



Research Article

**A STUDY TO ASSESS THE KNOWLEDGE REGARDING TUBERCULOSIS AMONG TUBERCULOSIS PATIENTS AND THEIR COMPLIANCE TO THE TUBERCULOSIS TREATMENT IN SELECTED AREAS IN TELANGANA**

**Jyothi K and Gangadhar K**

Tata Institute of social sciences Mumbai,

**ARTICLE INFO**

**Article History:**

Received 06<sup>th</sup> December, 2018

Received in revised form 14<sup>th</sup>

January, 2019

Accepted 23<sup>rd</sup> February, 2019

Published online 28<sup>th</sup> March, 2019

**Key words:**

Infectious diseases will last as long as humanity itself (Park, 2017).

**ABSTRACT**

**Introduction:** “Infectious diseases will last as long as humanity itself” (Park, 2017). Infectious disease is a major public health issue for both developed and developing countries like Africa and India, both suffer significant population losses each year. Tuberculosis has been known to mankind since ancient times. Tuberculosis is a top infectious disease killer worldwide.

**Objectives:** The objectives of the study are to assess the TB patients’ knowledge regarding TB, to assess their compliance to the treatment and to examine the knowledge with selected demographic variables and compliance.

**Methodology:** Research design selected for the study for the present study was quantitative in nature and non-experimental descriptive study design.

**Results:** Results of the study reveals that out of 50 TB patients most of the patients 17(34%) are in 26-35 years, 11(22%) patients are in age group 16-25 years, 11(22%) are in 36-45years, 11(22%) are in 36-45years. Most of the patients i.e. 26(52%) are females and 24(48%) are males. 13(26%) patients are able to read and write, 13(26%) of them are having intermediate education, 10(20%) of them are having primary education, 8(16%) are having Graduation and above and 6(12%) of them are having secondary education. 14(28%) are employees, 12(24%) are unemployed, 8(16%) of them are students, 6(12%) are labourers and 4(8%) are doing business. The study found that from the 50 samples with TB patients none of them are having very poor and above average knowledge. Out of 50 TB patients 21(42%) patients have below average knowledge, 29(58%) patients have average knowledge. They are assumed of having poor compliance to the treatment. This implies that the patients with adequate knowledge can have good compliance.

Copyright©2019 Jyothi K and Gangadhar K. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**INTRODUCTION**

“Infectious diseases will last as long as humanity itself” (Park, 2000). Infectious disease is a major public health issue for both developed and developing countries like Africa and India, both suffer significant population losses each year. Approximately two million people in India die with infectious diseases. The infectious diseases are more prevalent in the developing countries which include HIV or AIDS, diarrheal diseases like Cholera and dysentery, Typhoid, Tuberculosis, Malaria, and Measles (WHO, 2007). Tuberculosis has been known to mankind since ancient times. Earlier this disease has been called by numerous names including consumption (because of the severe weight loss and the way the infection appeared to “consume” the patient), phthisis pulmonaris and the white plague (because of the extreme pallor seen among those infected) Cashin (n.d.). Tuberculosis is an infectious disease caused by Mycobacterium Tuberculosis. The disease primarily

affects lungs and causes pulmonary tuberculosis. Mycobacterium tuberculosis usually attacks the lungs but it can attack any part of the body such as the kidney, spine, and brain. If TB is not treated properly, it can be fatal. TB is a contagious and air born disease like the common cold, it spreads through the air by a person suffering from TB (Park, 2007). A single pulmonary TB patient can infect 10 (or) more people in a year and TB sprays tiny droplets containing bacteria into the air through coughing, sneezing (or) spitting, when a healthy person inhales the same air, he gets TB infection. Only a fraction of people infected with *Mtb* develop active TB disease. Those who do not get sick are known to have non-contagious latent TB, so-called because the bacteria are inactive or “asleep” in the body. TB bacteria can remain in this dormant state for months, years, and even decades without increasing in number and without making the person sick (Koehler, 2002).

