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## A descriptive study to assess the knowledge, attitude and adherence to anti tuberculosis treatment among the tuberculosis patients attending dots centre at selected PHC

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### Abstract

This is a descriptive study to assess the knowledge, attitude and adherence to antituberculosis treatment among the tuberculosis patients attending DOTS centre at selected PHC. With the help of this study we can assess the knowledge, attitude and adherence which will help to identify the causes of poor adherence if it is there, and it will give us an idea where we are lacking to deliver the services and where we have to pay attention more to achieve the goal of “Find. Treat. All. #EndTB” to ensure no one is left behind.

**Methodology:** The present study based on the Quantitative research approach this was a Non experimental descriptive research design. The setting of the study was DOTS centre at selected PHC, sample size for the study was 100. Subject was selected by non-probability convenient sampling technique. The tool was self-structured knowledge questionnaire. Data was analyzed by Descriptive and Inferential statistics.

**Results:** Finding of the present study reveals that majority 40% study subjects had average knowledge, 31% had poor knowledge, 29% had good knowledge of tuberculosis and antituberculosis treatment. 43% study subjects had neutral attitude, 32% had positive attitude, 25% had negative attitude towards DOTS therapy. 44% had average adherence, 31% had poor adherence, whereas 25% had good adherence towards DOTS therapy. The Chi-square value shows that there is (\*) significance association between adherence to DOTS therapy with age, area of living and history of any chronic disease. Remaining socio demographical variables had <sup>(NS)</sup> Not significance association between adherence to DOTS therapy.

**Conclusion:** It was concluded that 29% of total study subjects had good knowledge, with 32% had positive attitude, whereas only 25% had good adherence towards DOTS therapy.

**Keywords:** Tuberculosis, DOTS therapy, tuberculosis patients taking DOTS, knowledge, attitude, adherence

### Introduction

Tuberculosis is an infectious disease that primarily affects the lung parenchyma. The primary infectious agent, *M. tuberculosis*, is an acid-fast aerobic rod that grows slowly and is sensitive to heat and ultraviolet light <sup>[1]</sup>. Symptoms of TB disease depend on where in the body the TB bacteria are growing. The transmission of tuberculosis can be prevented by following early identification and treatment of persons with active TB <sup>[2]</sup>. Screening methods for TB includes mantoux tuberculin skin test with purified protein derivative (PPD) for active or latent infection (primary method) <sup>[3]</sup>. The initial intensive phase should consist of eight weeks of the drugs Isoniazid (H), Rifampicin (R), Pyrazinamide (Z) and Ethambutol (E). The continuation phase should consist of the three drugs Isoniazid, Rifampicin and Ethambutol given for another sixteen weeks. This is alternatively written as 2HREZ/4HRE. All patients should receive their daily TB drugs under direct observation (DOTS) <sup>[4]</sup>. “Under the new daily drug regimen, TB patients will be given fixed dose combinations (FDCs) - three or four drugs in specific dosages in a single pill - on a daily basis <sup>[5]</sup>. Each patient with TB in India can now receive, through direct benefit transfer, R500 (\$8) a month for food. This is because under nutrition is a risk factor for TB in India <sup>[6]</sup>. To reach the ambitious goal of Ending TB in India, availability of comprehensive range of promotive, preventive, curative and rehabilitation services closer to the community is key under the ambit of Universal Health Coverage (UHC) <sup>[7]</sup>.

In India, notifications of people newly diagnosed with TB rose from 1.2 million to 2.2 million between 2013 and 2019 (+74%) [8]. In March 2017 the Government of India announced that the new aim with regard to TB in India was the elimination of TB by 2025 [9]. Globally, the TB incidence rate and annual number of TB deaths is falling, but not fast enough to reach the 2020 milestone of a 20% and 35% reduction respectively between 2015 and 2020. The COVID-19 pandemic threatens to reverse recent progress in reducing the global burden of TB disease. The global number of TB deaths could increase by around 0.2–0.4 million in 2020 alone, if health services are disrupted to the extent that the number of people with TB who are detected and treated falls by 25–50% over a period of 3 months. In India, Indonesia, the Philippines and South Africa, four countries that account for 44% of global TB cases, there were large drops in the reported number of people diagnosed with TB between January and June 2020.<sup>8</sup> TB statistics in Punjab Population (Lakhs) (100,000) is 296.3 and in TB statistics in Chandigarh Population (Lakhs) (100,000) is 11.6 [10].

## Materials and Methods

### Problem Statement

"A descriptive study to assess the knowledge, attitude and adherence to anti tuberculosis treatment among the tuberculosis patients attending DOTS centre at selected PHC."

