

**A Study on Awareness of Tuberculosis with Particular Reference to
Cuddalore District**

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Abstract

Tuberculosis (TB) is a disease of great antiquity. Tuberculosis lesions had been found in the A. vertebrae of Neolithic humans and Egyptian mummies as early as 3700 BC. Today, tuberculosis has become the most important communicable disease in the world. In 2011, there were an estimated 8.7 million new cases of tuberculosis (13% co-infected with HIV) and 1.4 million people died from tuberculosis, including almost one million deaths among HIV-negative individuals and 430 000 among people who were HIV-positive. TB is one of the top killers of women, with 300 000 deaths among HIV-negative women and 200 000 deaths among HIV-positive women in 2011. The present study aims to find out the Study on Awareness of Tuberculosis with Particular Reference to Cuddalore District. A sample of 100 respondents selected randomly were studied. Primary data were collected by using a structured interview scheduled. All the respondents were asked the some questions in the same fashion and they were informed the purpose of study. Cross tabulation and Chi-square analysis were applied to test the hypotheses. The findings and observations are the result and outcome of the interpretations made during the study of analysis.

Keywords : Awareness, Tuberculosis and Demographic variables



Introduction

Tuberculosis – A major health problem in India

- Nearly 40% of the population is infected by TB germs.
- About 1.5% of the population is suffering from radiologically active TB diseases of the lungs, of which nearly one by fourth, that is, 0.4% are sputum positive or infectious and dangerous to the community so far as spreading of the diseases concerned.
- Every year nearly 2 to 2.5 million new TB cases arise in the population.
- Mortality rate is 50 per one lakh population annually.

An elaborate structure at the national level was established in order to implement Tuberculosis Control Programme.

As per National Tuberculosis Institute estimates of 1974, about 8,70,000 new smear positive TB cases have occurred in 1992. This number is very similar to the 8,50,000 estimated on the basis of incidence rate from the tuberculosis prevention trial undertaken by TRC Madras.

If the current average current annual risk of infection is 1.7%, 1.6 million new TB cases occur annually of which 7,10,000 are smear positive. About one third of the total tuberculosis burden is borne by the urban conglomeration.

The majority of tuberculosis cases in India occur below the age of 45 years, with about 75% of the diagnosed cases between 15 and 44 years old. Age-specific estimates of incidence during 1974 applied to the 1992 population, suggest that about 58% of all cases occur to-day between 15 and 44 years old. Two-third of

cases are estimated to occur among males but tuberculosis takes a proportionally larger toll on young females than among young males. More than 50% of female cases occur before age 34.

Total mortality due to tuberculosis uncertain but any estimate it poses a huge economic burden in India. TB mortality is estimated to be 4, 20,000 deaths every year (50 for 1,00,000 population).

Humility mortality during the decade to the year 2000 will probably exceed 3.5 million deaths, an enormous burden for the society. A large share of these premature deaths can be avoided with a well-functioning programme. Given the ages at which deaths from tuberculosis are now occurring and the low cost for tuberculosis programme inputs in India, it is probable that the discounted cause per healthy year of life gained as a result of a well-functioning Tuberculosis Control Programme will be well under \$ U.S.10, making tuberculosis control one of the highest priority interventions for the State and Central Governments.

HIV was first reported in India in 1986. There is no significant evidence yet available indicating its likely impact on TB situation in India. As a large proportion of India population (50% of a adult population) is already infected with tuberculosis, it is most likely that with the spread of HIV, the epidemiological situation of tuberculosis will deteriorate. Limited data indicate that sero-positively for HIV among TB patients is much higher than that of the rest of the general population. Up to the end of 1993, of the 559 AIDS patients 331 (60%) had evidence of active tuberculosis.

As per the National AIDS Control Programme currently there are about 0.75 million persons infected with HIV. Assuming half of these people are infected with tuberculosis and that the break down rate from TB infection to disease among dually infected individual is 10% per year, more than 35,000 HIV related TB cases likely to occur annually.

Cause of the disease

The etiological agent is *Mycobacterium tuberculosis*. Other mycobacteria occasionally produce disease clinically indistinguishable from tuberculosis (TB), which are identifiable only through culture.

The study conducted by **Dr. P. Anil**, draft out the existing trend of tuberculosis in Indian population. He found there is a concentration of cases in the higher age group, the prevalence of disease in younger age group is low and has shown a decline over a period of time, the prevalence of infection in new born is on decline and there is a shift in the nature of disease from acute fulminating exudation type to more chronic fibro tic type and reduction in the primary disease.

