

# “A study to evaluate effectiveness of Structured Teaching Program (STP) regarding knowledge of Tuberculosis (TB) and importance of drug regimen among Tuberculosis patients visiting urban designated microscopy centres (DMC)

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**Abstract:** *Background* 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. 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. As per Global Tuberculosis report 2016 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. This needs to accelerate to a 4–5% annual decline by 2020 to reach the first milestones of the End TB Strategy. *Objectives:* 1. To assess the existing knowledge of Tuberculosis (T.B.) and importance of drug regimen among the TB patient visiting urban (DMC) 2. To evaluate the effectiveness of STP regarding knowledge of T.B. and importance of drug regimen among the TB patients visiting urban (DMC). 3. To find out the association between the pre-test knowledge score of TB patients with demographic variables. *Methodology:* *Research design:* In this study quasi experimental, one group per-test-post-test design was used for the present study to determine the effectiveness of structured teaching programme on knowledge of tuberculosis and importance of drug regimen. *Setting of the study-*This study was conducted in Designated Microscopy Centre. *Population* In his study the population is a Tuberculosis patient visiting Designated Microscopy Centers. *Target population in the present study* the target population was patients with Tuberculosis visited DMC. *Accessible population in the present study* the accessible population was TB patients those were visiting Designated Microscopy Centers. *Sample and sampling technique:* A sample is a population that represents the entire population; thus, it is the subject of population elements. *Sample size:* The sample size was 60 TB Patients. *Sampling technique:* Cluster sampling technique was used for the study. *Attribute variables:* -Personal characteristics of study subjects were included such as Religion, Type of family, Monthly family income, Type of treatment, Education, Source of information *Extragenous variables:* Newspaper, Group counselling, Health pamphlets. These variables were can not be controlled. *Result:* It was proved that there was increase in the knowledge of nursing students after implementation of structured teaching programme, thus structured teaching programme regarding tuberculosis and importance of drug regimen was effective. *Conclusion:* The analysis and interpretation of the data collected which shows there is effectiveness of structured teaching programme regarding knowledge of TB and importance of drug regimen among TB patient. There is association between the pre-test knowledge score with selected demographic variables. Thus  $H_1$  and  $H_2$  was accepted.

**Key words:** Evaluate effectiveness, knowledge, Tuberculosis patient,

## 1. Introduction:

Good health is rightly regarded as a treasure. Our physical, economic and social well-being is directly related to it. In an age when we believe that we have the tools to conquer most diseases, the ancient scourge of Tuberculosis (TB) still causes 2 million deaths a year worldwide, more than any other single infectious organism, reminding us that we still have a long way to go. Even equipped with drugs to treat TB effectively, we haven't managed to eradicate this deadly infection. TB is not only a problem for the person suffering from it or, their own families but a public health problem of the entire world. It is a barrier to social economic development and the greatest burden of tuberculosis incidence and mortality in India is in adults aged 15 – 60 years which include the most productive members of society. The Government of India has launched programme, to control TB in India in 1993 named as Revised National Tuberculosis Control Programme (RNTCP) and adopted the internationally recommended Directly Observed Treatment Short course (DOTS) strategy, focuses on providing free quality sputum smear microscopy for diagnosis as well as quality drugs for treatment free of cost. It is the only strategy which has proven effective in controlling TB on a mass basis. Directly observed treatment short course therapy is not just supervised swallowing but a Service to the patients. <sup>1</sup>

## 2. STATEMENT OF THE PROBLEM

“A study to evaluate effectiveness of Structured Teaching Program (STP) regarding knowledge of Tuberculosis (TB) and importance of drug regimen among Tuberculosis patients visiting urban designated microscopy centres (DMC)

### 3. Objectives:

1. To assess the existing knowledge of Tuberculosis (T.B.) and importance of drug regimen among the TB patient visiting urban (DMC)
2. To evaluate the effectiveness of STP regarding knowledge of T.B. and importance of drug regimen among the TB patients visiting urban (DMC)
3. To find out the association between the pre-test knowledge score of TB patients with demographic variables.

### 4. Hypothesis:

**H<sub>0</sub>:** There is no significant difference between pre test and post test knowledge score of Tuberculosis and importance of drug regimen among Tuberculosis patients visiting urban D.M.C.

**H<sub>1</sub>:** There is significant difference between pre test and post test knowledge score of Tuberculosis and importance of drug regimen among Tuberculosis patients visiting urban D.M.C.

**H<sub>2</sub>:** There is significant association between pre-test knowledge scores of TB patients with demographic variables.

### Ethical aspect:

The investigator -

1. Obtained prior permission from concerned authority to conduct research.
2. Obtained consent from the subjects.
3. The confidentiality and anonymity of the subjects were maintained.

