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KNOWLEDGE ABOUT TUBERCULOSIS AND INFLUENCE ON HEALTH SEEKING BEHAVIOR AMONG NEW PULMONARY TUBERCULOSIS PATIENTS IN MYSORE, KARNATAKA

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ABSTRACT: BACKGROUND: Tuberculosis still remains a global public health challenge to mankind. Early seeking of care and promptness in taking treatment is essential for the success of RNTCP programme. Both of the above factors require thorough knowledge and right attitude regarding Tuberculosis. **AIMS & OBJECTIVES:** 1. To assess the knowledge and attitude towards Tuberculosis among newly diagnosed smear positive pulmonary Tuberculosis patients 2. To assess sources of information regarding Tuberculosis among study subjects. 3. To assess influence of knowledge on health seeking among the patients. **SETTINGS AND DESIGN:** A cross sectional study on 217 new smear positive Tuberculosis patients aged above 15 years who were registered between Nov – 2009 to July -2010 for DOTS under RNTCP in Mysore Tuberculosis unit was included in the study. Interview was conducted using pre tested semi structured questionnaire. Knowledge was assessed regarding cause of TB, ways of transmission, symptoms, prevention of spread of TB and duration of treatment. **METHOD AND MATERIALS:** Eligible cases were identified from the Tuberculosis register at DTC. The address and the DOTS Centre name were noted down. Information was sought from patients on Socio-economic and demographic background, Health seeking behavior, Reasons for preferring the health facility, knowledge about disease causation, symptoms, diagnosis, treatment and prevention. **STATISTICAL ANALYSIS:** Data thus obtained was coded and entered into Microsoft excel spreadsheet. This was analyzed using Epi Info 2002 version 04 and statistical package for social sciences (SPSS) – Version 13. Descriptive statistic was employed in characterizing the respondents. **RESULTS:** Mean age was 39.2 years. 70.5% males. 30.9% sought care in government hospital. Majority of the subjects knew how disease spreads (76%), symptoms of the disease (72.8%). Sputum smear microscopy was reported as the method of diagnosis for TB by 70%, 89.4% accurately mentioned 6 months as the duration of treatment they had to take, 62% knew before diagnosis that treatment for TB was free in Government set up. 79% mentioned covering the face while coughing as the method of prevention of spread of TB. **CONCLUSION:** More specific and effective health education to the Tuberculosis patient is essential. Strategies that promote early reporting to health centres and improve knowledge of the patients is important for reducing the time lapse between onset of symptoms and seeking care.

KEYWORDS: Pulmonary Tuberculosis, Knowledge, Attitude, Health seeking behaviour.

INTRODUCTION: Tuberculosis (TB) has challenged mankind since ages and despite enormous advances in medicine and rapid expansion of health system it still remains a global public health challenge. It is among the top ten causes of global mortality and is the single largest killer of young and adult population in the world.

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Globally every year, 9.2 million new cases and 1.7 million deaths occur due to TB.¹ India accounts for one-fifth of the global TB incident cases. Each year, over 1.9 million people in India develop TB, of whom around 0.87 million are infectious cases. It is estimated that annually around 3, 25,000 Indians die due to TB.²

To overcome this enormous burden, the DOTS strategy was introduced in the country in 1997 in the form of Revised National Tuberculosis Control Programme (RNTCP) which has replaced National Tuberculosis Programme (1962). RNTCP was expanded in a phased manner to cover the entire population by 2006.

Tuberculosis is now attracting renewed interest due to:

- a) HIV epidemic,
- b) Realization that tuberculosis control is one of the most cost effective health interventions in developing countries,
- c) Proven effectiveness of DOTS,
- d) Emergence of drug resistance.²

As the management of Tuberculosis involves longer duration of treatment, correct knowledge of the disease and treatment is most important to ensure patient compliance and their by the achieving the goal of cure rate under RNTCP. Its importance is equal or more than that of providing the course of medication. Correct knowledge and attitude along with proper health seeking behaviour will ensure cure, as well reduce the transmission of disease. This in turn decreases the burden of disease in society.

World Health Organization also recognizes the importance of tuberculosis-related knowledge, attitude and practice, surveys in advocacy, communication and social mobilization and strategy planning.³

Patients' adherence to treatment depends on many psychological and sociological factors including age, education level and patient's own idea about the disease.⁴

WHO recommended DOTS relies upon the passive method of screening chest symptomatics, who seek care at health facilities on their own.⁵ It typically includes mental debate about the significance and seriousness of the symptoms, knowledge about the disease, lay consultation, decisions about action including self-medication and contact with health professionals.