Dr. B.K. Uke, in a study on National Tuberculosis Control Programme in India identified the success achieved by the programme. The programme has covered the following finding.

- ❖ More than 85% of the districts and 75% of the Primary Health Centres in India.
- ❖ More than 15 lakh new Tuberculosis cases are diagnosed and put on treatment annually.
- ❖ Financial allocation for the programme has increased considerably.
- ❖ Mortality due to Tuberculosis has come down to a great extent.

Dr. Shavinder Singh has med an interesting analysis of Tuberculosis disease as an integrated part of general health issues of the population. The study has concluded unlike other general disease, the identification and diagnosis of Tuberculosis symptoms and its treatment procedures are very difficult and complex. Therefore, greater effort in the form of nee strategies to compact the raising incidence of Tuberculosis is highly desirable.

Yet another significant study **Dr. Shavinder Singh** highlighted the need of Tuberculosis control services with the other general health services. The study further observes that a sizable section of the rural population is covered under the general health services sponsored by the Government of India and respective State Governments as well. South interrelated will pave for effective control and prevention of Tuberculosis in the population.

A comprehensive study of Tuberculosis Control Programme was conducted by Ajith Kumar Pandey, which covered several districts across India. The major findings of the study are found to be very valuable since these findings throw much light over Tuberculosis Control Programme.

The incidence of Tuberculosis was more among poor people than the rich. Men were found to be more in number among the total patients. The prevalence of Tuberculosis was more among the age group of 40 to 50. The populations who are found in unorganized sector are found to be suffering from Tuberculosis than the populations with secured job. The incidence of Tuberculosis among the children is slowly in number.

The number of Tuberculosis patients is more in rural areas than urban areas. However, the incidence of Tuberculosis is rising at an alarming rate in urban population.

The facilities for identifying and diagnosis of Tuberculosis symptoms are better in urban areas than rural areas. Further, the patients who are undergoing the treatment for Tuberculosis are better monitor in urban areas than in rural areas.

All the observations are very significant. They go a long way in describing the length and breath of the disease in the population of India.

In yet another study by **H.M. Sinha**, it was found the presence of private practitioners is disrupting the reach of Tuberculosis Control programme. The private practitioners on whom the majority of the population depends on delay the identification and proper treatment for Tuberculosis infected patients. Unless a strategy is evolved to integrate the private practitioners in the Tuberculosis control programme in a meaningful way, the programme will fail to reach the target group.

The most important function of public health in its broadest sense is to seek an optimal harmony between groups of people in society and their environment. Richeard. P.Wenzel in his book communicable diseases recommends the following methods to control communicable diseases. (a) by methods to improve host resistance of populations to environmental hazards; (b) by effective plans to improve the safety of the environment; and (c) by improving health care systems designed to increased the likelihood, efficiency, and effectiveness of the first two goals. With respect to infectious diseases there are special elements within each of the tree categories. One might then view communicable diseases as an imbalance in the relationship of people and their environment which favors microbial dominance in populations.

Mc Keown has argued that improved nutrition, personal hygiene, and public sanitation have more to do with the control of infectious diseases than vaccines and

health care. There is no question, however, that vaccines and new antibiotics have greatly reduced mortality from infectious diseases. For example, with respect to smallpox, the vaccine in concert with a public health system for identifying and isolating cases and contacts-was essential for its eradication.

The environment has long been a primary focus of public health, with efforts to improve the cleanliness of food and water, upgrade public sanitation and clean the air of toxic pollutants. Efforts to remove infectious agents by reducing animal reservoirs and vectors or efforts to reduce their numbers have been another focus for public health in general and in veterinary medicine in particular. Recently many have postulated that adequate personal space is important for prevention of many urban problems. It has long been recognized that control of streptococcal infections in the military could be minimized by increasing space between the bunks of recruits and that crowding is a major risk factor. In addition, since large droplets are known to be important for many viral respiratory agents. It is generally accepted that spatial considerations are important for the prevention and control of communicable disease.

A third method for public health control of infectious diseases involves the systems approach or management aspects. The social economic, legal, and administrative forces important for health must operate in the interest of the public. Progress toward such goals must begin with access not only to health care but also to preventive health services and to health education. To do that resources must be made available and important public health problems given sufficient priority-usually a political process-to demand necessary resources. Proper management at federal, state, and local levels needs to be efficiency, effectiveness, and cost-effective of care and education.

Moreover, surveillance needs to be developed and maintained to detect new problems, new epidemics, and the efficacy of control measures.