## 5. METHODOLOGY

### Research approach

Research approach used for this study was quantitative evaluative approach.

### Research Design

In this study quasi experimental, one group pre-test-post-test design was used

### Setting of the study

This study was conducted in Designated Microscopy Centre.

### Population

Population is entire aggregation of cases in which a researcher is interested.

In his study the population is Tuberculosis patients visiting Designated Microscopy Centers.

### Target population

The target population is aggregate of cases, about which the researcher would like to generalize.

In the present study the target population was patients with Tuberculosis visited DMC.

### Accessible population

The aggregate of cases, those were conformed to eligibility criteria and are accessible as subjects for the study.

In the present study the accessible population was TB patients those were visiting Designated Microscopy Centers.

### Sample and sampling technique:

A sample is a population that represents the entire population, thus it is the subject of population elements.<sup>33</sup>

### Sample size:

The sample size was 60 TB Patients.

### Sampling technique:

A sampling refers to the process of selecting a portion of population to represent the entire population so that inferences about the population can be made.

Cluster sampling technique was used for the study.

### Variables under the study:

**Dependent variables** are the variables hypothesized to depend on or be caused by another variables; the outcome variable of interest.

In present study; knowledge of Tuberculosis and importance of drug regimen was dependent variables.

### Independent variable:-

Independent variables are the variables that are believed to cause or influence the dependent variable; in experimental research, the manipulated variables.

In this study Structured Teaching Programme was independent variable.

### Attribute variables:-

Personal characteristics of study subjects were included such as

Religion

Type of family

Monthly family income

Type of treatment

Education

Source of information

### Extragenous variables

News paper

Group counseling

Health pamphlets

These variables were can not be controlled.

#### **Criteria for selection of the sample:**

##### **Inclusion criteria:**

1. Patient with Tuberculosis those were willing to participate in the study.
2. Patients those who can speak/understand Marathi, English.

##### **Exclusive criteria:**

1. Patients those were not available at the time of data collection.

#### **1. Description of data collection tool:**

The tool consists of two sections.

**Section I:**-It deals with socio-demographic data on variables such as religion, type of family, monthly family income, taking of treatment, education and source of information.

**Section II:**-It consists of 20 items on structured knowledge questionnaire regarding tuberculosis and importance of drug regimen. Each item has four options with one most appropriate answer. The maximum score for the correct response to each item was 1 mark and for wrong answer the score was 0. Thus for 20 items, the maximum obtainable score was 20.

#### **Preparation of structured teaching programme regarding knowledge of Tuberculosis and importance of drug regimen.**

Preparation of structured teaching programme was prepared by the investigator based on following steps:

1. Introduction of the topic
2. Causes of the tuberculosis
3. Signs and symptoms of tuberculosis
4. Transmission of the tuberculosis
5. Diagnostic tests in tuberculosis
6. Drug regimen in tuberculosis
7. Complications of tuberculosis
8. Prevention of tuberculosis

#### **Scoring mode**

Each correct answer was given a score of 1 mark and incorrect response a score 0 the maximum scoring possible was 20 and minimum score from 13-15 in knowledge questionnaire. The scoring for knowledge of tuberculosis and importance of drug regimen was categorized as Poor (0-12), Average (13-15), Good (16-20).

#### **Pilot study**

The pilot study was conducted at to designated microscopy centers from 5/11/2017 to 12/11/2017, to assess the practicability of the study and to decide a plan for statistical analysis. The investigator obtained formal permission from the concerned authority prior to the pilot study. Subjects were selected by cluster sampling technique. Pre- test was conducted by the investigator using structured knowledge questionnaires for half an hours. Total 20 questions were given to subjects and post test was conducted after 7 days by using same tool.

#### **Method of data collection:-**

Data collection tool are the procedures or instruments used by the investigator to observe or measure the key variables in the research problem. Data was collected by the investigator herself. The main study was conducted to designated microscopy centre at Miraj from 15/11/2017 to 15/12/2017. The subjects were selected by the cluster sampling technique .Each subjects was given instructions regarding the purpose of the study. The study was conducted on 60 subjects at designated microscopy centre to assess the effectiveness of structured teaching program on knowledge of tuberculosis and importance of drug regimen among tuberculosis patient visiting to D.M.C.

- 1) After the prior permission the investigator had informed and taken written consent from the subjects.
- 2) The confidentiality of the subjects was maintained.
- 3) Structured Teaching Programme was given.
- 4) Pre-test was conducted by using structured knowledge questionnaires.
- 5) Post-test was conducted after 7 days using with same tool.

