%)		
Gender				
Male	37 (31.09%)	82 (68.91%)	0.723	0.395
Female	46 (36.22%)	81 (63.78%)		
SES				
Lower	9 (20.45%)	35 (79.55%)		0.035*
Lower middle	18 (31.03%)	40 (68.97%)	9 517	
Middle class	42 (35.59%)	76 (64.41%)	- 8.347	
Upper middle & upper	14 (53.85%)	12 (46.15%)		
Education				
Illiterate	16 (25.00%)	48 (75.00%)		0.117
Primary school	31 (33.33%)	62 (66.67%)	5.890	
up to higher secondary	18 (34.62%)	34 (65.38%)		
Diploma, graduation and above	18 (48.65%)	19 (51.35%)		
Religion				
Hindu	72 (33.33%)	144 (66.67%)	2.456	0.483
Muslim	5 (35.71%)	9 (64.29%)		
Christian	6 (37.50%)	10 (62.50%)		

*Statistically significant (p<0.05).

Higher proportion of females (36.2%) had good knowledge, as compared to males (31.09%). The proportion of subjects with good knowledge had gradually increased with increasing socio economic status(SES) from 20.45% in SE class IV to 53.85% in class I. The association between SES and knowledge was statistically significant (P value 0.03). The proportion of subjects with good knowledge had gradually increased with increasing educational qualification from 25% in illiterates to IV to 48.65 % in graduates. But the differences in proportion of subjects with good different educational knowledgein groups was statistically not significant (P value 0.03). No association was found between the religion and knowledge regarding TB, as the proportion of subjects with good knowledge was almost similar (Table 3).

DISCUSSION

Tuberculosis is still a major public health problem in India.¹ Even though national level control programme is in place in the country for last few decades, the people's active participation in the programme is still perceived as far from satisfactory. Poor knowledge about various aspects of the disease and control initiatives is an important contributing factor. Also, considering the highly heterogeneous nature of population subgroups in countries like India, the knowledge levels about tuberculosis can vary widely across different geographic regions and population subgroups. Hence uniform strategies formulated at national or regional level may not have desired impact.

In this context, the current study has been conducted in a rural community in Tamilandu. High proportion of participants had demonstrated appropriate knowledge regarding, symptom of TB (82.5%), mode of transmission (74%), availability of free treatment (80.1%), methods of prevention (72.5%). The proportion of participants having knowledge about extra pulmonary tuberculosis (22.8%) sputum examination as the most efficient diagnostic test (55.7%)duration of treatment (51.2%), Ill effects of the noncompliance to treatment (39.8%) MDR TB (34.6%) was lesser. Dewi C et al have reported limited knowledge regarding the cause and transmission of TB in a rural population. They emphasized that this ignorance is the main reason for seeking care and early diagnosis of Tuberculosis.⁶ Paul S et al have reported 'most (99%) of the participants had heard about TB, and almost all knew that TB is a contagious yet curable disease. More than half (53%) of the KCMs had good knowledge regarding TB" Hossain S et al have documented relatively poor knowledge in community members in the domains of TB transmission, mode of transmission, knowing >/= 1 suggestive symptoms, curability of TB and availability of free treatment.^{2,18} Kulkarni P et al in their study on one of the tribal population in eastern India have reported poor knowledge about TB symptoms, causes, modes of transmission and moderate awareness about government TB services. Awareness about the availability of free treatment services by government health facilities was high in the study.⁷ Sreeramareddy CT et al have reported very poor knowledge about tuberculosis transmission and high proportion of study participants to have many misconceptions about TB.¹⁰ Satyanarayana S et al have reported higher proportion of rural subjects did not seek medical care, when suffering from symptoms suggestive of TB, due to poor knowledge regarding symptoms.¹⁴

Only 33.7% of the subjects had overall good knowledge (knowledge score of >5). Age and gender had no significant influence of knowledge about Tuberculosis. The proportion of subjects with good knowledge had gradually increased with increasing socio economic status from 20.45% in SE class IV to 53.85% in class I. The association between SES and knowledge was statistically significant (P value 0.03). The proportion of subjects with good knowledge had gradually increased with increasing educational qualification from 25% in illiterates to IV to 48.65% in graduates. Vijay S et al have reported that inadequate knowledge, illiteracy as important determining factors resulting in poor compliance with TB treatment along with many other factors. ¹⁹ Sagili KD et al have reported only 17% (95% CI 15.6-18.0) of the respondents to be having had appropriate knowledge regarding TB. Female gender, rural areas of residence and low income group were srtrongly associated with poor knowledge.5

Sharma AK and R Sharma have reported the percentage of respondents who had correct information about various aspects of the disease was higher among those who had seen TB campaigns on any of the mass media.¹⁶ Sreeramareddy CT et al have reported very poor knowledge about tuberculosis transmission and high proportion of study participants to have many misconceptions about TB¹⁰ Kamineni VV, et al. have reported that innovative IEC activities including the involvement of Interface NGOs, coupled with increased training and engagement of front line health workers and community groups, and dissemination of community based resources, contributed to improved awareness and knowledge about TB.20 Sreeramareddy C T et al. have reported the frequency of listening to radio was associated with correct knowledge about tuberculosis transmission.10

Dewi C et al have demonstrated that an asset-based intervention can result in positive changes in community's knowledge and behaviour in relation to TB and early case detection.⁶ Thapa B et al in one of the largest KAP study conducted on the subject, across 30 districts in India, have documented efficacy of targeted IEC interventions in addressing poor knowledge regarding various aspects of TB. The authors have concluded that significant and sustainable improvements in knowledge and attitude can be achieved by targeted interventions.²¹

CONCLUSION

- The knowledge regrading primary symptoms of pulmonary TB, mode of transmission, methods of prevention of transmission and availability of free treatment in government facilities is relatively high in study population
- The knowledge regarding the most efficient diagnostic test, duration of treatment was relatively less in study population.
- People had very poor knowledge regarding extra pulmonary forms of TB, ill effects of noncompliance with therapy and MDR TB.
- Only about one third of study participants displayed overall good knowledge regarding tuberculosis
- Increasing educational status and higher socio economic status are associated with good knowledge regarding TB, whereas age, gender and religion had no association with knowledge regarding TB

Recommendations

- Large scale community based studies are needed to assess the interplay of various social demographic factors influencing knowledge regarding Tuberculosis. This can help us in identifying specific population groups with poor knowledge and in designing appropriate IEC initiatives.
- Culture specific IEC interventions and their delivery mechanisms need to be designed tested for their impact in different communities, considering the highly heterogeneous nature of population in India.

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