

“A Study to Assess the Knowledge Regarding Warning Signs of Tuberculosis Among General Public at Selected Rural Area, Puducherry”.

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Abstract

Tuberculosis (TB) is one of the oldest and most widespread infectious diseases affecting humankind and continues to remain a major global public health concern. It is caused by *Mycobacterium tuberculosis*, an aerobic, acid-fast bacillus that primarily infects the lungs, although it may also affect other organs of the body. Tuberculosis is a communicable disease transmitted mainly through airborne droplet nuclei expelled when an infected individual coughs, sneezes, speaks, or laughs. Knowledge regarding the warning signs of tuberculosis is a fundamental determinant of health-seeking behavior. Individuals who understand that persistent cough, fever, night sweats, weight loss, loss of appetite, and fatigue may indicate tuberculosis are more likely to seek early medical evaluation. In contrast, inadequate knowledge leads to neglect of symptoms, self-medication, delayed diagnosis, and continued transmission within households and communities.

Key Words: Self-Medication, Descriptive Study, Convenience Sampling, Self-Structured Questionnaire.

I. INTRODUCTION

Tuberculosis (TB) is one of the oldest and most widespread infectious diseases affecting humankind and continues to remain a major global public health concern. It is caused by *Mycobacterium tuberculosis*, an aerobic, acid-fast bacillus that primarily infects the lungs, resulting in pulmonary tuberculosis, although it may also affect extrapulmonary sites such as the lymph nodes, pleura, bones, joints, kidneys, intestines, meninges, and other organs. Tuberculosis is a communicable disease transmitted mainly through airborne droplet nuclei expelled when an infected individual coughs, sneezes, speaks, laughs, or sings. When these microscopic droplets are inhaled by another person, the bacilli may lodge in the lungs and initiate infection. Although tuberculosis is both preventable and curable, it continues to cause significant morbidity, mortality, and socioeconomic burden, especially in low- and middle-income countries.

NEED FOR STUDY

Tuberculosis (TB) continues to be one of the most serious infectious diseases affecting populations across the world. According to the World Health Organization, an estimated 10.8 million people developed tuberculosis globally in 2024, and approximately 1.25 million people died from the disease, making TB one of the leading causes of death from a single infectious agent. The global burden of tuberculosis remains disproportionately high in low- and middle-income countries, where poverty, malnutrition, overcrowding, and limited access to healthcare services contribute to sustained transmission.

II. REVIEW OF LITERATURE

1. Global Burden of Tuberculosis

Tuberculosis (TB) remains one of the leading infectious diseases worldwide and continues to pose a major public health challenge. According to the **World Health Organization (WHO, 2024)**, approximately **10.8 million people** developed tuberculosis in 2023, with **1.25 million deaths** reported globally. Although TB is preventable and curable, delayed diagnosis and poor awareness of warning signs contribute significantly to disease transmission and mortality. Early recognition of symptoms such as persistent cough, fever, weight loss, night sweats, and hemoptysis is essential for prompt diagnosis and treatment.

2. Tuberculosis Burden in India

India accounts for nearly **27% of the global TB burden**, making it the country with the highest number of TB cases. The **India TB Report (2024)** reported more than **2.5 million notified TB cases** in 2023. The Government of India has launched the **National Tuberculosis Elimination Programme (NTEP)** with the objective of

eliminating TB by 2025. Community awareness regarding TB symptoms and early health-seeking behavior are key strategies emphasized under the programme. However, studies indicate that inadequate knowledge, misconceptions, stigma, and delayed healthcare utilization continue to hinder TB control efforts.

STATEMENT OF THE PROBLEM

“A study to assess the knowledge regarding warning signs of tuberculosis among general public at selected rural area, Puducherry.”

OBJECTIVES OF THE STUDY

1. To assess the level of knowledge regarding warning signs of tuberculosis among the general public.
2. To associate the level of knowledge regarding warning signs of tuberculosis among the general public with their selected demographic variables.

III. RESEARCH METHODOLOGY

RESEARCH DESIGN:

A descriptive research design was adopted for the present study.

SETTING OF THE STUDY:

The present study was conducted at selected rural area in Puducherry.

POPULATION:

The study population consisted of all the general public residing in the selected rural area.

SAMPLE:

The study sample consists of general public who fulfilled the inclusion criteria.

SAMPLE SIZE:

The sample size consists of 50 general public residing in the selected rural area of Puducherry.