### Objective of the study

1. To assess the knowledge about DOTS therapy among TB patients.
2. To assess the attitude of TB patients towards DOTS therapy.
3. To associate relationship between adherence to DOTS therapy with different socio- demographic variables.
4. To investigate determinates of poor adherence with anti- tuberculosis therapy.

**Research approach:** Quantitative research approach was used for the present study.

**Research design:** Non experimental descriptive research design was used for the present study.

**Research variables:** Knowledge, attitude and adherence scores on anti-tuberculosis treatment among the tuberculosis patients attending DOTS centre at selected PHC.

**Research setting:** The present study will be conducted on the selected patients suffering with tuberculosis attending DOTS centre at selected PHC.

### Population

- The present study comprised of patients suffering with tuberculosis attending DOTS centre.
- **Target population:** Patients suffering with tuberculosis attending DOTS centre at selected PHC.
- **Accessible population:** Patients suffering with tuberculosis attending DOTS centre who met the designated criteria and are available at the time of data collection.

### Sampling Technique and Sample Size

Non-probability convenient sampling technique will be used to recruit a sample size of 100 among the tuberculosis patients attending DOTS centre at selected PHC.

### Criteria of sample selection

**Inclusion criteria:** The study included the patients who were:

- Suffering with tuberculosis.
- Attending DOTS centre.
- Willing to participate in the study.
- Present at the time of data collection.

### Exclusion criteria

Patients who were not suffering with tuberculosis.

**Description of tool:** Tools were consisted of four parts:

#### Part I: Socio demographic profile

It includes age, gender, marital status, religion, academic qualification, occupation, dietary pattern, monthly income, area of living, since how long have you been diagnosed with tuberculosis, how long have you been taking the "DOTS", history of any chronic disease, where did you get the knowledge about tuberculosis and its treatment, do you/ did you ever smoke, do you/ did you ever drink alcohol, have you ever been treated for TB before this episode, has any family member have ever suffered from TB, has any family member have ever suffered from TB.

**Part II:** Self structured questionnaire to assess Knowledge about DOTS therapy among TB patients attending DOTS centre at selected PHC.

**Part III:** Rating scale to assess Attitude towards DOTS therapy among TB patients attending DOTS centre at selected PHC.

**Part IV:** Self structured checklist to assess Adherence to DOTS therapy among TB patients attending DOTS centre at selected PHC.

#### Plan for data analysis

The data analysis will be done according to study objectives by using descriptive and inferential statistics. The plan of data analysis would be as follows:

- **Descriptive statistics:** Frequency, mean, percentage and standard deviation.
- **Inferential statistics:** Chi-square test was used to find out the association between socio- demographic and level of adherence.

Analyzed data was presented in the form of tables, diagrams, graphs based on the research finding.

### Result

The analyzed data was organized and presented under following sections:

**Section 1:** Frequency and percentage distribution of socio-demographic variables.

**Section 2:** Assessment of level of Knowledge about DOTS therapy among TB patients.

**Section 3:** Assessment of level of Attitude of TB patients towards DOTS therapy.

**Section 4:** Assessment of level of Adherence of TB patients towards DOTS therapy

**Section 5:** Association of level of Adherence to DOTS therapy with different socio- demographic variables.

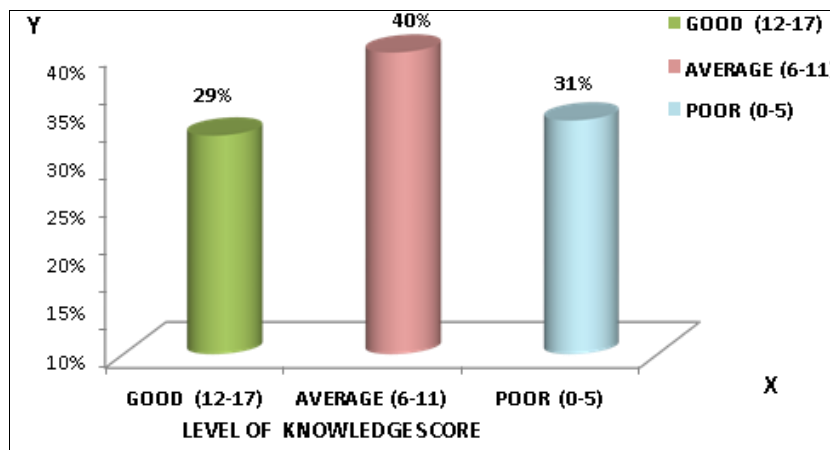
**Section 1: Frequency and percentage distribution of Socio-Demographic Variables**

