



# A study to assess knowledge, attitude and practice regarding diagnosis and management of tuberculosis among nursing staff in tertiary care hospital, Bhavnagar, Gujarat, India

*Shrinesh Agrawal<sup>1</sup>, Vishal Kansara<sup>2\*</sup>, Jigna Trivedi<sup>3</sup>*

## ABSTRACT

### Background

Numerous studies have previously been conducted on the management of tuberculosis by healthcare workers. Given that nurses interact with patients frequently in the course of their work, it is also important to look at their knowledge, attitudes, and practices. Future studies may take into account additional aspects of tuberculosis patient care, such as knowledge and approaches for managing patients of multidrug-resistant pathogens including tuberculosis. A report from the WHO has emphasized the importance of educational strategies to equip healthcare workers with the appropriate knowledge, skills, and attitudes which will lead to adequate infection control practices and thus reduce the disease burden of TB.

### Methods

For this cross-sectional study, offline survey was conducted among 182 nursing staff members of Sir T General Hospital, Bhavnagar, Gujarat. A validated self-administered questionnaire comprising five sections (socio-demography, work-related information, knowledge, attitude, and practice) was used for data collection.

### Result

155 (84%) out of a total of 182 participants had good knowledge, 129 (70%) had a positive attitude and 77 (42%) had good practice around tuberculosis prevention. Study reveals that only 58% of participants had provided a surgical mask to a patient with cough. Approx. 25% of respondents didn't know the role of private practitioners in the treatment of tuberculosis. Every nine out of ten participants thought to increase awareness regarding tuberculosis in the hospital campus.

### Conclusion

The findings of the study reveal that nursing staff of the hospital had an overall good knowledge and a positive attitude regarding Tuberculosis prevention. However, this knowledge does not explain the cause of TB therefore it leads to disparities between knowledge and practice. To overcome this problem effective educational programmes should be implemented.

**Key Words:** Tuberculosis, Diagnosis and Management, Knowledge, Practice, Attitude

[GJMEDPH 2024; Vol. 13, issue 4 | OPEN ACCESS](#)

1\*Corresponding author: Shrinesh Agrawal, Senior Resident Doctor, Dept. Respiratory Medicine, Government medical college Bhavnagar; 2.Vishal Kansara, Senior Resident Doctor, Dept. Respiratory Medicine, Government medical college Bhavnagar, E-mail: [Vishalkansara1312@gmail.com](mailto:Vishalkansara1312@gmail.com); 3.Jigna Trivedi, Professor and Head, Dept. Respiratory Medicine, Government medical college Bhavnagar

Conflict of Interest—none | Funding—none

© 2024 The Authors | Open Access article under CC BY-NC-ND 4.0



## INTRODUCTION

Tuberculosis (TB) is a communicable disease caused by the bacillus *Mycobacterium tuberculosis* (Mtb), which is spread by aerosols expelled from people with active TB disease. TB is a major cause of ill health and one of the leading causes of death worldwide. TB was the world's second leading cause of death from a single infectious agent, after coronavirus disease (COVID-19), and caused almost twice as many deaths as HIV/AIDS. More than 10 million people continue to fall ill with TB every year. Without treatment, the death rate from TB disease is high (about 50%). With treatments currently recommended by WHO (a 4–6 months course of anti-TB drugs), about 85% of people with TB can be cured. Globally, an estimated 4.1 lac people developed multidrug-resistant or rifampicin resistant TB (MDR/RR-TB) in 2022. <sup>(1)</sup>

Hon'ble President Smt. Droupadi Murmu launches 'Pradhan Mantri TB Mukh Bharat Abhiyaan' to eliminate TB by 2025. In 2021, India notified 21 lakh TB cases, successfully bridging the gaps between estimated number of cases and those that were recorded on the Ni-kshay portal previously. A range of forward-looking policies have been implemented including critical schemes such as Ni-kshay Poshan Yojana (NPY), which helped meet the nutritional requirements of TB patients, especially the underserved. From

2018 till present, around ₹1,707 crore has been disbursed to more than 65 lakh people on TB treatment across the country. <sup>(2)</sup>

India today has about 30,00,000 incidences of TB, with about 54,000 among HIV-Positive patients and about 1,20,000 incidences of MDR/RR-TB incidences. With mortality of about 5,00,000 in HIV-Negative and about 11,000 mortalities in HIV-Positive. <sup>(3)</sup> For effective infection control, preventing emergence of drug resistance and management of tuberculosis knowledge is crucial among health care workers of India therefore this study is conducted.