#### **Plan for data analysis**

In data analysis was planned to include descriptive and inferential statistics. The following plan of data analysis was made with the opinion of experts. The analysis was done based on the objectives and hypothesis.

#### **Organization of data**

The collected data is tabulated, analysed and presented under following headings:-

**Section I:** Frequency and percentage distribution of subjects with regards to demographic variables.

**Section II:** Finding on Pre-test knowledge score regarding TB and importance of drug regimen among TB patient.

**Section III:** Evaluation of effectiveness of structured teaching programme on knowledge of TB and importance of drug regimen among TB patients visiting to urban DMC.

**Section IV:** Association between t pre-test knowledge score of TB and importance of drug regimen with demographic variables

**Section-I: Findings related to demographic variables.****Table no. I** Frequency and percentage distribution of Tuberculosis patients According to demographic variables. **n=60**

Sr no	Demographic variables	Frequency	Percentage
<b>1</b>	<b>Religion</b>		
	• Hindu	28	46%
	• Muslim	16	27%
	• Christian	03	05%
	• Other	13	22%
<b>2</b>	<b>Type of family</b>		
	• Joint	22	37%
	• Nuclear	22	37%
	• Extended	14	23%
	• Broken	02	03%
<b>3</b>	<b>Monthly Family income (Rs)</b>		
	• <2000	15	25%
	• 2001-3000	18	30%
	• 3001-4000	18	30%
	• >4001	09	15%
<b>4</b>	<b>Type of treatment</b>		
	<b>1. YES</b>	60	100
	• Regular	36	60%
	• Irregular	10	17%
	• Defaulter	14	23%
	<b>2. NO</b>		
<b>5</b>	<b>Education</b>		
	Illiterate	18	30%
	Primary	25	42%
	Secondary	14	23%
	Higher secondary	03	05%
<b>6</b>	<b>Source of information</b>		
	Television	05	09%
	Newspaper	00	00%
	Radio	00	00%
	Health worker	55	91%

**The data presented in Table no. 1****1. Religion**

The majority of subjects 28(46%) were from Hindu religion and minimum 3(5%) subjects from Christian religion.

**2. Type of family**

The majority of subjects were 22(37%) from joint family and nuclear family and minimum subjects were 2(3%) from broken family.

**3. Family income**

The majority of subjects were 18(30%) having income from Rs 2000-3000 and 3000 -4000 and minimum subjects were 9 (15%) having income from >4100 and above.

**4. Patient is on TB treatment**

The majority of subjects were 36(60%) taking regular treatment and minimum subjects were 10(17%) taking irregular treatment.