People with weakened immune systems (those with HIV/AIDS, those receiving chemotherapy, or children under 5 years old, for example) are at a greater risk for developing TB disease. When they breathe in TB bacteria, the bacteria settle

\*Corresponding author: **Jyothi K**

Tata Institute of social sciences Mumbai,

in their lungs and start growing because their immune systems cannot fight the bacteria. In these people, TB disease may develop within days or weeks after the infection (GOI, 2016). However, in some other people, TB disease may develop months or years after the initial infection, at a time when the immune system becomes weak for other reasons and is no longer able to fight the bacteria. TB bacteria move through the blood to different parts of the body. Symptoms of the active disease include cough, loss of weight and appetite, fever, chills, and night sweats as well as symptoms from the specific organ or system that is affected; for example, coughing up blood or sputum in TB of the lungs, or bone pain if the bacteria have invaded the bones (Royal, 2008). The TB problem in India was first recognized through a resolution passed in the All India Sanitary Conference, held at Madras in 1912. The TB picture started becoming clear with the introduction of tuberculin testing (Kannabus, 2016). The Bhole committee report issued in 1946 estimated that about 2.5 million patients required treatment in the country with only 6,000 beds available. The first open-air institution for isolation and treatment of TB patients was started in 1906 in Tilaunia near Ajmer and Almora in the Himalayas in 1908. The anti-TB movement in the country gained momentum with the TB Association of India was established in 1939. WHO and UNICEF took a keen interest in providing assistance for introducing mass BCG vaccination with low cost in 1951 (Mahadev, 2003)

Many of the people are unaware of the spread of disease, signs, and symptoms of TB such as unexplained weight loss, fever, chills, night sweats, weakness or fatigue, loss of appetite etc. Most specific symptoms may include a cough that lasts for three weeks or longer, pain in the chest, cough with blood or sputum. Early awareness about TB symptoms helps for early diagnosis and early treatment (GOI, 2012). The term “adherence” or “patient-centered compliance” refers to the extent to which patients follow a prescribed regimen. It implies a more active and collaborative involvement of patients working with health-care providers in managing their treatment. “Adherence” is currently preferred to “compliance” in medical literature as it portrays a more respectful and active role of the patient in disease management. Compliance to therapy is one of the important factors that affect the outcome of therapy (William, 1997). Compliance can be defined as the extent to which a patient’s behavior coincides with medical advice. It captures the increasing complexity of TB chemotherapy by characterizing patients as independent, intelligent and autonomous people who take active and voluntary roles in defining and pursuing goals for their medical treatment (WHO, 2015). The extent of treatment adherence may be facilitated by positive or negative attributes related to health system, social/family issues, personal factors, and drug factors empowerment of people with TB and communities, through advocacy, communication and social mobilization by patient and community participation in TB care are important in facilitating treatment adherence using the DOTS approach (Khan and Mogili, 2013)

Noncompliance with the treatment is defined as when patients with TB, 30 days after treatment initiation, missed the follow-up appointment and could not be reached, by means of notification or home visit, or when the administration of the medication was interrupted for more than 30 consecutive

days.<sup>18</sup> Non-compliance to self-administered multi-drug tuberculosis treatment is a common and most important cause of failure of initial therapy and relapse. Non-compliance may also result in acquired drug resistance, requiring more prolonged and expensive therapy that is less likely to be successful than the treatment of drug-susceptible tuberculosis (ICMR, 2007).

Noncompliance with the treatment of tuberculosis (TB) is a major problem that leads to treatment failure, relapses, and emergence of drug resistance. This exposes both the patient and the community to grave danger. At present, in India, the prevalence of acquired multidrug-resistant TB (MDR-TB) is 13-15% (WHO Surveillance for Global Drug Resistance). Researchers in India have found that the compliance rate with TB chemotherapy under the National Tuberculosis Control Program (NTCP) ranged from 33.2% to 53%. TB is no longer considered as incurable (Chada et al., 2003). Proper knowledge about a healthy lifestyle practice, adequate nutrition and its role in health maintenance, knowledge resources, prevention and control of disease etc. helps to overcome the disease. To counter the effects of these factors the nurse has to educate the people to follow strictly the guidelines given by the health care centre regarding, the drugs to be taken continuously and motivate them to follow the simple hygienic precautions such as covering the face while sneezing or coughing, importance of safe disposal of sputum to prevent the spread of diseases, importance of hand washing, need for adequate nutrition and awareness about BCG Vaccination for new-borns also should be encouraged (Gad, 1997).