**Table 1:** Frequency and percentage distribution of patients according to Socio- Demographic Variables N=100

Sr No.	Sociodemographic Variables	Frequency(N)	Percentage (%)
<b>Age (in years)</b>			
1	16-33	19	19
	34-50	21	21
	51-67	33	33
	68-84	27	27
<b>Gender</b>			
2	Male	50	50
	Female	48	48
	Transgender	02	02
<b>Marital status</b>			
3	Married	62	62
	Unmarried	10	10
	Divorced /Separated	05	05
	Widow	12	12
	Widower	11	11
<b>Religion</b>			
4	Hindu	30	30
	Muslim	10	10
	Sikh	40	40
	Christian	20	20
<b>Academic qualification</b>			
5	Illiterate	18	18
	Primary	09	09
	Senior secondary	27	27
	Graduation or above	46	46
<b>Occupation</b>			
6	Private employee	12	12
	Government employee	16	16
	Self employed	25	25
	Unemployed	32	32
	Labourer	15	15
<b>Dietary pattern</b>			
7	Vegetarian	32	32
	Non- vegetarian	0	0
	Both (a) and (b)	68	68
<b>Monthly income(in rupees)</b>			
8	Less than 10,000	31	31
	10,001-20,000	16	16
	20,001-30,000	37	37
	More than 30,001	16	16
<b>Area of living</b>			
9	Rural	56	56
	Urban	44	44
<b>Since how long have you been diagnosed with tuberculosis?</b>			
10	< 1 year	46	46
	1- 4 years	24	24
	4-10 years	29	29
	> 10 years	01	01
<b>How long have you been taking the"DOTS"?</b>			
11	< 2 months	40	40
	2 - 4 months	24	24
	4 - 6 months	16	16
	> 6 months	20	20
<b>Where did you get the knowledge about tuberculosis and its treatment?</b>			
12	From health professionals (doctors, nurses. ASHA etc.)	77	77
	From mass media (newspaper, T.V., radio etc.)	12	12
	Family and friends	11	11
<b>History of any chronic disease: if yes, then specify</b>			
13	Yes	51	51
	No	49	49

14	<b>Do you/ did you ever smoke?</b>		
	Never used	53	53
	Past user	29	29
	Current user	18	18
15	<b>Do you/ did you ever drink alcohol?</b>		
	Never used	49	49
	Past user	33	33
	Current user	18	18
16	<b>Have you ever been treated for tb before this episode?</b>		
	Yes	54	54
	No	46	46
17	<b>Has any family member have ever suffered from TB?</b>		
	Yes	34	34
	No	66	66

**Section 2: Assessment of level of Knowledge about DOTS therapy among TB patients**



**Fig 1:** Frequency and percentage distribution of patients as per their level of knowledge score

Fig No.1 depicts the percentage distribution of study subjects as per their level of knowledge score, which shows that study subjects with 29% had good level of knowledge,

study subjects with 31% had poor knowledge, whereas 40% having average knowledge of tuberculosis and antituberculosis treatment.

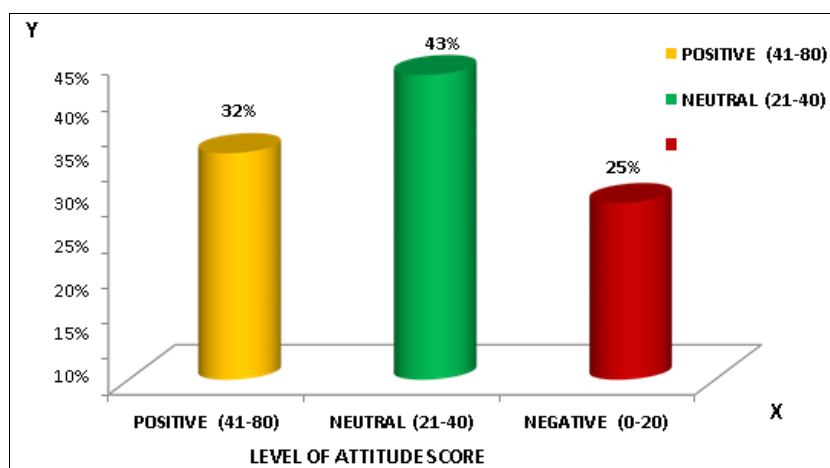
**Table 2:** Descriptive Statistics of Knowledge score regarding antituberculosis treatment among the tuberculosis patients (N=100)

Descriptive Statistics	Mean	SD	Median	Maximum	Minimum	Range	Mean %
Knowledge Score	8.38	4.646	8.375	16	2	14	49.294

Table 2: Depicts that the mean, median, SD, range and mean score of knowledge to antituberculosis treatment among the tuberculosis patients. The mean for knowledge as 8.38, SD

as 4.646, median as 8.375 with range of 14 and mean% score is (49.294) respectively.