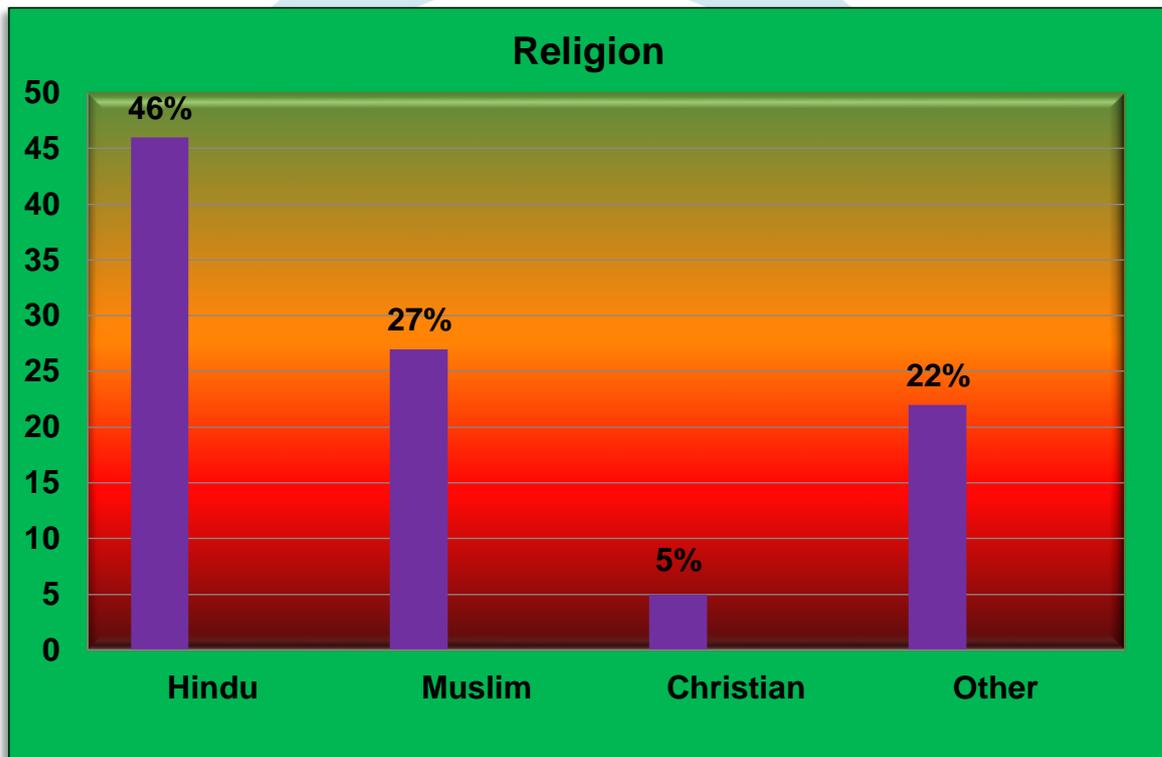
**5. Education**

The majority of subject 25(42%) had primary education and minimum subjects 3(5%) had higher secondary education.

**6. Source of information**

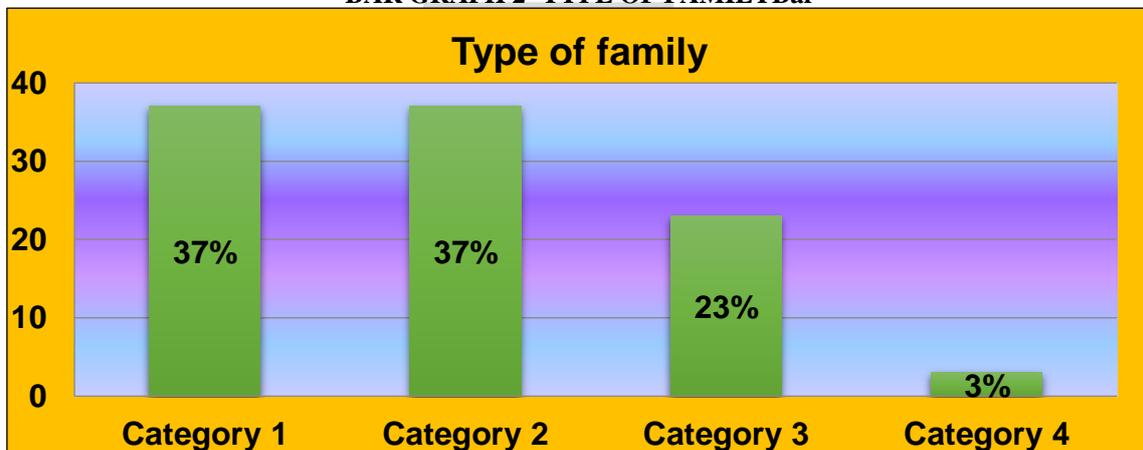
The majority of subject 55(91%) had received information from health worker and minimum subject 5(9%) had received information from television

**BAR GRAPH.1 RELIGION**



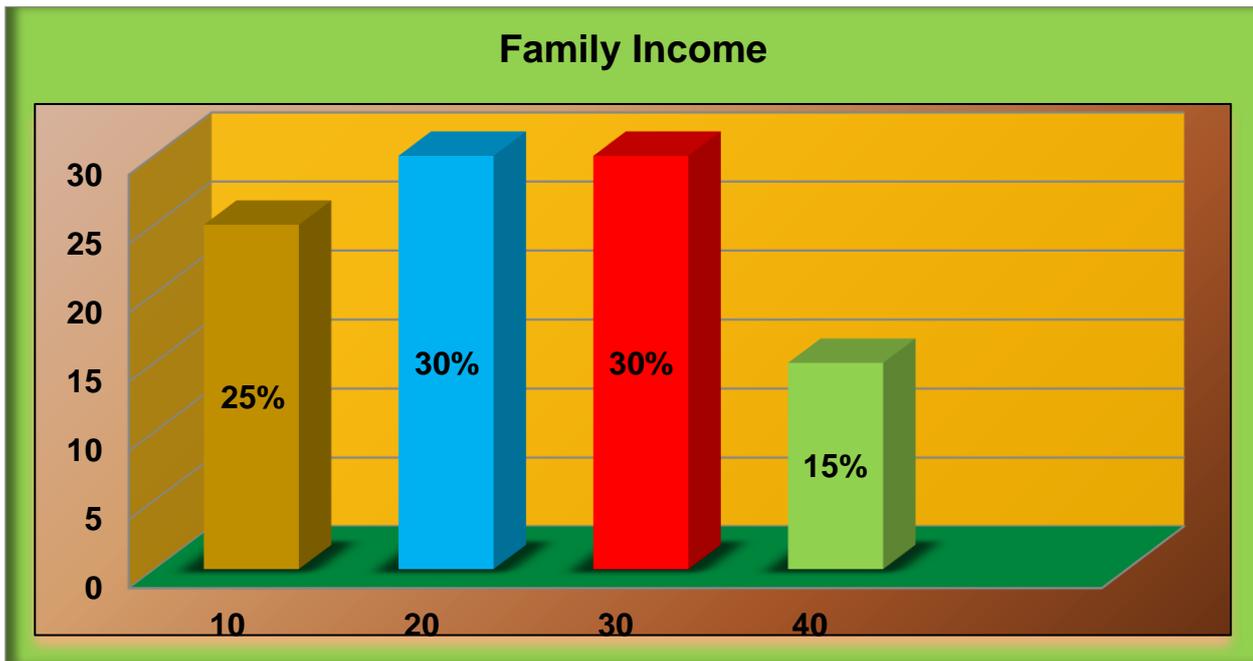
*Bar Graph 1 depicts that the majority of subjects 28(46%) were from Hindu religion and minimum 3(5%) subjects from Christian religion.*

