

# “A Study to Assess the Knowledge Regarding Tuberculosis and its Prevention among Nursing Students Posted in Selected Hospital of Vadodara”

Vijaya Kumar M.B<sup>1</sup>, Deepika Das<sup>2</sup>, Ravina Christian<sup>3</sup>, Patel Sezal<sup>4</sup>

<sup>1</sup>Nursing Tutor, ManikakaTopawala Institute of Nursing, Charusat University, Anand, Gujarat, India

<sup>2,3,4</sup>MSc nursing students, ManikakaTopawala Institute of Nursing, Charusat University, Anand, Gujarat, India

**Abstract:** - The TB epidemic is larger than previously estimated, reflecting new surveillance and survey data from India. However, the number of TB deaths and the TB incidence rate continue to fall globally and in India. In 2015, there were an estimated 10.4 million new (incident) TB cases worldwide, of which 5.9 million (56%) were among men, 3.5 million (34%) among women and 1.0 million (10%) among children.<sup>2</sup>

A descriptive research study was conducted to assess the knowledge regarding tuberculosis and its prevention among nursing students posted in selected hospital of Vadodara, Gujarat. The study was carried out in KGPC hospital, Vadodara. Through non probability convenient sampling technique 120 nursing students were selected. A structured questionnaire was prepared with four different areas and used to collect needed data and to assess the knowledge regarding tuberculosis and prevention. Data was analysed by using descriptive and inferential statistics. With regard to the knowledge assessment, (30)25% of samples had adequate knowledge, (75) 62.50% had moderate level of knowledge and (15) 12.50% inadequate knowledge regarding tuberculosis and its prevention. The highest mean percentage 68.33% was found in the aspect of causes, incubation period and signs and symptoms and the lowest mean percentage were found in the area of management and prevention of tuberculosis with the mean percentage of 49.13%. And also result shows that there is significant association between the knowledge of nursing students regarding tuberculosis and its prevention with the demographic variable course/programme.

**Key words:** Tuberculosis, knowledge, Nursing students, MDR Tb. Incident rate, Surveillance, Prevention.

## I. INTRODUCTION

One of the best aspects of health care reform is it starts to emphasize prevention

-Anne Wojcicki

Tuberculosis is a specific infectious disease caused by M. Tuberculosis. The disease primarily affects lungs and causes pulmonary tuberculosis. It can also affect intestine, meninges, bones and joints, lymph glands, skin and other tissues of body.<sup>1</sup>

When people suffering from active pulmonary TB coughs, sneeze, speak, or spit, they expel infectious aerosol droplets

0.5 to 5 µm in diameter droplet nuclei may then be inhaled by a susceptible person.<sup>3</sup> Tuberculosis remains a world-wide public health problem despite the fact that the causative organism was discovered more than 100 years ago and highly effective drugs and vaccine are available making tuberculosis a preventable and curable disease.<sup>1</sup>

In India tuberculosis is mainly a disease of poor. The majority of victims are migrant labourers, slum dwellers, residents of backward areas and tribal pockets. Poor living conditions, malnutrition, shanty housing and overcrowding are the main reasons for spread of the disease.<sup>1</sup>

People living with HIV accounted for 1.2 million (11%) of all new TB cases. Six countries accounted for 60% of the new cases: India, Indonesia, China, Nigeria, Pakistan and South Africa. Global progress depends on major advances in TB prevention and care in these countries. Worldwide, the rate of decline in TB incidence remained at only 1.5% from 2014 to 2015. This needs to accelerate to a 4–5% annual decline by 2020 to reach the first milestones of the End TB Strategy.<sup>2</sup>

The nursing personal are more prone to develop the risk of tuberculosis, and they are the person who also act as educator so they should have adequate knowledge about the prevention and control of tuberculosis.

## II. REVIEW OF LITERATURE

A study was conducted to assess Effectiveness of structured teaching program (STP) on knowledge regarding prevention and control of tuberculosis in Vadodara, Gujarat. The study was aimed at assessing the knowledge of internship GNM students on prevention and control of tuberculosis, and to develop and administer the structured teaching programme, evaluate its effectiveness and to find an association between pre and post test knowledge scores with their socio-demographic variables. A one group pre testpost test experimental design was used. By using non probability convenient sampling technique 60 samples were selected. The results shows that total pretest mean percentage 52.73% and posttest mean percentage 81.05 % which shows the increase post-test knowledge compare to the pretest knowledge score of the participants and concluded that structure teaching

program is effective tools to improve the knowledge of internship GNM students on prevention and control of tuberculosis.<sup>4</sup>