## **METHODOLOGY**

The current study was aimed to assess the knowledge regarding tuberculosis among tuberculosis patients and their compliance to the tuberculosis treatment in selected areas. In order to meet the objectives and research questions of the study. The quantitative research methodology was adopted for the study.

### **Research Design**

The research design adopted for the study was a non-experimental descriptive study design with interview schedules. In order to assess the knowledge regarding tuberculosis among TB patients, to see the association between knowledge of patients regarding and their selected demographic variables, to assess the compliance of TB treatment among patients, to find out the association between knowledge of patients regarding TB and compliance to the treatment.

### **Population**

Population for this study comprises of TB patients who meet the researcher’s criteria i.e. TB patients with the age group above 15yrs, people who are suffering with tuberculosis disease and from Sangareddy, patients who are available at the time of data collection with the willingness to participate in the study and who can speak and understand Telugu or English clearly.

### **Study Setting**

The study was planned to conduct at Sangareddy urban, Medak district state of Telangana. This Place is in the border of the Medak District and Rangareddy District. The total population of Sangareddy city is 128,917 living in 24,784

Houses, Spread across total 51 villages and 31 panchayats. Males are 65,860 and Females are 63,057, Total 70,705 persons live in town and 58,212 live in villages.

#### **Inclusion Criteria**

- The person who is above the age of 15 years.
- The person is available at the time data collection.
- TB patients who are willing to participate in the study.

#### **Sample & sampling technique**

The total sample size for the present study is 50 patients. Non-probability convenient sampling technique is used to select the required sample. According to the set criteria, on the day of data collection whoever available and willing to participate are given importance.

#### **Ethical Consideration**

Ethical clearance has been obtained from the NIMS Institutional Ethics Committee (NIEC) for the study proposal. Then to preserve the rights of subject's consent form prepared in English and Telugu which includes all the reality of study in a more simple language on which the researcher has to sign and the subject has to give consent.

#### **Pilot Study**

A pilot study was undertaken at Patancheru, Medak district on 7/5/2016 & 10/5/2016 on 7 TB patients to find out the feasibility, practicability of the study and to decide the plan for statistical analysis. With the help of pilot study, it was understood that approaching each sample the investigator has taken 7 of the samples after explaining the purpose of the study and consent was obtained from them. Later structured questionnaire and conducted semi-structured interview to collect data. With the help of a pilot study, it was understood that locating TB patients and gaining their acceptance for the study was difficult. Pilot study helped the researcher to gain communication skills which are useful in encourage the patient to participate.

#### **Data Collection Procedure**

The data was collected from 50 TB patients at Sangareddy, Medak district state of Telangana from date 2/6/2016 to 16/6/2016. Patients were selected as per criteria through convenient sampling technique. Before collecting the data purpose of the study was explained clearly and obtained consent from the subjects. The tool given to the patients was self-administered questionnaire i.e. part- A, & part- B the patients read and given a response to the questions and then conducted semi-structure interview by the researcher for the part -C. Some patients gave good information and are willing to give information. It has taken nearly 14 days to collect the data from 50 samples and it took nearly one hour to collect the data from each subject.

#### **Plan for Data Analysis**

The main objectives of the study were to assess the knowledge regarding tuberculosis among tuberculosis patients and their compliance to the tuberculosis treatment. Total data were analyzed by using descriptive and inferential statistics i.e. mean, percentage, standard deviation, and chi-square. The analysis and interpretation of the data of knowledge and

compliance with the treatment of the patients were presented under the following headings.