Much information has been accumulated recently on the chemical structure of acid-fast bacilli. Anderson and his colleagues have separated many fractions of these microorganisms by alcohol, ether, chloroform and acetone extractions. The most important of these fractions are: phosphatides, acetone-soluble fats, chloroform-soluble waxes, lipins and polysaccharides. It is interesting to note that

the highest lipin content was found in the human type bacillus and lowest content in the saprophytic acid-fast bacillus. The phospholipins contained saturated and unsaturated fatty-acids as well as glycerophosphoric acid. Of special interest was the isolation of phthioic and tuberculostearic acids.

According to **Stodola, Lesuk and Anderson** the acid-fast property is probably due to the large amount of unspecified wax in and around the bacillus. They also isolated mycolic acid from tubercle bacilli which they claimed has the tinctorial quality of acid-fastness. Richards, however, concluded that mycolic acid was not strongly acid-fast.

Lamanna has postulated a theory of relative solubilities of phenol, fuchsin and lipid which is quite attractive; the dye is soluble in phenol and phenol is more soluble in lipid than in water and therefore stains the bacillus, carrying the fuchsin with it. Yegian and Vanderlin suggested that acid-fastness depends on the permeability of the cytoplasmic membrane. They considered it to be likely that the dye exists within the cell in two ways-part bound to the cytoplasm and part free. The characteristic color of the bacillus is due to the free dye which can be removed without altering the acid-fast property.

Objectives of the Study

1. To study the socio-economic conditions of the respondents.
2. To study the level of awareness about TB among the various categories of the people.
3. To know the different problems faced by TB patients in the process of treatment and prevention of the disease.
4. To examine the different facilities and welfare measures of primary health centre available towards public in the study area.

Methodology

The researcher used the purposive sampling method for selecting 100 respondents were from Cuddalore District. The researcher used the explorative and descriptive design. This is because the researcher wants to explore the awareness of TB and used descriptive design in order to describe the level of sanitation and

occupational background significant role in primary health centre towards the treatment of TB in the study area. The researcher used the tool for data collection through interview schedule. The sources of data, the researcher obtains from primary and secondary such as records of Government Hospital and Primary health centre (PHC). This is because the information is directly obtained from the respondents and recorded personally by the researcher. The researcher has collected data for the research through interview schedule, the purpose of using this tool for data collection is to obtain primary information from the respondents and to observe their feelings and expressions. The areas covered in the interview schedule are personal data, social habits, family background, housing conditions, sanitation, hygiene, and assess medical facilities regarding TB disease. The researcher was not able to cover all the villages in the study area, concentrated on the villages where PHC and sub center provided medical facilities more than the other villages. It has been difficult to cover all the respondents, to the investigator limited 100 respondents samples for the study.

Analysis and Discussions

Table - 1

Distribution of the respondents in prevention of spread of TB on the basis of Age

Age	Methods		Total
	Earlier stage	Immediate medical treatment	
Below 20	12	2	14
21 – 30	15	3	18
31 – 40	15	5	20
41 – 50	14	8	22
51 – 60	9	5	14
61 – 70	7	5	12
Total	72	28	100

Calculated chi-square value	Degrees of freedom	Level of significance
4.83	5	Not Significant

Ha: There is an association between distribution of the respondents in prevention of spread of TB on the basis of Age

The table infers that the calculated chi-square value [4.83], which is not significant. So it is concluded that there is no association between distribution of the respondents in prevention of spread of TB on the basis of Age. Hence the stated hypothesis is rejected.

Table - 2

Distribution of the respondents about the opinion of the T.B. or Kaasanoai disease on the basis of sex

Sex	Opinion		Total
	Yes	No	
Male	72	8	80
Female	20	0	20
Total	92	8	100

Calculated chi-square value	Degrees of freedom	Level of significance
2.17	1	Not Significant

Ha: There is an association between distribution of the respondents about the opinion of the T.B. or Kaasanoai disease on the basis of sex.

The table infers that the calculated chi-square value [2.17], which is not significant. So it is concluded that there is no association between distribution of the respondents about the opinion of the T.B. or Kaasanoai disease on the basis of sex. Hence the stated hypothesis is rejected.

Table - 3

Opinion of the respondents about the reason for prevention of TB on the basis of educational status

Educational Status	Reason for prevention of TB			Total
	Micro organisms	Bacteria	Others	
Illiterate	21	4	4	29
Up to middle	19			19
Upto Primary	20			20
Upto High School	9			9
Graduates and Above	15			15
Professional Degree	8			8
Total	92	4	4	100

Calculated chi-square value	Degrees of freedom	Level of significance
21.29	10	0.05

Ha: There is an association between opinion of the respondents about the reason for prevention of TB on the basis of educational status.