A cross sectional descriptive study was conducted to assess Knowledge of nursing students about tuberculosis. The study was conducted in University Of Mosul, in Mosul city/ Iraq. A random sample technique was adopted to collected (120) student from 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> classes ,(25) male and (95) female in the college of nursing. Data was collected using questionnaire which consists three parts. Study results shows that there are generally good knowledge about tuberculosis (cases of TB, method of transmission, symptoms, and treatment), but the second class recorded slightly lower rate of good knowledge (26.825) compared with third (29.878), and fourth classes (27.675). This result may be for the second class curriculums not widely discuss about tuberculosis and other transmission diseases. The students who live in rural area lower knowledge towered T.B compared with other students leaving in urban and there was non-significant difference between students’ knowledge and there some socio-cultural factors (marital status, age and sex).<sup>5</sup>

III. OBJECTIVES OF THE STUDY

- To assess the knowledge of nursing students regarding tuberculosis and its prevention.
- To find out the association between knowledge of nursing students regarding tuberculosis and its prevention with selected demographic variables.
- To administer video assisted teaching programme on tuberculosis and its prevention.

HYPOTHESES

H1: There will be a significant association between the knowledge of nursing students regarding tuberculosis and its prevention with selected demographic variables

IV. MATERIALS AND METHODS

Research design: The research design used in this study was descriptive research design.

Population: In this study the population comprised of nursing students.

Target population: The target population of this study comprised nursing students posted in KGPC hospital, Vadodara.

Setting of the study: Setting is the physical location and condition in which data collection takes place in a study. Study was conducted in KGPCH, Vadodara.

Sample Size: In this study the sample size was 120 nursing students.

Sampling Technique: Convenient sampling technique was used to select 120 samples.

Data collection instrument:

Section – A It comprised of 2 items seeking information on demographic data such as gender and program they are studying. Section – B It consisted of 30 structured questions on tuberculosis and its prevention.( 7 questions from introduction part, 6 questions regarding causes, risk factors, incubation period and symptoms, 9 questions about diagnostic techniques and 8 question from management and prevention of tuberculosis.)

Reliability of the tool :

Reliability refers to the degree of consistency of the tool. Reliability of the structured knowledge questionnaire was established by the split half method. The reliability score obtained for questionnaire was (R) = 0.65. Hence the tool was found to be reliable to proceed for the data collection.

Analysis of data: Both descriptive and inferential statistics was used to analyze the findings on the basis of the objectives and hypotheses of the study. Mean, median, mode and standard deviation was calculated. Knowledge score was rated as adequate, moderate and inadequate. Area wise knowledge also calculated in terms of mean percentage. The association between demographic variables and knowledge score regarding tuberculosis and its prevention was determined by ANOVA. Data presented in the form of tables and graphs.

V. FINDINGS

Section- A: Description of sample characteristics.

Table I. Distribution of frequency and percentage analysis of selected variables

SL No	Demographic variables	Variables	No of subjects	Percentage
1	Gender	Male	19	15.8%
		Female	101	84.2%
2	Program/ Course	BSc Nursing	90	75%
		GNM	30	25%

n=120

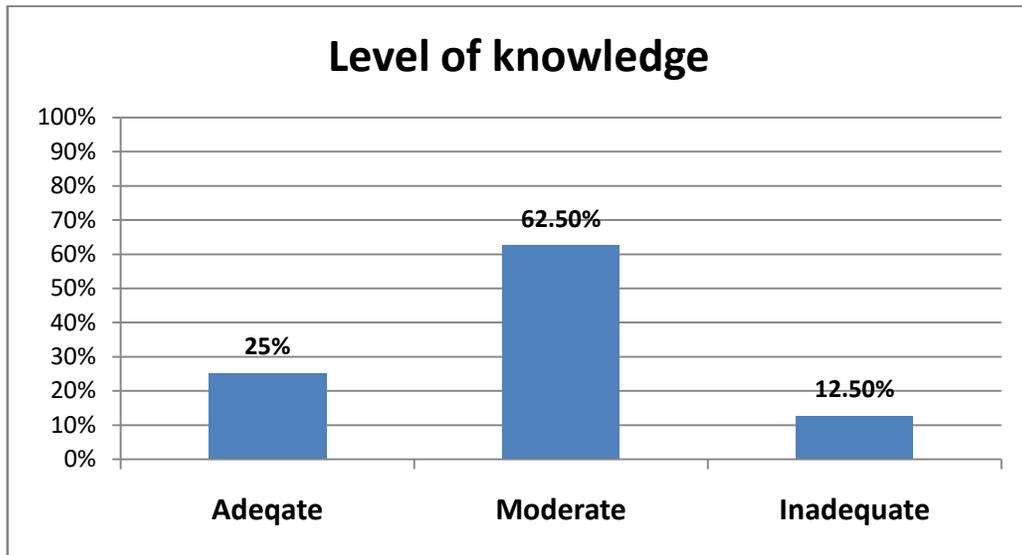
**Section- B:** Assessment of knowledge of nursing students regarding tuberculosis and its prevention.