SAMPLE TECHNIQUE:

A convenience sampling technique was used for the present study.

DESCRIPTION OF THE TOOL

SECTION A:

The demographic variables of the general public in this study included age, gender, religion, educational status, occupation, marital status, monthly family income, history of tuberculosis, awareness about tuberculosis, and source of information regarding tuberculosis.

SECTION B:

This section consists of self-structured tool to assess knowledge regarding warning signs of tuberculosis.

SCORING INTERPRETATION:

S. No	Level of Knowledge	Percentage Range	Score Range
1	Inadequate Knowledge	0% – 50%	0 – 25
2	Moderately Adequate Knowledge	51% – 75%	26 – 37
3	Adequate Knowledge	Above 75%	38 – 50

STUDY FINDINGS:

Section A: Description of the demographic variables of the general public.

Section B: Assessment the level of knowledge regarding warning signs of tuberculosis among general public.

Section C: Association of the level of knowledge regarding warning signs of tuberculosis among general public with their selected demographic variables.

Section A: Description of the demographic variables of the general public.

Table 1.1: Frequency and percentage wise distribution of the demographic variables of the general public.

S. No	Demographic Variable	Categories	Frequency (n)	Percentage (%)
1	Age	a) 20–30 years	14	28
		b) 31–40 years	18	36
		c) 41–50 years	12	24
		d) Above 50 years	6	12
2	Religion	a) Hindu	40	80
		b) Christian	6	12
		c) Muslim	4	8
3	Educational Qualification	a) No formal education	10	20
		b) Primary education	18	36
		c) Secondary education	14	28
		d) Higher secondary & above	8	16

Regarding age, the majority of the participants 18 (36%) were in the age group of 31–40 years, followed by 14 (28%) in 20–30 years, 12 (24%) in 41–50 years, and 6 (12%) were above 50 years. With respect to religion, most of the participants 40 (80%) were Hindus, while 6 (12%) were Christians and 4 (8%) were Muslims. In terms of educational qualification, 18 (36%) had primary education, 14 (28%) had secondary education, 10 (20%) had no formal education, and 8 (16%) had higher secondary education and above.

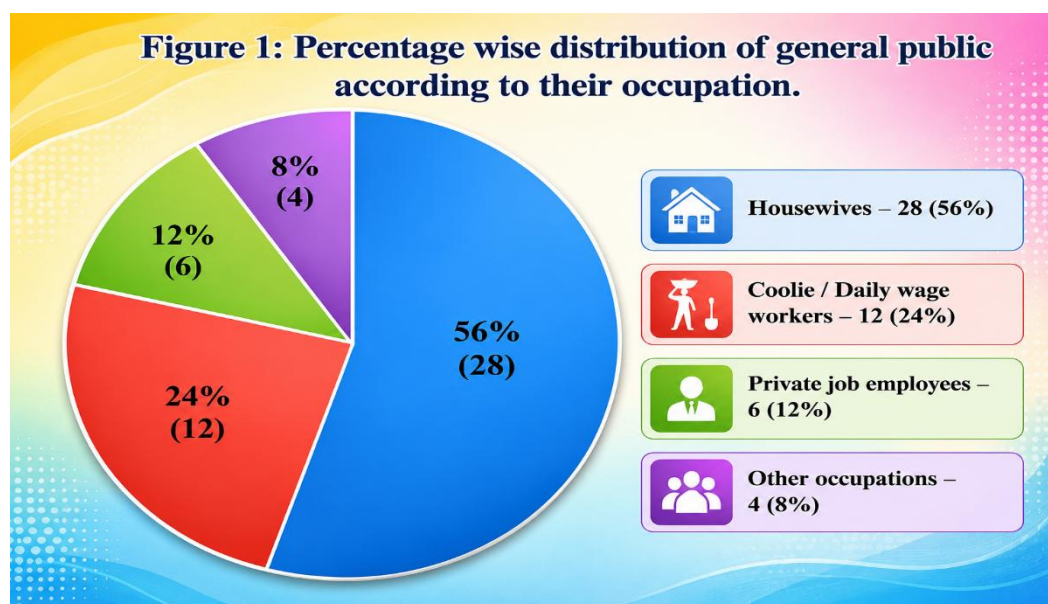


Figure 1: Percentage wise distribution of general public according to their occupation.