The table infers that the calculated chi-square value (21.29), which is significant at 0.05 level. Therefore, it inferred that there is an association between opinion of the respondents about the reason for prevention of TB on the basis of educational status. Hence the stated hypothesis is accepted.

Table 4
Opinion of the respondents about T.B. hereditary disease on the basis of occupation

Occupation	Opinion		Total
	Yes	No	
Agriculture	5	61	66
Government	2	16	18
Business	1	15	16
Total	8	92	100

Calculated chi-square value	Degrees of freedom	Level of significance
0.32	2	Not Significant

Ha: There is an association between opinion of the respondents about T.B. hereditary disease on the basis of occupation.

The table infers that the calculated chi-square value [0.32], which is not significant. So it is concluded that there is no association between opinion of the respondents about T.B. hereditary disease on the basis of occupation. Hence the stated hypothesis is rejected.

Table 5
Opinion of the respondents about the easy treatment of T.B. disease on the basis of marital status

Marital status	Opinion		Total
	Yes	No	
Unmarried	15	7	22
Married	78		78
Total	93	7	100

Calculated chi-square value	Degrees of freedom	Level of significance
26.69	1	0.01

Ha: There is an association between opinion of the respondents about the easy treatment of T.B. disease on the basis of marital status.

The table infers that the calculated chi-square value (26.69), which is significant at 0.01 level. Therefore it inferred that there is an association between opinion of the respondents about the easy treatment of T.B. disease on the basis of marital status. Hence the stated hypothesis is accepted.

Table 6
Opinion of the respondents of the help by the government on the basis of Income

Income	Opinion		Total
	Yes	No	
Below 1000	26	10	36
1000-2000	20	2	22
2000-3000	20		20
3000-5000	12		12
5001 and above	10		10
Total	88	12	100

Calculated chi-square value	Degrees of freedom	Level of significance
14.39	4	0.01

Ha: There is an association between opinion of the respondents of the help by the government on the basis of Income.

The table infers that the calculated chi-square value (14.39), which is significant at 0.01 level. Therefore it inferred that there is an association between opinion of the respondents of the help by the government on the basis of Income. Hence the stated hypothesis is accepted.

Table 7
Opinion of the respondents of the symptoms of T.B. on the basis of age

Age	Opinion				Total
	Cough for more than three weeks	Fever in evening	Blood in phelum	Wight loss	
Below 20	9	1	3	1	14
21 – 30	11	3	3	1	18
31 – 40	12	2	5	1	20
41 – 50	13	4	5		22
51 – 60	8	2	4		14
61 – 70	7	2	3		12
Total	60	14	23	3	100

Calculated chi-square value	Degrees of freedom	Level of significance
4.67	15	Not Significant

Ha: There is an association between opinion of the respondents of the symptoms of T.B. on the basis of age.

The table infers that the calculated chi-square value [4.67], which is not significant. So it is concluded that there is no association between opinion of the respondents of the symptoms of T.B. on the basis of age. Hence the stated hypothesis is rejected.

Table 8
Opinion of the respondents about T.B. be cured at early stage on the basis of sex

Sex	Opinion		Total
	Yes	No	
Male	76	4	80
Female	20		20
Total	96	4	100

Calculated chi-square value	Degrees of freedom	Level of significance
1.04	1	Not Significant

Ha: There is an association between opinion of the respondents about T.B. be cured at early stage on the basis of sex.

The table infers that the calculated chi-square value [1.04], which is not significant. So it is concluded that there is no association between opinion of the

respondents about T.B. be cured at early stage on the basis of sex. Hence the stated hypothesis is rejected.

Table 9

Distributions of about the respondents of preventive measures to avoid T.B. on the basis of caste

Caste	Opinion		Total
	Yes	No	
BC	50	4	54
OBC	34	3	37
SC	6	3	9
Total	90	10	100

Calculated chi-square value	Degrees of freedom	Level of significance
6.17	3	0.05

Ha: There is an association between distributions of about the respondents of preventive measures to avoid T.B. on the basis of caste.

The table infers that the calculated chi-square value (6.17), which is significant at 0.05 level. Therefore it inferred that there is an association between distributions of about the respondents of preventive measures to avoid T.B. on the basis of caste. Hence the stated hypothesis is accepted.