**Table II.** Level of knowledge of nursing students regarding tuberculosis and its prevention.

n=120

Level of knowledge	frequency	Percentage	Mean	Mean %	Median	Standard deviation
Inadequate	30	25%	16.78	55.93%	16	3.24
Moderate	75	62.5%				
Adequate	15	12.5%				

**Fig.I.** Level of knowledge of nursing students regarding tuberculosis and its prevention.



**Table II & Figure 1,** illustrate that (30)25% of samples hadadequate knowledge, (75) 62.50% had moderate level of knowledge and (15)12.50% inadequate knowledge regarding

tuberculosis and its prevention. The overall mean score was 16.78 with mean percentage of 55.93%.

**Table III.** Area wise knowledge score of nursing students regarding tuberculosis and its prevention

n=120

Sl no	Area	Total number of questions	Mean	Mean %	Median	Mode	Standard deviation
1	Introduction to tuberculosis	07	4.18	59.71%	4	4	1.02
2	Causes, incubation period and Signs and symptoms of TB	06	4.1	68.33%	4	4	1.15
3	Diagnostic techniques of TB	09	4.6	51.11%	5	5	1.28
4	Management and prevention of TB	08	3.93	49.13%	4	3	1.56

Fig. II. Area wise knowledge score of nursing students regarding tuberculosis and its prevention

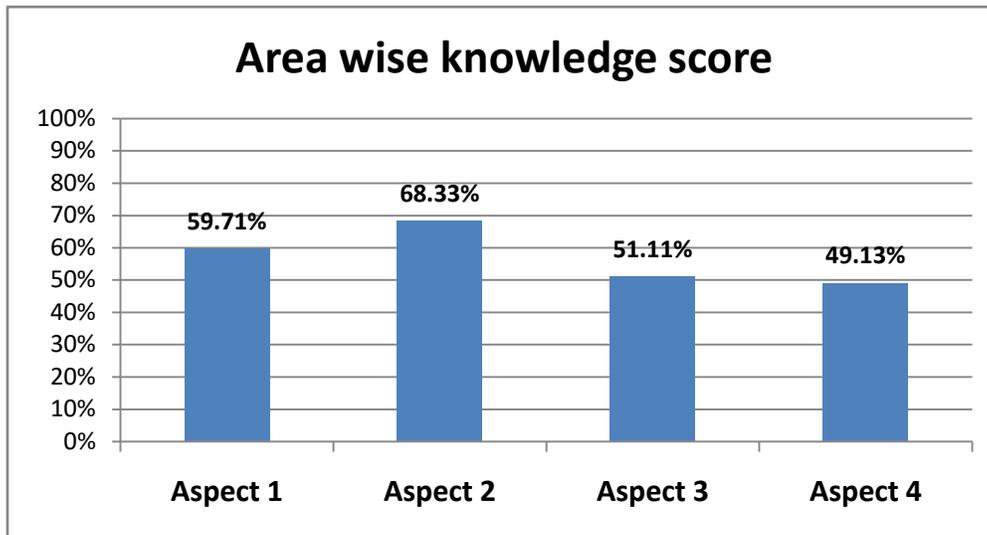


Table III & Figure II, illustrate that the highest mean percentage 68.33% was found in the aspect 2 that is causes, incubation period and signs and symptoms and the lowest mean percentage was found in the area of management and

prevention of tuberculosis with the mean percentage of 49.13%.

*Section C: Association between knowledge score with selected demographic variables.*

Table IV: Association between mean knowledge score with selected demographic variables

n=120

Demographic variable		No of subjects	Mean	Mean %	SD	Df	F	Table Value	Remarks
Gender	Male	19	17.26	57.53%	3.56	1	.494	3.9	NS
	Female	101	16.69	55.63%	3.18				
Programme/ Course	BSc Nursing	90	17.60	59.66%	3.20	1	28.15	3.9	S
	GNM	30	14.33	47.76%	1.76				

S: Significant at 5%

NS: Not significant

**Table-IV:** Shows the association between mean knowledge score and demographic variables. In the demographic variable, Gender, the highest knowledge score was found among males with mean percentage of 57.53% and the least was found among females with mean percentage of 55.63%. F calculated value was .494 at df 1, which is less than the table value at 0.05 level of significance. Hence conclude there is no association.

In the demographic variable, programme/ course, the highest knowledge score was found among BSc nursing students with mean percentage of 59.66% and the least was found among GNM students with mean percentage of 47.76%. F calculated value was 28.15 at df 1, which is more than the table value at 0.05 level of significance. Hence conclude there is significant association.