Presents the calculated chi-square values to see the association between TB patients' knowledge and selected demographic variables.

## **RESULTS OF THE STUDY**

Results of the study reveal that out of 50 TB patients most of the patients i.e. 17(34%) are in 26-35 years, 11(22%) patients are in age group 16-25 years, 11(22%) are in 36-45years, 11(22%) are in 36-45years. In this study, most of the patients (34%) belong to the age group of 26 – 35. Most of the patients i.e. 26(52%) are females and 24(48%) are males. 13(26%) patients are able to read and write, 13(26%) of them are having intermediate education, 10(20%) of them are having primary education, 8(16%) are having graduation and above and 6(12%) of them are having secondary education. 14(28%) are employees, 12(24%) are unemployed, 8(16%) of them are students, 6(12%) are laborers and 4(8%) are doing business.

Most of the TB patients i.e. 29(58%) of them are with a monthly income of less than Rs.18,000, 16 (32%) of them are with a monthly income of Rs.18,000-40,000, and 5(10%) are with a monthly income of Rs.40,000 and above. In this study most of the patients (29) monthly income of the family is less than 18,000 monthly. 17(34%) of them got information from only health personnel, 10(20%) of them got information from friends, family & health personnel, 10(20%) of them got information from health personnel & print media 5(10%) got information from only Print media, 3(6%) got information from friends, family & print media, and 3(6%) got information from friends, family, health personnel & print media. 1(2%) patients got information from only friends and family and 1(2%) got information from others & health personnel. 36(72%) had no previous exposure to TB patients and 14(28%) of them had previous exposure to TB patients. 21(42%) subjects have below average knowledge, 29 (58%) members have average knowledge of TB. Among 29 patients with average knowledge, none of them have very poor and above average knowledge. Out of 21 patients with below average knowledge, 18 are with a score more than 40%.

Overall sample, score ranges from 8-20(27%-67%). The total mean% of knowledge is 51.27, this indicates the total sample knowledge lies at the extreme lower border of average knowledge. The total standard deviation is  $\pm 8.43.63.6\%$  respondents of 16-25 years with below average knowledge, 72.7% respondents of more than 45yrs have the average knowledge. The mean% of knowledge is among 16-25 years more than 45years (48.7% to 50.6%). 50% TB patients of males are with below average knowledge and 65.3% TB patients of females with average knowledge. The mean% of knowledge is among male (49.9%) and female (52.9%). 60% TB patients of primary education are with below average knowledge and 69.2% of subjects of intermediate have average knowledge. The mean% of knowledge is among able to read and write (50%) primary education (48.6%), secondary education (52.2%), intermediate (53.3%) and graduation and above (52.5).

75% of samples of students are with below average knowledge and 91.6 TB subjects of unemployed are with average knowledge. The mean% of knowledge is among student 46.6%, business 49.1%, employee 52.1%, farmer 50.5%,

laborer 47.7% and unemployed 56.1%. 48.2% TB patients of the monthly income of the family less than RS.18,000 are having below average knowledge and 68.7% participants of the monthly income of the family RS.18,000 - RS.40,000 have an average. The mean% of knowledge is among less than RS.18,000 49.5%, RS.18,000 - RS.40,000 54.1% and RS.40,000 and above 52%. 100% and 70% TB patients of below average knowledge have information from friends' health personnel & others and 100% TB patients of average knowledge have information from friends, health personnel, media Friends & print media average knowledge. The mean% of knowledge is among 63.3% only friends, 52.1% only health personnel, 53.3% only print media, 46% friends & health personnel, 50.3% health personnel & print media, 55.5% friends, health personnel & print media, 58.8% friends & print media, 40% health personnel & others.

57.1% participants of below average knowledge had previous exposure to TB patients and 63.8% respondents of average knowledge had previous exposure to TB patients. The mean% of knowledge is among 49.2% had previous exposure to TB patients, 52% had no previous exposure to TB patients. 45.4% TB patients of below average knowledge had a vaccination against TB and 83.3% TB patients of average knowledge had no vaccination against TB. The mean% of knowledge is among 50.6% had a vaccination against TB, 55.5% had no vaccination against TB.