Hence this study is proposed for the better understanding of knowledge among newly diagnosed pulmonary Tuberculosis patients and influence on their health care seeking behavior. The specific objectives of our study were to: a) Assess the knowledge and attitude towards Tuberculosis among newly diagnosed smear positive Tuberculosis patients. b) To assess sources of information regarding Tuberculosis among study subjects. c) To assess influence of knowledge on health seeking behaviour among the tuberculosis patients.

MATERIALS AND METHODS: A Community based Cross-sectional study was carried out between November 2009 to July 2010 in one of the Tuberculosis Unit of Mysore i.e. Mysore city TU. Mysore city has a population of 7, 57,722 spread over 128.42 sq km. The literacy rate is 84.38% with a sex ratio of 967 females per 1000 males. There are 5 DMCs and about 120 DOTS centers in the study area. From Nov 2009 to July 2010, 217 pulmonary tuberculosis patients were consecutively interviewed. Study subjects included all new sputum smear positive Tuberculosis patients aged more than 15 yrs

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in intensive phase of treatment registered under Mysore Tuberculosis unit during the study period and residing in Mysore city for at least previous six months. Serious and terminal ill patients were excluded from the study.

A semi-structured questionnaire was designed keeping in mind the objectives and variables of the study. Pilot study was conducted over a two week period with 10 patients. Based on the pilot study experience, the questionnaire was modified. The questionnaire was personally administered in their own local language.

Approval of J.S.S Medical College Ethical committee was obtained. Permission was obtained from the District Tuberculosis officer (DTO), Mysore to carry out this study.

New sputum smear positive Tuberculosis cases aged 15 yrs registered under Mysore Tuberculosis unit during the study period.

It was observed from earlier two Indian studies by R. Rajeshwari et al⁵ and Jerard M selvam⁶ that 29% and 35% of patients delayed seeking care for > 1 month respectively.

Assuming for the present study delay rate of 32% (average of 29% and 35%), at 95% confidence level and 20% error, the sample size required was 209. All registered smear positive tuberculosis patients were contacted until the required sample size.

Information was sought from patients on Socio-economic and demographic background Health seeking behavior, Reasons for preferring the health facility, knowledge about disease causation, symptoms, diagnosis, treatment and prevention.

Eligible cases were identified from the Tuberculosis register at DTC. The address and the DOTS centre name were noted down.

Data thus obtained was coded and entered into Microsoft excel spreadsheet. This was analyzed using Epi Info 2002 version 04 and statistical package for social sciences (SPSS) – Verson13. Descriptive statistic was employed in characterizing the respondents.

RESULTS: Out of 217 patients. Around 69.1% patients were from economically productive age group between 15-44 years of age. Nearly 27% were illiterates. Males constituted 70.5% of the study subjects. 64% were from lower and upper middle class. 63% of subjects were married.

The contact history of TB was present in 31.4% of the males and 50% of the females. History of smoking and alcohol use was present in 32.7% and 33.6% of the subjects respectively.

Cough was present universally in all patients. Cough (65.4%) and fever (27.2%) were the predominate symptoms that motivated them to seek care.

The health seeking pattern indicated that the initial action taken by the patients was either direct purchasing of drugs from a medical store (35%) or consulting a Health care provider (47.9%). Allopathy was the first choice in 96% of patients.

Majority (60%) of the subjects consulted a private practitioner in close proximity to their residence. 18(8.3%) of the study subjects consulted the TB centre in the first instance.

Family (40.1%) motivated to seek care at a particular type of health facility.

30.9% of the subjects first approached Government Health Provider. The main reasons given for approaching Government Provider first were economical (47.7%) followed by proximity to residence (13.4%).

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69% of patients first approached a Private Health Provider. The main reasons given by patients included proximity of health facility (22.6%), provider being followed in family for all health ailments (22.6%), famous in the locality (20.6%).

When enquired regarding Knowledge aspects: Majority of the subjects knew how disease spreads (76%), symptoms of the disease (72.8%). Sputum smear microscopy was reported as the method of diagnosis for TB by 70%, 89.4% accurately mentioned 6 months as the duration of treatment they had to take, 62% knew before diagnosis that treatment for TB was free in Government set up. 79% mentioned covering the face while coughing as the method of prevention of spread of TB.

47% subjects had answered more than six questions correctly out of 10 questions. 53% answered less than six questions correctly.