VI. DISCUSSION

The present study was conducted to assess the knowledge of nursing students regarding tuberculosis and its prevention. The response to the questionnaire provided us with valuable insight in to the understanding of the participants about tuberculosis. The present study findings shows that the overall mean score was 16.78 with mean percentage of 55.93%. Demographic variable, Course/ programme found to have significant association with the knowledge regarding tuberculosis and its prevention at 0.05% level of significance. Finding of the study were found similar to a study conducted by Raman Lal Patidar, Ravindra H.N, Pavan Kumar Jain to assess knowledge of internship GNM students on prevention and control of tuberculosis and to develop and administer the

structured teaching programme. Similarly he also found that the pretest mean percentage 52.73% which is average.

A video assisted teaching programme was given to all the participants after collecting the data. More emphasis was given on early identification of cases, diagnostic techniques, management and prevention of tuberculosis.

## VII. CONCLUSION

In 2015, there were an estimated 480 000 new cases of multidrug-resistant TB (MDR-TB) and an additional 100 000 people with rifampicin-resistant TB (RR-TB) who were also newly eligible for MDR-TB treatment.<sup>2</sup> India, China and the Russian Federation accounted for 45% of the combined total of 580 000 cases. There were an estimated 1.4 million TB deaths in 2015, and an additional 0.4 million deaths resulting from TB disease among people living with HIV.<sup>3</sup> Although the number of TB deaths fell by 22% between 2000 and 2015, TB remained one of the top 10 causes of death worldwide in 2015.<sup>6</sup>

The finding of the present study shows that majority of the students 84.2% were female and who are studying BSc nursing 75%. (30)25% of samples had adequate knowledge, (75) 62.50% had moderate level of knowledge and (15) 12.50% inadequate knowledge regarding tuberculosis and its prevention. The overall mean score was 16.78 with mean percentage of 55.93%. Nursing students considerably have less knowledge in the aspect of management and prevention of tuberculosis. Hence finally conclude that the nursing students have moderate knowledge regarding tuberculosis and its prevention. And there is a need of special training programme to improve the knowledge so that they can be the reason for preventive agent against tuberculosis.

## ACKNOWLEDGEMENT

I thank god, the almighty, my parents and my friends for all the success and blessings in my life. My heartfelt thanks to all the nursing students for their participation. I am extremely thankful to Dr. Anil Sharma, Principle, MTIN, Charusat University, Changa for his constant support and

encouragement. I also express my gratitude and thanks towards all who have directly or indirectly helped me to complete this study and their support in each major step of the study.

*Ethical Standards:* This study was conducted after getting approval from the Institution and after obtaining written consents from all subjects.

*Source of funding:* The authors did not receive any financial support from any third party related to the submitted work

## REFERENCES

- [1]. K Park, text book of preventive and social medicine, 23rd edition, published by Banarsidas Bhanot, Page no: 176-200.
- [2]. WHO Global tuberculosis report 2016, Available from: [http://www.who.int/tb/publications/global\\_report/en/](http://www.who.int/tb/publications/global_report/en/)
- [3]. Aaron Fernstrom and Michael Goldblatt. Aerobiology and Its Role in the Transmission of Infectious Diseases., Journal of Pathogens Volume 2013 (2013), Article ID 493960, 13 pages, Available from: <https://www.hindawi.com/journals/jpath/2013/493960/>
- [4]. Raman Lal Patidar, Ravindra H.N. , Pavan Kumar Jain. Effectiveness of structured teaching program (STP) on knowledge regarding prevention and control of tuberculosis, IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320–1959, p-ISSN: 2320–1940 Volume 3, Issue 3 Ver. I (May-Jun. 2014), PP 56-61 . Available from: <http://www.iosrjournals.org/iosr-jnhs/papers/vol3-issue3/Version-1/I03315661.pdf>,
- [5]. Mahmmod M.Ahmed, Thanoon M.Thanoon Assessment of Nursing Students Knowledge About Tuberculosis. Available from: <https://www.iasj.net/iasj?func=fulltext&aId=71553>
- [6]. Multidrug-resistant tuberculosis (mdr-tb) - World Health Organization. Available from: [http://www.who.int/tb/challenges/mdr/mdr\\_tb\\_factsheet.pdf](http://www.who.int/tb/challenges/mdr/mdr_tb_factsheet.pdf)
- [7]. Jamie Rylance, Madhukar Pai. Priorities for tuberculosis research: a systematic review. 2010 Dec 10; 10(12): 889–892 doi: 10.1016/S1473-3099(10)70201-2: Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2992175>
- [8]. Tejan N, Uniyal R Prediction and prevention of tuberculosis in contacts. 2017 Dec; 17(12): 1237-1238. doi: 10.1016/S1473-3099(17)30641-2.: Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29173880>
- [9]. Salame FM, Ferreira MD. Knowledge about tuberculosis transmission and prevention and perceptions of health service utilization among index cases and contacts in Brazil: Understanding losses in the latent tuberculosis cascade of care. 2017 Sep 21; 12(9): e0184061. doi: 10.1371: Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28934228>