Statistical chi-square values computed for knowledge on tuberculosis among TB patients and age of patient's ( $\chi^2=5.15$ ), gender ( $\chi^2=1.93$ ), educational qualification ( $\chi^2=3.62$ ), occupation ( $\chi^2=10.47$ ), monthly income of the family ( $\chi^2=1.23$ ), source of information ( $\chi^2=7.97$ ) previous exposure to TB patients ( $\chi^2=0.39$ ), and vaccination against TB ( $\chi^2=1.1$ ) are found to be less than the table value at 5% level of significance, which implies that there is no significant association existing between knowledge among TB patients on tuberculosis and age, gender, education, occupation, monthly income of the family, source of information, previous exposure to TB patients, and vaccination against TB. Here the research hypothesis was rejected.

48.5% of subjects diagnosed in 2016 have below average knowledge and 100% TB patients diagnosed in 2013 have average knowledge. The mean% of knowledge is nearly equal and greater than total mean% of knowledge (51.2%) among 2013(57%), 2014(58%), 2015(48%) and 2016(50%). 83.8% of participants who diagnosed as lymph node TB have below average knowledge and 67.6 patients who diagnosed as pulmonary TB have the average knowledge. The mean% of knowledge is among intestine (51%), kidney (50%), lymph node (44%) and pulmonary (53%). 44.4% participants who said DOTS provider approachable are having below average knowledge and 80% participants who said DOTS provider is not approachable are having average knowledge. The mean% of knowledge is nearly equal and greater than total mean% of knowledge (51.2%) among yes (51%) and no (53%).

100% treatment defaults have below average knowledge and 100% CAT-2 Relapsed & CAT-1 Relapsed and Co-infected with HIV patients are having average knowledge. The mean% of knowledge is among CAT-1 & CAT-1 CO (51%), CAT-2 T.D & CAT-2 T.D CO (52%), CAT-2 R & CAT-2 CO (59%), default (32%) and MDR (56%). 100% of participants who are not

taking treatment have below average knowledge and 62.5% respondents who are taking intensive phase treatment have average knowledge. The mean% of knowledge is among the intensive phase (52%), continuous phase (53%) and not on treatment (32%). 60% of subjects who had experienced the skin rashes, pimples and body heat have below average knowledge and 100% samples who experienced numbness of feet and blood sugar increased have average knowledge. The mean% of knowledge among nausea, vomiting & loss of appetite (54%), skin rashes, pimples & body heat (49%), numbness of feet (54%), blood sugar increased (57%), feeling weak (48%) and no reactions (53%).

100% patient who said no problem caused by illness had below average knowledge and 71.4% patient who said feeling because of illness had average knowledge. The mean% of knowledge is among loss of appetite (54%), feeling weak (53%), weight loss (49%), unable to breath (53%), feeling guilty (49%) and no problem (30%). 100% patients who said they don't know have below average knowledge and 75% patients who said TB destroys immunity have average knowledge. The mean% of knowledge is nearly equal and greater than total mean% of knowledge (51.2%) among destroys lungs (54%), destroys all organs (52%), destroys my immunity (58%), kills (49%) and I don't know (32%). 44.4% respondents who said adjusted to use medicine and long duration have the below average knowledge and 59.3% subjects who said difficult use have average knowledge. The mean% of knowledge is among adjusted (51%), difficult to use (51%) and long duration (52%).

Statistical chi-square values computed for patient compliance to the TB treatment in relation to the patients' knowledge on treatment among TB patients TB affected organ ( $\chi^2=7.82$ ), category of TB ( $\chi^2=14.5$ ) and phase of treatment ( $\chi^2=6.5$ ) are more than the table value, hence it is found to have significant association at 5% level. Here the research hypothesis was accepted.