**BAR GRAPH 2 -TYPE OF FAMILY**



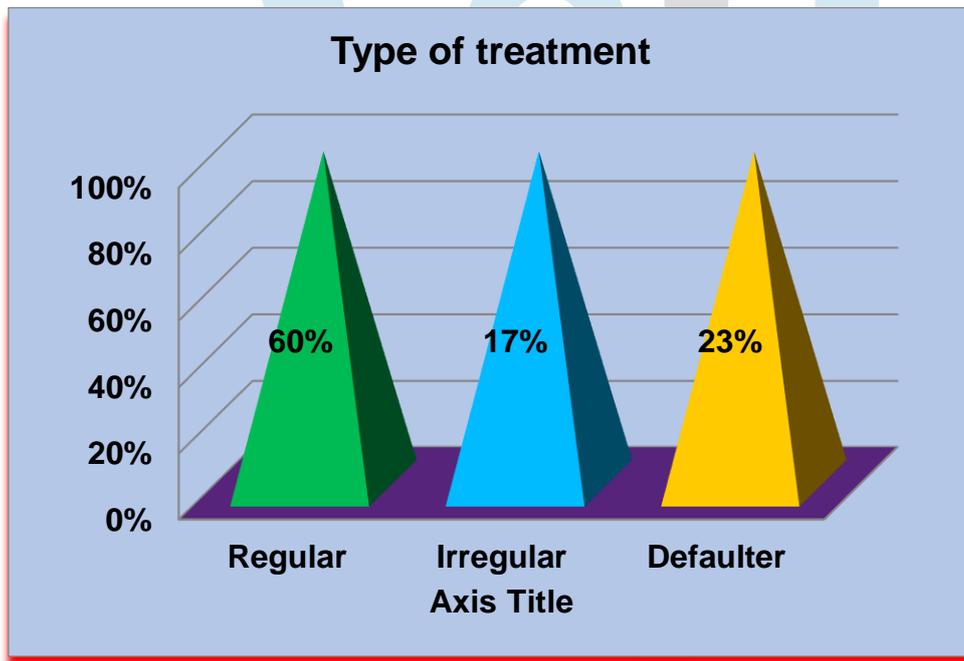
*Bar graph2 depicts that majority of subjects 22(37%) were from joint and nuclear family and minimum subjects 2(3%) were from broken family.*