Majority (66%) agreed that completely cured TB patient could marry, but when asked if they should negotiate marriage for their son/daughter with an Ex-TB patient majority (61.8%) said they wouldn't. More than half of the subjects avoided eating and talking with other family members. More than three fourth of the patients were hesitant to reveal their disease to other.

The knowledge questionnaire contained 10 questions. Based on total number of correct answers given, subjects were classified into two categories. Those who correctly answered more than six questions out of 10 were considered to have satisfactory knowledge. Less than six correct answers were considered to have unsatisfactory knowledge. This criterion was fixed based on the median value.

In comparison to patients who had satisfactory knowledge Patient Delay was more in those who had unsatisfactory knowledge scores.

65 % of male patients had satisfactory knowledge in comparison to females (34%)

Tuberculosis health visitors (29%), Doctors (19.4%) and DOTS providers (17.1%) were important source of information regarding tuberculosis among study subjects.

DISCUSSION: Tuberculosis like any chronic infectious disease is thriving on the back of ignorance. Time and again it is proved that the disease burden of Tuberculosis is directly related to the educational standards and literacy rate of society. Less the education status more the disease burden. It is clearly seen in countries where Tuberculosis is a major Public health problem. Even in our country the Disease prevalence is low in states like Kerala and high in low literacy states like UP.² Knowledge and awareness regarding various aspects of tuberculosis is very important among the masses to curb TB.^{7,8}

Awareness regarding spread of the disease will help the individual to take hygienic measures to prevent spread to the family members as well as the community. This can be achieved in two levels where in healthy individuals avoid the circumstances favorable for transmission and diseased individuals taking steps to prevent transmission of disease to healthy individuals. More than three fourth of our patients were having the correct knowledge that the disease spreads from one person to another but relatively very small percentage knew how to prevent spreading of disease to others and as well how to dispose of the sputum. Many studies with similar population base as found majority of the people have correct knowledge about spread of the disease.^{4,9,10,11}

Also study population being predominantly urbanites has contributed to these impressive figures. Correct knowledge will help in the containment of the disease and this should be a positive

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affirmation of the possibility of controlling the disease. A study conducted by Salman Khalil et al, has revealed more than 50% had correct knowledge regarding cause of TB. All these findings are similar to our study.

Good general lay knowledge of tuberculosis (TB), its cause and treatment is considered important for both prompt healthcare seeking and adherence to treatment.⁹ Similar to the study done by HOA et al.,⁹ large proportions of individuals with a cough for more than three weeks had limited knowledge of the causes, transmission modes, symptoms, and curability of TB. Men had a significantly higher knowledge score than women. Better knowledge was significantly related to seeking healthcare and seeking hospital care. As a result, correct knowledge and positive perception of the patient toward TB and its management is a prerequisite for them to seek early health care.^{5,6,10} It is also important to have basic and correct knowledge of the disease and availability of free treatment is clear among the individuals in community.^{4,11} 62% before coming to the facility knew the treatment was completely free for TB. Similarly Awareness about anti-tubercular drug being given free of cost at government health centers in other studies was known to 73.9%.⁴ The availability of free treatment should be clear among individuals in the community for early and appropriate place of seeking of care.

From programme point of view knowledge about 'cough' as a symptom and more so 'duration of cough' is vital.¹² 72% patients could accurately refer cough as one of the key symptoms of TB apart from fever, loss of weight.

Majority of the patient (82.9%) believed that tuberculosis is curable. The duration (6 – 9 month) was correctly known to 89.4% of the patients. This is the positive findings in our study in comparison with other studies which showed lower knowledge regarding duration of treatment and curability of disease.^{4,11,12}

One more finding in our study was that only 16.5% of patient knew that tuberculosis can be prevented by BCG vaccine in spite of aiming for 100% coverage. In a study done in rural south Indian community, BCG as a vaccine for tuberculosis was known to only 15.6% individuals⁷ and in another study at Delhi and UP, it was reported as 9.8% and 9.1% respectively.^{11,4} Thus the mass media and IEC activities should continue giving messages about importance of BCG and other vaccine preventable diseases.

Almost 40% of the People with TB in this study were of the view that being infected with TB reduced the chances of getting married. Even though 80% knew that TB was treatable, almost 70% claimed they would not marry their children to someone who was currently diseased, or had been infected in the past and has now been cured of tuberculosis. Many expressed fear that family and friends would discover their illness and they often avoided to talk or eat with others. Similar observation was found in various other studies.^{5,13,14}

The findings of our study where half of the patients showed satisfactory knowledge were in contrast to the findings of a study conducted by Faussett P G et al in Zambia where 25 % of the patients had good knowledge, 49% had average knowledge and 25% had poor knowledge about TB. However our study included the registered cases of TB under RNTCP but in study done by Fausset P G et al patients were not registered patients under the programme.¹⁵

In our study we found health workers have been source of information in more than a quarter of patients. This was followed by information in the form of medical officers. Majority of Indian studies have similar findings.