## Methods

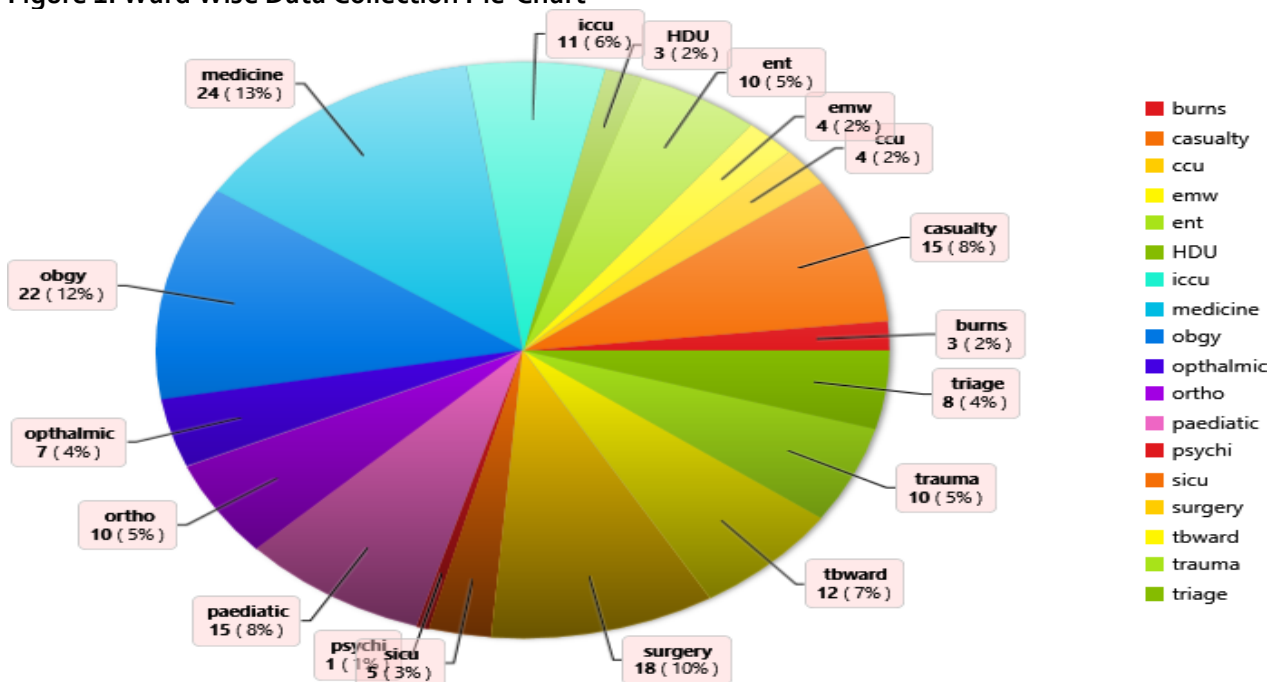
### Study Design:

This was a cross-sectional study, conducted offline among 182 nursing staff members of Sir T General Hospital, Bhavnagar, Gujarat.

### Study Participants:

Eligible participants were those nursing staff at the Tertiary care Government Hospital of District Bhavnagar. This included the nursing staff of various departments like TB-Ward, Medicine-Ward, Paediatric-Ward, Surgical-ICU, Casualty, ENT-Ward etc.

Figure 1: Ward Wise Data Collection Pie-Chart





#### Study variables:

The main outcomes of interest were knowledge, attitude and practice of study participants while the exposure variables were different Departments.

#### Study Duration:

The study was conducted during the month Feb-March 2022 during which the questionnaire was filled by the participants, entries were made and analysis was done.

#### Data Source:

A validated self-administered questionnaire comprising five sections "(socio-demography, work-related information, knowledge, attitude, and practice) was used for data collection. The data collected was inserted into a sheet in Microsoft Excel. After which with the help of Epi-info™ (statistical software for epidemiology) analysis was done and conclusions were drawn.