Table 10

Opinion of the respondents of contacts with T.B. patients dangerous on the basis of educational qualification

Educational qualification	Opinion		Total
	Yes	No	
Illiterate	29		29
Up to middle	19		19
Upto Primary	20		20
Upto High School	8	1	9
Graduates and Above	8	7	15
Professional Degree		8	8
Total	96	4	100

Calculated chi-square value	Degrees of freedom	Level of significance
65.61	5	0.01

Ha: There is an association between opinion of the respondents of contacts with T.B. patients dangerous on the basis of educational qualification.

The table infers that the calculated chi-square value (65.61), which is significant at 0.01 level. Therefore it inferred that there is an association between opinion of the respondents of contacts with T.B. patients dangerous on the basis of educational qualification. Hence the stated hypothesis is accepted.

Table 11

Opinion of the respondents towards T.B. infected persons on the basis of Occupation

Occupation	Opinion				Total
	Primary health centre	Regional health centre	Sub health centre	Nearest hospitals	
Agriculture	58	1	3	4	66
Government	16	2			18
Business	14	1	1		16
Total	88	4	4	4	100

Calculated chi-square value	Degrees of freedom	Level of significance
6.53	6	Not Significant

Ha: There is an association between opinion of the respondents towards T.B. infected persons on the basis of Occupation.

The table infers that the calculated chi-square value [6.53], which is not significant. So it is concluded that there is no association between opinion of the respondents towards T.B. infected persons on the basis of Occupation. Hence the stated hypothesis is rejected.

Table 12

Distribution of the respondents about the type of treatment of T.B. on the basis of Marital status

Marital status	Treatment		Total
	Dots	Chemotherapy	
Unmarried	4	18	22
Married	78	-	78
Total	82	18	100

Calculated chi-square value	Degrees of freedom	Level of significance
77.83	1	0.01

Ha: There is an association between distribution of the respondents about the type of treatment of T.B. on the basis of Marital status.

The table infers that the calculated chi-square value (77.83), which is significant at 0.01 level. Therefore it inferred that there is an association between distribution of the respondents about the type of treatment of T.B. on the basis of Marital status. Hence the stated hypothesis is accepted.

Table 13

Distribution of the respondents about the duration of treatment in T.B. disease on the basis of sex

Sex	Opinion		Total
	Three Month	Six Month	
Male	40	40	80
Female		20	20
Total	40	60	100

Calculated chi-square value	Degrees of freedom	Level of significance
16.67	1	0.01

Ha: There is an association between distribution of the respondents about the duration of treatment in T.B. disease on the basis of sex.

The table infers that the calculated chi-square value (16.67), which is significant at 0.01 level. Therefore it inferred that there is an association between distribution of the respondents about the duration of treatment in T.B. disease on the basis of sex. Hence the stated hypothesis is accepted.

Conclusions

It is suggested to mobilize the political will and get adequate resources for effectively controlling the disease. This can be done by forming an active body of committed people from the Government and the voluntary organizations. It is necessary to give primary importance for the rich experience of National Tuberculosis Institute whenever the National Tuberculosis Programme is to be revised and be provided with all the resources for action towards TB. Integration does not mean integration into the Family Welfare Programme which dominates the

Primary Health Care. It means giving due importance to Tuberculosis in the comprehensive Primary Health Care. Training Primary Health Care Medical Officer in National Tuberculosis Programme. Evolving an effective monitoring Body of National Tuberculosis Programme. Efforts must be made to involve the gram panchayats, taluk panchayats and Zilla panchayats in the National Tuberculosis Programme. Demystifying the indicators and evolving meaningful indicators and targets. Ensuring adequate and timely supply of Anti – Tuberculosis drugs. The purchasing procedures of drugs need to be streamlined and enforced to see that adequate quantity of drugs are manufacture by the drug companies. Involving the general practitioners in the National Tuberculosis Programme by motivation them to play a more responsible role. Creating awareness about National Tuberculosis Programme amongst General Practitioners. The Government should involve the Voluntary Organizations in the planning, implementation and evaluation of the National Tuberculosis Programme. They should not be treated as mere agencies to implement Government Programmes. Regular audit of the work and the results of the audit must be shared with the staff. The service must be acceptable to the patient, taking into account the time, money involved I his visit to the collection center. A good and continued rapport between the staff and patient is very important in instilling confidence to the patient. This needs a lot of patient listening. Attempts must be made in a nationwide manner to educate the medical officers about the importance of case finding and treatment as per National Tuberculosis of India guidelines. New and innovative approaches are needed to combat the global Tuberculosis endemic. It is essential for community based Tuberculosis Control Programmes ways for effective way to manage the increasing numbers of patients. If this is ineffective will actually increase the transmission and drug resistance.

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