Regarding occupation, the majority 28 (56%) were housewives, 12 (24%) were coolie/daily wage workers, 6 (12%) were employed in private jobs, and 4 (8%) belonged to other occupations.

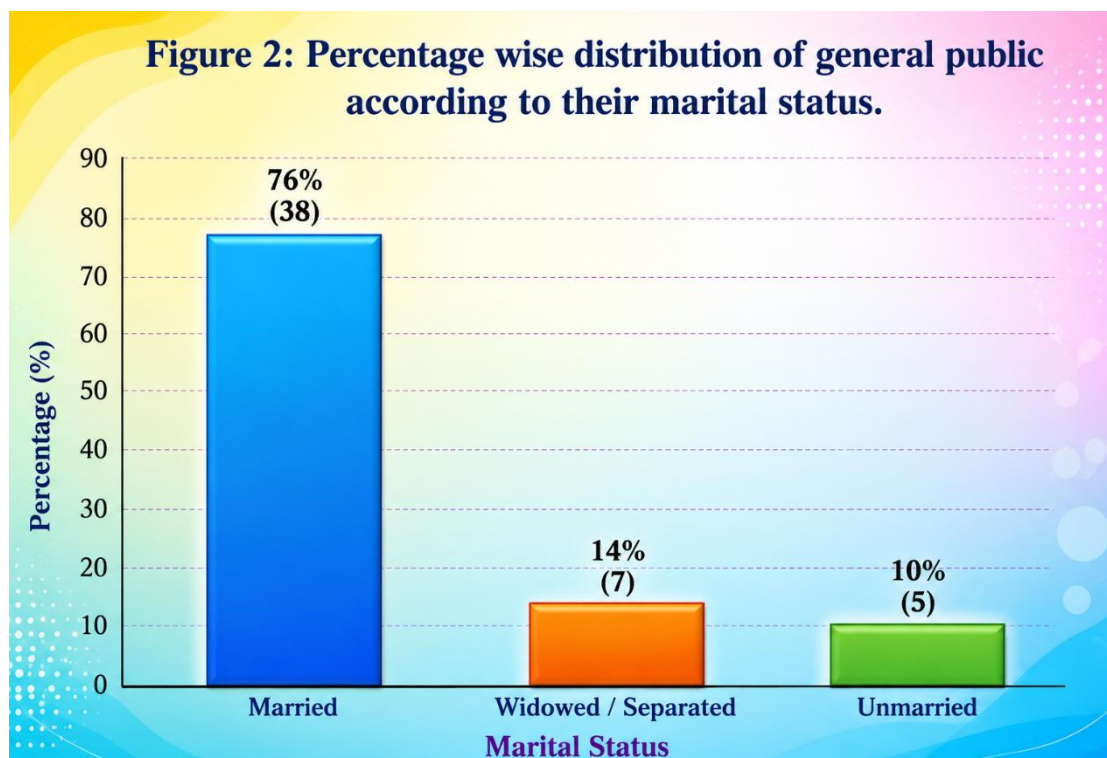


Figure 2: Percentage wise distribution of general public according to their monthly family income.

Regarding marital status, most of the participants 38 (76%) were married, 7 (14%) were widowed/separated, and 5 (10%) were unmarried.

Section B: Assessment the level of knowledge on warning signs of tuberculosis among general public.

Table 2: Frequency and percentage wise distribution of the level of knowledge on warning signs of tuberculosis among general public.

S. No	Level of Knowledge	Frequency (n)	Percentage (%)
1	Inadequate Knowledge	22	44
2	Moderately Adequate Knowledge	18	36
3	Adequate Knowledge	10	20

The table shows the frequency and percentage distribution of the level of knowledge on warning signs of tuberculosis among general public. The majority of the participants, 22 (44%), had inadequate knowledge. About 18 (36%) of the general public had moderately adequate knowledge.