COLUMN GRAPH 3- FAMILY INCOME



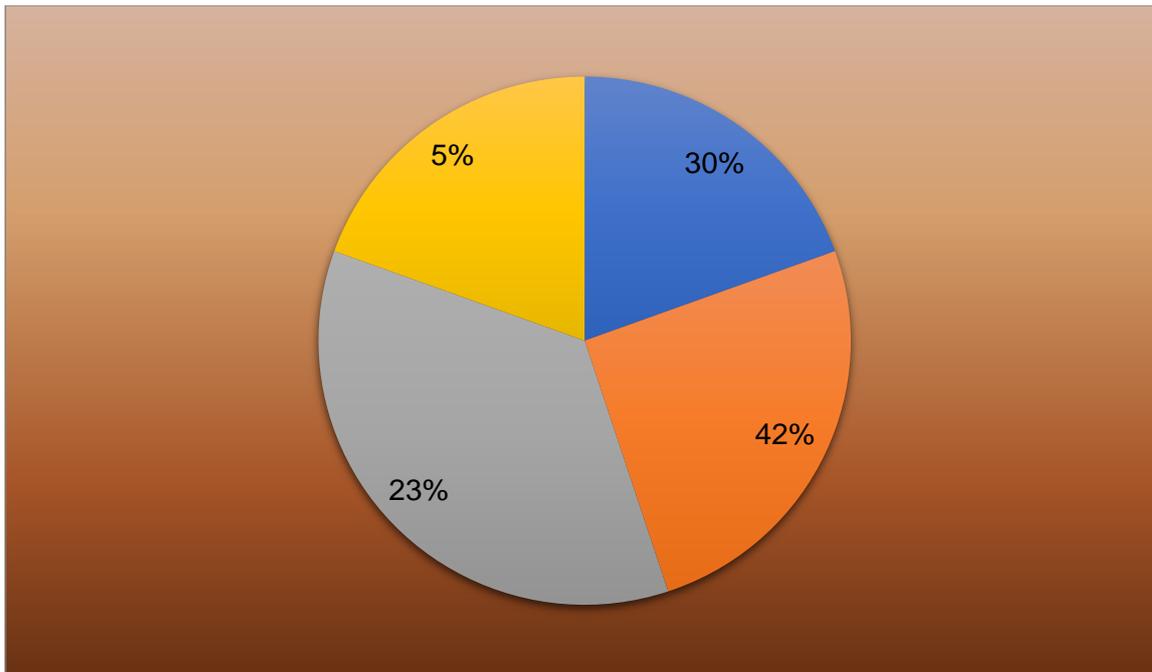
Column Graph 3 depicts that the majority of subjects 18(30%) were from Rs 2001-3000 and 3001-4000 and minimum subjects 9 (15%) were from Rs >4001 and above.

PYRAMID GRAPH 4- TYPE OF TREATMENT



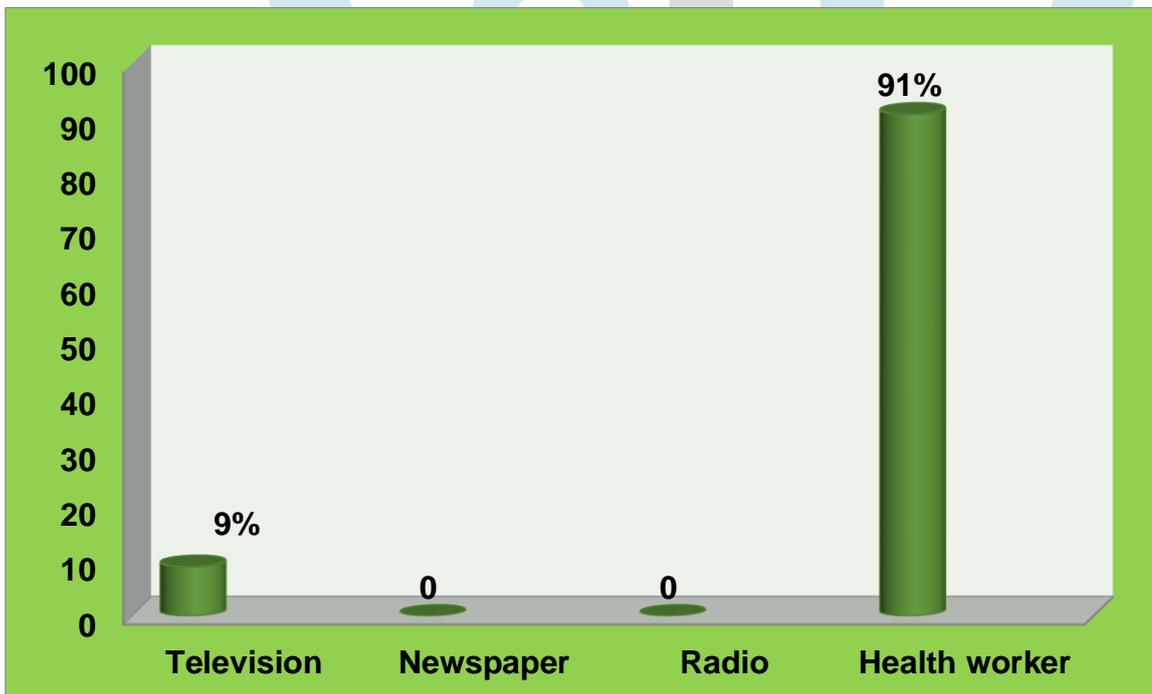
Pyramid graph 4 depicts the majority of subjects 36(60%) were on regular treatment and minimum subjects 10(17%) were on irregular treatment

**PIE- DIAGRAM 5 - EDUCATION**



*Pie-diagram 5 depicts that the majority of subject 25(42%) were taken education up to primary and minimum subjects 3(5%) were taken education up to higher secondary.*

**GRAPH 6 SOURCE OF INFORMATION**



*Cylinder diagram 6 reveals that the majority of subject 55(91%) got the information from health workers and minimum subject were 5(9%) got the information from television.*

## Section II. Findings on knowledge regarding TB and importance of drug regimen

**Table no 2: Mean and standard deviation of knowledge of TB and importance of drug regimen.**

Areas of analysis	mean	Median	Standard deviation
Pre-test (x)	8.41	8.00	2.63
Post test(y)	13.91	14.00	1.77
Difference	5.5	6	0.86

**Table no. 2** reveal that overall pre-test mean knowledge score is 8.41 whereas post test mean knowledge score had increased to 13.91, after administration of structured teaching programme.