#### Results:

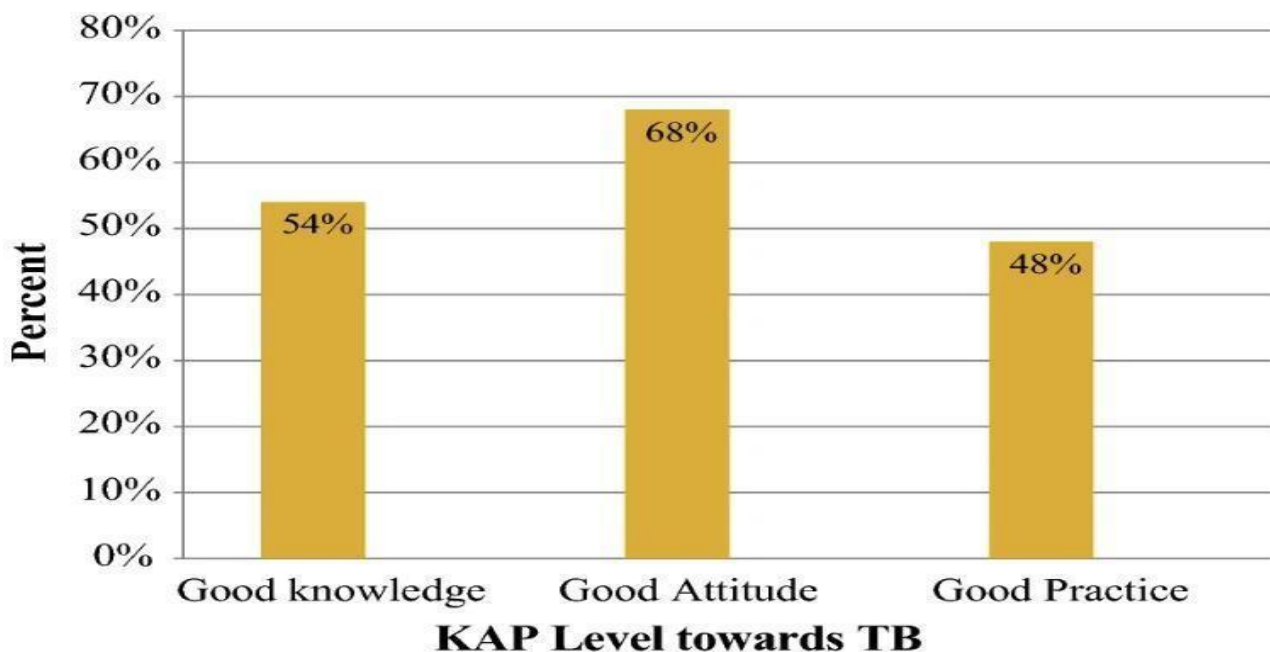
Out of total 182 participants, 84% (n=155) had good knowledge, 70% (n=129) had a positive attitude and 42% (n=77) had good practice regarding Tuberculosis. Study reveals that only

58% of participants had provided a surgical mask to a patient with cough. Approx. 24% of respondents don't know that private practitioners can send sputum CBNAAT examination in NTEP designated microscopy centres. 13% of all nurses know that AKT DSTB for pulmonary TB can be started on diagnosis done by chest x-ray. 92% participants think to increase awareness regarding tuberculosis in the hospital campus. 87% staff nurses opined positively to role of BCG vaccination in prevention of childhood TB meningitis.

#### Discussion:

In this KAP study, healthcare workers like nursing staff had overall good knowledge and attitude, but are poor in practice at stopping chains of spreading infection and contamination. Only half of the participants were regularly providing mask to the suspected TB patients due to various reason. Indian government guidelines on tuberculosis also emphasis role of private health setup. But, in this study we found that every fourth participants doesn't know the role of private practitioner in the diagnosis & treatment of tuberculosis.