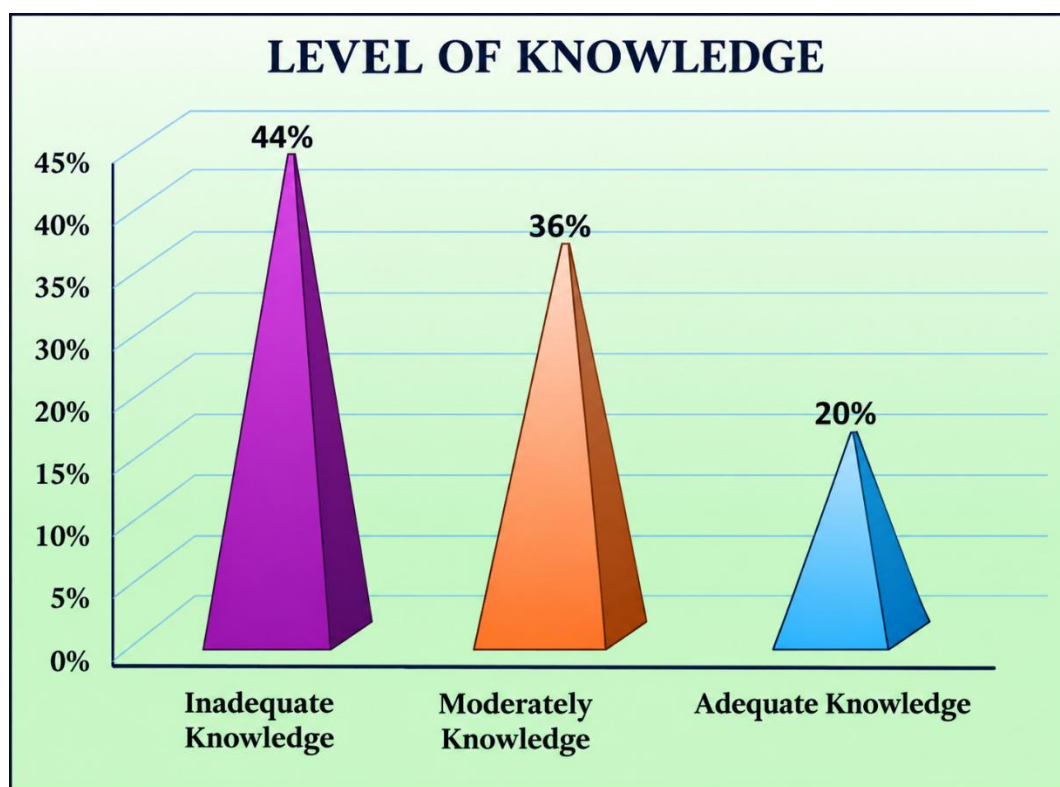


Figure 3: Percentage wise distribution of general public according to their level of knowledge

Section C: Association of the level of knowledge warning signs of tuberculosis among general public with their selected demographic variables.

Table: 3 Association of the level of knowledge warning signs of tuberculosis among general public with their selected demographic variables.

S. No	Demographic Variable	Category	Inadequate (F/%)	Moderate (F/%)	Adequate (F/%)	χ^2 , df, p-value
1	Age	20–30 yrs	8 (16%)	4 (8%)	2 (4%)	$\chi^2=2.84$, df=6, p=0.83 (NS)
		31–40 yrs	7 (14%)	7 (14%)	4 (8%)	
		41–50 yrs	5 (10%)	5 (10%)	2 (4%)	
		>50 yrs	2 (4%)	2 (4%)	2 (4%)	
2	Religion	Hindu	18 (36%)	14 (28%)	8 (16%)	$\chi^2=0.96$, df=2, p=0.61 (NS)
		Christian	3 (6%)	2 (4%)	1 (2%)	
		Muslim	1 (2%)	2 (4%)	1 (2%)	
3	Educational Qualification	No formal	6 (12%)	3 (6%)	1 (2%)	$\chi^2=6.45$, df=6, p=0.37 (NS)
		Primary	8 (16%)	7 (14%)	3 (6%)	
		Secondary	5 (10%)	6 (12%)	3 (6%)	
		Higher sec & above	3 (6%)	2 (4%)	3 (6%)	
4	Occupation	Housewife	14 (28%)	9 (18%)	5 (10%)	$\chi^2=1.88$, df=6, p=0.93
		Coolie	5 (10%)	5 (10%)	2 (4%)	