Evaluation of the effectiveness of structured teaching regarding knowledge of TB and importance of drug regimen

The research hypothesis tested under this section was

- The mean post test knowledge scores of TB patients were significantly higher than their mean pre test knowledge scores at 0.05 level of significance.

**Table no 3. Mean difference (d), standard (E) error and paired't' values of knowledge scores of TB patients n=60**

Mean Difference	Standard Error (SE)	Paired't' Value	
		Calculated Value	Table value At6df
6	3	15.38	1.943

**Table no.3** depicts that calculated paired 't'test (15.38) is greater than tabulated value. Hence  $H_1$  accepted. This indicates that the gain in knowledge score is statistically significant at  $p < 0.05$  levels. Therefore, the STP on knowledge regarding TB and importance of drug regimen is effective to improve the knowledge among TB patient.

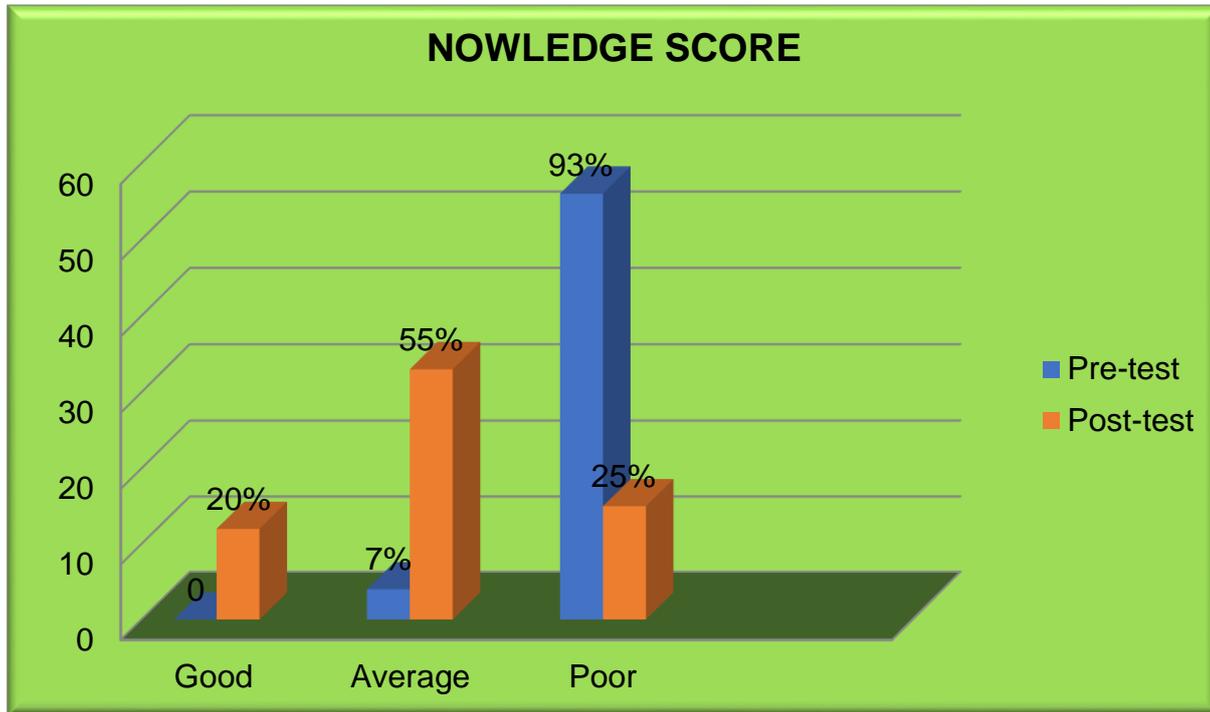
## SECTION III. Comparison of pre-test knowledge score knowledge of TB and importance of drug regimen.

**Table no 4** Frequency and percentage distributions of pre-test and post-test knowledge score regarding knowledge of TB and importance of drug regimen.