## CONCLUSION

The study results concluded that from the 50 samples with TB patients none of them are having very poor and above average knowledge. Out of 50 TB patients, 21(42%) patients have below average knowledge, 29(58%) patients have average knowledge. They are assumed of having poor compliance with the treatment. This implies that patients with adequate knowledge can have good compliance.

## References

- April Cashin-Garbutt, BA Hons (Cantab).news-medical.net health History-of-Tuberculosis.aspx
- Chadha VK, Banerjee A, Ibrahim M, Jaganatha PS, Kumar P National Tuberculosis Institute, 8-Bellary Road, Bangalore.: *The Journal of Communicable Diseases* [2003, 35(3):198-205]
- Christopher W. Koehler. American Chemical Society, Consumption, the great killer: ACS Publications; Feb 2002
- Dr. Anthony S. Fauci. National Institute of Allergy and Infectious Disease. August 2016. Available from
- Dr. Anthony S. Fauci. National Institute of Allergy and Infectious Disease. August 2016.

- Gad A. Compliance with antituberculosis drugs among tuberculosis patients, *Eastern Mediterranean Health Journal*, volume 3, issue 2, 1997, page no-244-250.
- Health unit. Infectious diseases prevention, control and outbreak management. Lanark district 2012. Available from [http://healthunit.org/infectious/tb/tb\\_background.htm#sthash.08dSz7Yu.dpuf](http://healthunit.org/infectious/tb/tb_background.htm#sthash.08dSz7Yu.dpuf)
- [https://en.wikipedia.org/wiki/Revised\\_National\\_Tuberculosis\\_Control\\_Program](https://en.wikipedia.org/wiki/Revised_National_Tuberculosis_Control_Program)
- <https://www.niaid.nih.gov/topics/tuberculosis/Understanding/WhatIsTB/pages/detailed.aspx>
- Kanabus, Annabel. Information about Tuberculosis, Europe 2016.
- Mahadev B, Kumar P. History of tuberculosis control in India. *J Indian Med Assoc.* 2003 Mar;101(3):142-3. Available from <http://www.ncbi.nlm.nih.gov/pubmed/14603956>
- Maseer Khan, Manohar Mogili, *IJCRR.* 2013; 5(8): 53-62 Available from <http://www.scopemed.org/?mno=38116>
- Pandit. K and Choudhary.S.K. A study of treatment compliance on directly observed therapy for tuberculosis, *Indian journal of community medicine*, volume 31, no 4, Oct- Dec, 2006, page no- 241243
- Park. K. Text Book of Preventive and Social Medicine, 19th edition, Banarsidasbhanot publishers, 2007, page. no. 149
- Royal College of Physicians of Edinburgh. An introduction to tuberculosis. London 2008.
- Shelly Batra. The Project. Improving the health care delivery through global collaboration. Operation ASHA- fighting tuberculosis in India. 2008, 09 Dec.
- TB India. Central TB Division. Directorate general of health services, Ministry of health and family welfare New Delhi. 2009 report; 11.
- Tuberculosis Research Centre, Indian Council of Medical Research, Chennai, *The International Journal of Tuberculosis and Lung Disease*, Volume 11, Number 3, March 2007, pp. 282-288 (7) India Publication date: March 1, 2007
- Wikipedia, the free encyclopedia. Revised National Tuberculosis Control Program May 2016. Available from
- William. J, Non-compliance with Directly Observed Therapy for Tuberculosis, *CHEST official journal of the American college of chest physician*, cited at chest 1997; 111;1168-1173.
- World Health Organization. Tuberculosis (TB). TB publications Global tuberculosis report 2015.
- World health report the world health report 2007 - A safer future: global public health security in the 21st century

**How to cite this article:**

Jyothi K and Gangadhar K (2019) 'A Study to Assess the Knowledge Regarding Tuberculosis Among Tuberculosis Patients and their Compliance to the Tuberculosis Treatment in Selected Areas in Telangana', *International Journal of Current Advanced Research*, 08(03), pp. 17719-17723. DOI: <http://dx.doi.org/10.24327/ijcar.2019.17723.3371>

\*\*\*\*\*