		Private job	2 (4%)	2 (4%)	2 (4%)	(NS)
		Others	1 (2%)	2 (4%)	1 (2%)	
5	Marital Status	Married	16 (32%)	14 (28%)	8 (16%)	$\chi^2=1.12$, df=4, p=0.89 (NS)
		Unmarried	3 (6%)	1 (2%)	1 (2%)	
		Widow/Separated	3 (6%)	3 (6%)	1 (2%)	
6	Monthly Income	<₹5000	8 (16%)	6 (12%)	2 (4%)	$\chi^2=2.76$, df=6, p=0.84 (NS)
		₹5001–₹10000	7 (14%)	7 (14%)	4 (8%)	
		₹10001–₹15000	5 (10%)	3 (6%)	2 (4%)	
		>₹15000	2 (4%)	2 (4%)	2 (4%)	
7	Family History	Yes	4 (8%)	3 (6%)	1 (2%)	$\chi^2=0.58$, df=2, p=0.74 (NS)
		No	18 (36%)	15 (30%)	9 (18%)	
8	Awareness	Yes	6 (12%)	8 (16%)	6 (12%)	$\chi^2=6.92$, df=2, p=0.03 (S)*
		No	16 (32%)	10 (20%)	4 (8%)	

S- Significant at $p < 0.05$; NS- Non-Significant

The table shows the association between level of knowledge and selected demographic variables among general public. There was no statistically significant association between level of knowledge and age, religion, educational qualification, occupation, marital status, monthly income, and family history of tuberculosis ($p > 0.05$). However, awareness about tuberculosis showed a statistically significant association with the level of knowledge ($p < 0.05$). Overall, only awareness had a significant influence on knowledge level.

IV. SUMMARY

The present study was conducted among the general public in a selected rural area of Puducherry to assess their knowledge regarding warning signs of tuberculosis. Formal permission was obtained from the concerned authorities before data collection. The purpose and objectives of the study were explained to all participants, and informed consent was obtained. A total of 50 members of the general public who fulfilled the inclusion criteria were selected using a convenience sampling technique. A structured knowledge questionnaire developed by the investigator was used to assess the participants' knowledge regarding warning signs of tuberculosis. The collected data were recorded systematically, and confidentiality of responses was maintained throughout the study.

V. CONCLUSION

The study concluded that the majority of the general public had inadequate knowledge regarding the warning signs of tuberculosis, indicating a substantial gap in awareness and understanding of early symptoms of the disease. Only a small proportion of participants demonstrated adequate knowledge. The findings also showed a statistically significant association between knowledge level and selected demographic variables, with prior awareness about tuberculosis emerging as the only factor significantly influencing knowledge.

NURSING IMPLICATIONS

The findings of this study have important implications for nursing practice, education, administration, and research in improving public knowledge regarding the warning signs of tuberculosis and promoting early diagnosis and treatment in rural communities.

NURSING EDUCATION

- Nurse educators should incorporate comprehensive content related to tuberculosis, including warning signs, modes of transmission, diagnosis, treatment, and prevention, into undergraduate and postgraduate nursing curricula.
- Educational programmes should emphasize the role of nurses in creating awareness among the general public regarding early recognition of symptoms such as persistent cough, fever, night sweats, and unexplained

weight loss.

- Community health nursing training should include strategies for planning and implementing effective health education programmes on tuberculosis prevention and control.

NURSING PRACTICE

- Community health nurses should conduct regular awareness programmes in villages and rural communities regarding the warning signs and prevention of tuberculosis.
- Nurses should assess the knowledge of community members during home visits, outpatient clinics, and community outreach programmes.
- Health education materials such as pamphlets, posters, flashcards, and audiovisual aids should be used to reinforce awareness regarding tuberculosis.

NURSING ADMINISTRATION

- Nursing administrators should organize in-service education programmes and workshops on tuberculosis prevention and early detection.
- Policies should be developed to integrate tuberculosis awareness activities into routine community health services.

NURSING RESEARCH

- Further studies can be conducted to assess the effectiveness of structured teaching programmes in improving knowledge regarding warning signs of tuberculosis.
- Research can explore barriers that prevent the general public from seeking early diagnosis and treatment.
- Studies may evaluate the long-term impact of community awareness programmes on early case detection and treatment adherence.

VI. RECOMMENDATIONS

- A similar study may be conducted with a larger sample size to enhance the generalizability of the findings.
- Future research may examine the relationship between educational status and health-seeking behavior related to tuberculosis.
- Studies can explore the effectiveness of mass media, digital tools, and community-based campaigns in strengthening tuberculosis awareness.
- Comparative studies can be conducted in different geographical settings to assess variations in knowledge regarding warning signs of tuberculosis.
- Longitudinal studies may be carried out to evaluate the sustainability of knowledge gained through health education interventions.

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