Knowledge score	Pre-test		Post-test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good(16 and above)	0	0%	12	20%
Average(13-15)	4	7%	33	55%
Poor(0-12)	56	93%	15	25%

**Table no. 4** depicts that in pre-test majority subject 56(93%) had poor knowledge,4(7%) had average knowledge score and none had good knowledge score, where as in post test majority of subject 33(55%) had average knowledge score, 12(20%) had average knowledge score and 15(25%) had poor knowledge score

**COLUMN GRAPH 7** DEPICTS FREQUENCY AND PERCENTAGE DISTRIBUTIONS OF PRÊ-TEST AND POST-TEST KNOWLEDGE SCORE REGARDING KNOWLEDGE OF TUBERCULOSIS AND IMPORTANCE OF DRUG REGIMEN AMONG TB PATIENTS.



*Column graph 7 depicts that in pre-test majority subject 56(93%) had poor knowledge, 4(7%) had average knowledge score and none had good knowledge score, where as in post test majority of subject 33(55%) had average knowledge score, 12(20%) had average knowledge score and 15(25%) had poor knowledge score.*

**Section IV: Data describing association between pre test knowledge score of TB patient with demographic variables.**

**Table no.5: Data describing association between pre test knowledge score of TB patient with demographic variables.**

Sr no	Demographic variables	Good	Average	Poor	Cal. Value	Tab. Value	df
1	<b>Monthly Family income (Rs)</b>						
	<2000	0	0	15	282.7	2.353	3
	2001-3000	0	0	18			
	3001-4000	0	3	15			
	>4001	0	0	09			
2	<b>Type of treatment</b>						
	Regular	0	3	33	182.08	2.920	2
	Irregular	0	0	10			
	Defaulter	0	1	13			
3	<b>Education</b>						
	Illiterate	0	1	17	571.8	2.353	3
	Primary	0	3	22			
	Secondary	0	2	12			
	Higher secondary	0	1	02			

n=60

4 Source of information						
Television	0	1	04			
Newspaper	0	0	00	9.76	2.353	3
Radio	0	0	00		(S)	
Health worker	0	2	53			

**S=Significant, NS=Non Significant**

**Table no 5** reveals that the demographic variable with pre test

knowledge scores of TB patients was significantly associated with the demographic variables monthly income, type of treatment, education and source of information.

#### Summary:

This chapter had deals with the analysis and interpretation of the data collected which shows there is effectiveness of structured teaching programme regarding knowledge of TB and importance of drug regimen among TB patient. There is association between the pre-test knowledge score with selected demographic variables.

Thus  $H_1$  and  $H_2$  was accepted.

#### Conclusion:

The findings of the study showed that the post –test knowledge score was higher than the pre-test knowledge score range. The mean post-test knowledge score (13.91) also was higher than the pre-test knowledge score (8.41).The comparison of pre-test and post-test knowledge score showed that there was significant gain in the knowledge of tuberculosis patients after STP. This shows that STP was effective.The study concluded that tuberculosis patients visited to DMC had inadequate knowledge regarding TB and importance of drug regimen. The structured teaching programme had great potential for improving knowledge of TB and importance of drug regimen.

#### NURSING IMPLICATIONS

The present study was concluded to assess the effectiveness of STP regarding knowledge of TB and importance of drug regimen among TB patients visited urban DMC. The findings of the study have implication in the field of nursing education, nursing practice, nursing administration and nursing research.

##### Nursing education

1. Nurse educator plays an important role in providing adequate knowledge to the nursing students about tuberculosis and its prevention.
2. Nursing student should be educated about health education technique on tuberculosis.
3. The nurse educator can organize workshop on Tuberculosis and importance of drug regimen

##### Nursing practice

1. As a clinical nurse she can educate the TB patient regarding the Tuberculosis and its prevention of spreading as well as drug compliance.
2. She can implement and impart the knowledge regarding proper disposal of the sputum and about personal hygiene.

##### Nursing administration

The nurse as an administration can conduct teaching programme for the staff nurses in order to enhance their knowledge and improve their communication skill and nursing practice.

##### Nursing research

1. The findings of the study will provide guideline for new nurse investigator to take up similar studies in different setting and on different population.
2. The results of the study can be published in nursing journal.
  3. The findings of the study can be presented in various local, state, national and international and international conferences related to community health nursing.

#### Recommendation:

1. The study can be conducted on larger samples.
2. The comparative study can be done between urban and rural tuberculosis patients.
3. Similar study can be conducted to assess the knowledge regarding TB and importance of drug regimen among general public.

## Summary

The chapter had dealt with the discussion of the research findings based on the objectives and hypothesis of the study, the supporting previous studies were included in this chapter to enlighten the findings

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