**Figure 2: Knowledge, Attitude and Practice towards TB**



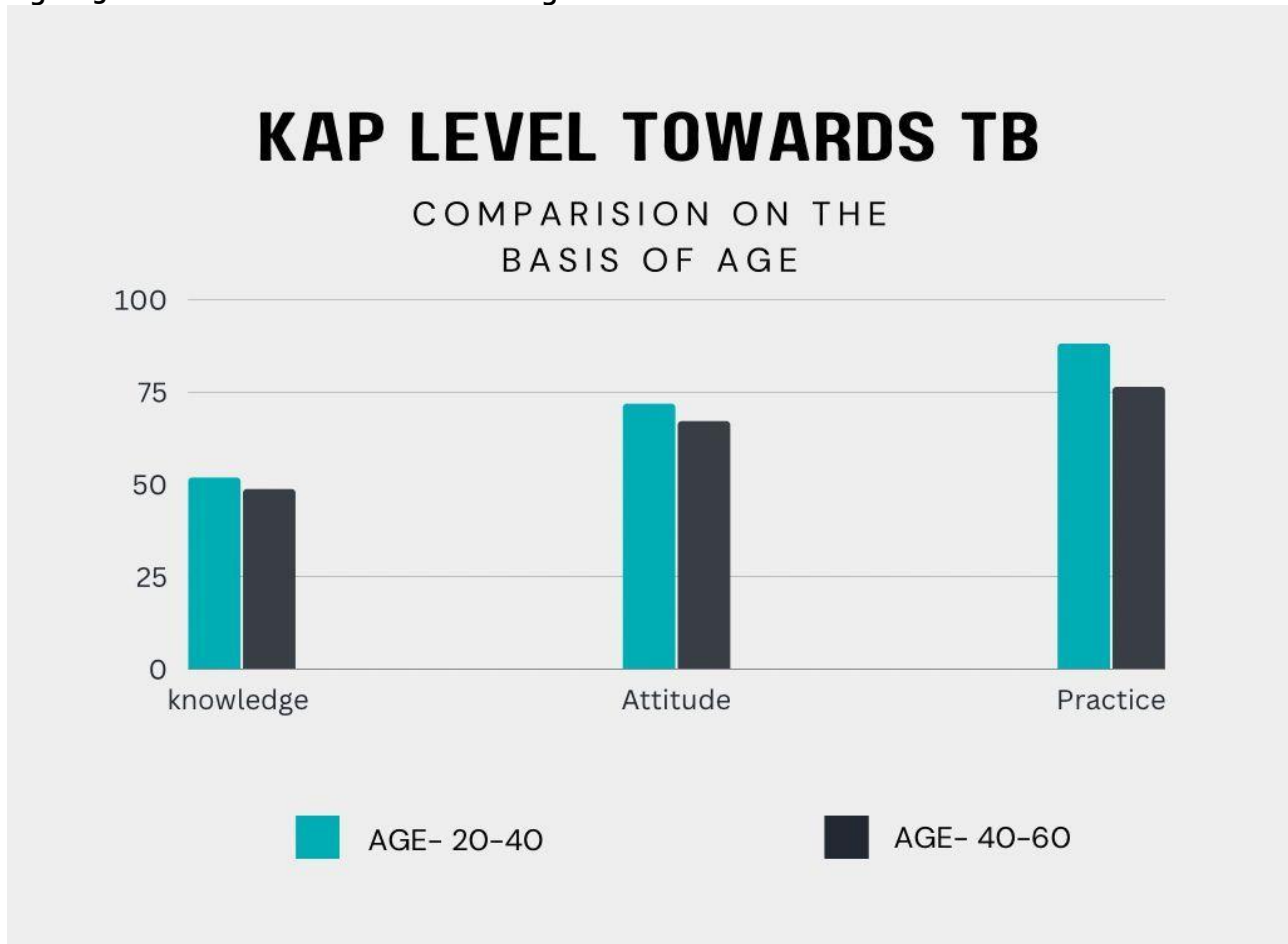


### Conclusion:

In the search of new virus (Covid 19), we cannot neglect the age-old bacilli (Mycobacterium Tuberculosis). By implementing good clinical practice we can cut the transmission chain and eventually limit emergence of drug resistance. The findings of the study reveal that nursing staff of the hospital had an overall good knowledge and a positive attitude but poor

practice regarding Tuberculosis which can be improved by effective infection control measures including regular training and awareness programmes. This urges the healthcare providers and other concerned bodies to design strategies to increase awareness and improve practices around preventing the disease.

Figure 3: KAP towards TB on the basis of Age



### Limitations

There were a few limitations to this study. The study had a small sample size with a short duration of data collection. The inclusion of a

larger sample would have better confirmed our findings.