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Spreading awareness among general population involves multiple means. The traditional methods of spreading awareness about diseases or health as been mass media both Visual and audio as well as basic health workers and educators. Individual health workers and educators will be essential in countries like ours.

Among General Communities: Most of the communities surveyed at the End line, had heard of the disease through relatives and friends and from doctors. Awareness has been raised through TV, newspapers and radio, especially in metro cities. Disadvantaged Communities: At most places, people got their information about TB and related issues mainly from government employees, private health service providers, friends and relatives and TB patients under treatment.^{4,7} Several studies explained that the majority of respondents heard about TB from health workers and personal experience for the first time^{9,12}; this study also reported similar findings.

The Social Assessment study observed that even though communities are aware that TB is completely curable people tend to hide the fact. Women more than men tend to conceal their illness mainly from family and friends, because of the contagious nature of the disease.

Stigma can act as a barrier to starting treatment and/or completing treatment. The study on gender conducted by ASCI, indicated that women feel threatened that they would be discriminated against by and within the family. There is a difference in the attitudes and practices as regards TB patients as discrimination towards them continues to prevail. This issue will have to be dealt with great sensitivity, and may require in-depth interviews and one to one counseling.⁷

Important messages like “to seek treatment for cough of more than three weeks (now two weeks)” and “free availability of TB diagnosis and treatment”, etc., should be spread using different communication channels in order to increase case-detection rate. Active case detection method may be experimented in selected areas where cure rate has been achieved and maintained consistently for several years.¹⁶

CONCLUSION: Traditional excuses given for moderate success of the Tuberculosis programme in India needs relook. Strengthening of the programme at the service providers end like health workers and medical officers is more important. Apart from covering the remaining population under awareness programme, motivating health personal might help us to successfully control TB. To remove misconceptions about TB community based awareness strategies should be designed, information and education on TB must be disseminated out.

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Questions	Correct response n (%)	Incorrect (No response) n (%)
Related to general aspects of tuberculosis		
1. What is the cause of TB disease?	88 (40.5)	129 (59.5)
2. How does it spread?	165 (76.0)	52 (23.0)
3. What are the symptoms of the disease?	158 (72.8)	59(27.0)
4. Which part of the body does it affect?	95 (43.8)	122(56.2)
Related to diagnosis and treatment		
5. Where should the patient go to get this disease identified?	152 (70.0)	65(29.9)
6. Do you think this disease is curable?	180 (82.9)	37(17.0)
7. Before diagnosis, did you know treatment for TB is free in Government?	135 (62.2)	82(37.7)
8. How long do you have to take the treatment?	194 (89.4)	23(10.5)
Related to preventive aspects of TB		
9. How can you prevent spreading of the disease to family members?	173 (79.7)	44(20.3)
10. Do you know about BCG?	36 (16.5)	181(83.4)

Table 1: Distribution of study subjects with respect to correct Knowledge about Tuberculosis

Note: Correct answers were according to RNTCP Health education guidelines.^{7,8}

Questions	Yes n (%)	No n (%)
1.Can a completely cured TB patient marry	144 (66.4)	73 (33.6)
2.Would you negotiate marriage for your son / daughter with an Ex-TB patient	83 (38.2)	134 (61.8)
3.Will you eat talk with other members as before	101 (46.5)	116 (53.5)
4.Do you hide your illness with others	164 (75.5)	53 (24.4)

Table 2: Attitude towards tuberculosis among Study subjects

Sl. No.	Knowledge level	Knowledge Score	No.(%) of subjects	Patient Delay (%)
1.	Unsatisfactory	≤6/10	115 (53.0)	43.5
2.	Satisfactory	>6/10	102 (47.0)	34.3

Table 3: Knowledge score among study subjects and Delayed health seeking (>30 days from onset of symptoms)

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Sl. No.	Knowledge level	No.(%) of subjects	Males	Females
1.	Unsatisfactory ($\leq 6/10$)	115 (53.0)	65(56.5)	50 (43.5)
2.	Satisfactory ($>6/10$)	102 (47.0)	67 (65.7)	35 (34.3)

Table 4: Gender wise distribution of knowledge score

Figure 1: Distribution of respondents as perceived by them as important source of information on Tuberculosis

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