Figure 4 - Questionnaire to assess KAP among nursing staff

Questions		
	% Correct	%Incoorext
<b>Knowledge</b>		
(1) Symptoms of pulmonary tuberculosis	75	25
(2) Diagnostic method for tuberculosis	78	22
(3) Follow-up investigation of tuberculosis	84	16
(4) Does every tuberculosis patient become symptomatic?	63	37
(5) A negative Montoux test rules out tuberculosis	60	40
(6) State the nickname of the NTEP	62	38
(7) Average duration of treatment in newly diagnosed pulmonary and extra-pulmonary tuberculosis	76	24
(8) AKT (H-Isoniazid, R-rifampicin, Z-pyrazinamide, E-ethambutol), IP- and CP-continuation phase	64	36
(9) As per NTEP guidelines can we prescribe AKT on radiological (chest x-ray) findings?	29	71
(10) Pulmonary tuberculosis and HIV	36	64
(11) A patient complains of vomiting after taking first-line AKT	28	72
(12) Drug resistant tuberculosis is suspected in the following patient?	68	32
(13) What should be done to treat a sputum smear positive patient after IP Phase of AKT (DSTB)?	28	72
(14) Avoidable first-line AKT drugs in liver dysfunction	49	51
(15) Whether private doctors can send sputum for CBNAAT test to government laboratories	73	27
<b>Attitude</b>		
(16) Is it always necessary to isolate a patient with MDR (Multi Drug Resistant Tuberculosis) tuberculosis?	82	18
(17) CBNAAT (cartridge based nucleic acid amplification test) is performed in all sputum positive individuals.	51	49
(18) Do we need to spread awareness about TB in our institution	90	10
(19) Face mask must be worn before examining tuberculosis patient	96	4
(20) BCG Vaccination: Is necessary to prevent Child TBM (Meningitis)?	85	15
(21) The Mantoux test is used to confirm the diagnosis of TB.	8	92
(22) Repeat CT/MRI spine after completion of AKT in a tuberculous spine patient	83	17
(23) CBNAAT can detect MTB from various body fluids like Pleural Fluid, Ascitic fluid etc.	79	21
(24) Treatment for MDR TB is only 6 months.	68	32
(25) MTP (Medical Termination of Pregnancy) required if 12 weeks pregnant mother has MDR (Multi Drug Resistant) TB?	54	46
<b>Practice</b>		
(26) Would you suspect TB in a patient with chronic cough?	92	8
(27) Would you separate a cough patient from others?	75	25
(28) Do you wear a mask when you are in contact with a TB patient?	88	12
(29) Have you given a surgical mask to a coughing patient in your ward?	55	45
(30) Have you ever tried to increase natural ventilation in your ward?	93	7
(31) With the help of FAST Strategy, would you prioritize TB patient in hospital premises?	86	14
(32) What advice would you give to a TB patient about health hygiene?	85	



---

## REFERENCES

1. World Health Organization. Global Tuberculosis Report (2023). Available at: <https://iris.who.int/bitstream/handle/10665/373828/9789240083851-eng.pdf?sequence=1>
2. TB profile: India [Internet]. Global Tuberculosis Report 2022; [cited 2023Mar19]. Available at: [https://worldhealthorg.shinyapps.io/tb\\_profiles/?\\_inputs\\_entity\\_type=%22country%22&iso2=%22IN%22&lan=%22EN%22](https://worldhealthorg.shinyapps.io/tb_profiles/?_inputs_entity_type=%22country%22&iso2=%22IN%22&lan=%22EN%22)
3. Ministry of Health & Family Welfare-Government of India. Central Tuberculosis Division Government of India, National Tuberculosis Elimination Programme [Internet]. Aboutus::CentralTBDivision.[cited2023Mar19]. Available at : <https://tbcindia.gov.in/index4.php?lang=1&level=0&linkid=399&lid=2768>
4. Noé A, Ribeiro RM, Anselmo R, Maixenchs M, Sitole L, Mungambe K, Blanco S, le Souef P, García-Basteiro AL. Knowledge, attitudes and practices regarding tuberculosis care among health workers in Southern Mozambique. *BMC Pulm Med.* 2017 Jan 5;17(1):2. doi: 10.1186/s12890-016-0344-8. PMID: 28056943; PMCID: PMC5217625.
5. Alotaibi B, Yassin Y, Mushi A, Maashi F, Thomas A, et al. (2019) Tuberculosis knowledge, attitude and practice among healthcare workers during the 2016 Hajj. *PLOS ONE* 14(1): e0210913. <https://doi.org/10.1371/journal.pone.0210913>
6. Vigneschow A, Edoa JR, Adegbite BR, Agbo PA, Adegnika AA, Alabi A, Massinga-Loembe M, Grobusch MP. Knowledge, attitudes and practices regarding tuberculosis amongst healthcare workers in Moyen-Ogooué Province, Gabon. *BMC Infect Dis.* 2021 May 27;21(1):486. doi: 10.1186/s12879-021-06225-1. PMID: 34039304; PMCID: PMC8157668.