**Section 3: Assessment of level of Attitude of TB patients towards DOTS therapy**



**Fig 2:** Frequency and percentage distribution of patients as per their level of attitude score

Fig No.2 depicts the percentage distribution of study subjects as per their level of attitude score, which shows that study subjects with 25% had negative attitude, study

subjects with 32% had positive attitude whereas 43% had neutral attitude towards DOTS therapy.

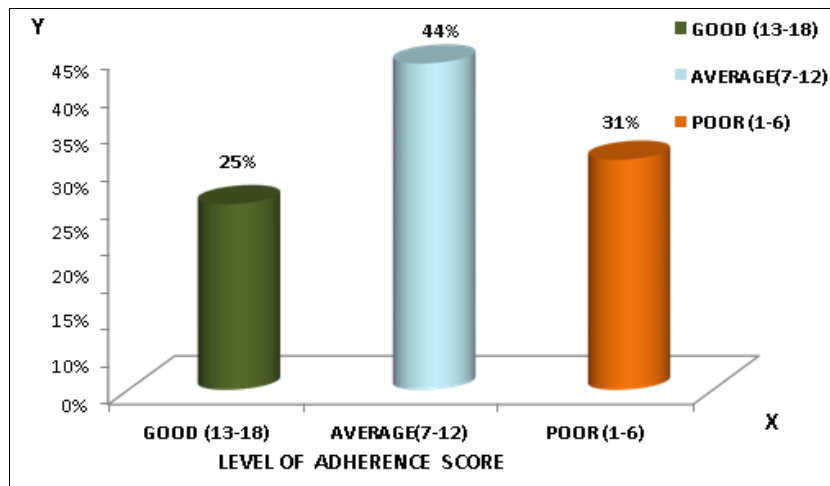
**Table 3:** Descriptive Statistics of Attitude score regarding antituberculosis treatment among the tuberculosis patients (N=100)

Descriptive Statistics	Mean	SD	Median	Maximum	Minimum	Range	Mean %
Attitude Score	34.975	19.314	32.046	68	09	59	43.718

Table 3: Depicts that the mean, median, SD, range and mean score percent of attitude of to antituberculosis treatment among the tuberculosis patients. The mean for attitude as

34.975, SD as 19.314, median as 32.046 with range of 59 and mean% score is (43.718) respectively.

**Section 4: Assessment of level of Adherence of TB patients towards DOTS therapy**



**Fig 3:** Frequency and percentage distribution of patients as per their level of adherence score

Fig No.3 depicts the percentage distribution of study subjects as per their level of adherence score, which shows that study subjects with 25% had good adherence, study

subjects with 31% had poor adherence whereas 44% had average adherence towards DOTS therapy.

**Table 4:** Descriptive Statistics of Adherence score regarding antituberculosis treatment among the tuberculosis patients (N=100)

Descriptive Statistics	Mean	SD	Median	Maximum	Minimum	Range	Mean %
Adherence score	9.14	4.475	9.159	17	2	15	50.777

Table 4: Depicts that the mean, median, SD, range and mean score of adherence of to antituberculosis treatment among the tuberculosis patients. The mean for adherence as 9.14,

SD as 4.475, median as 9.159 with range of 15 and mean% score is (50.777) respectively.

**Section 5: Associate relationship between adherences to DOTS therapy with different Socio- Demographic Variables.**

**Table 5:** Associate relationship between adherences to DOTS therapy with different Socio- Demographic Variables. (N=100)

Sr No.	Sociodemographic variables	Level of Adherence			Chi test	p-value	DF
		Poor	Average	Good			
1.	Age (in years)			24.168*	0.00048	6	
	16-33	0	8				11
	34-50	6	8				7
	51-67	11	18				4
	68-84	14	10	3			
2.	Gender			1.674 <sup>NS</sup>	0.795	4	
	Male	15	24				11
	Female	15	19				14
	Transgender	1	1	0			
3.	Marital status			10.68 <sup>NS</sup>	0.220	8	
	Married	17	28				17
	Unmarried	1	4				5
	Divorced /Separated	3	1				1

	Widow	6	5	1			
	Widower	4	6	1			
	<b>Religion</b>						
4.	Hindu	10	11	9	6.65 <sup>NS</sup>	0.354	6
	Muslim	1	4	5			
	Sikh	14	18	8			
	Christian	6	11	3			
	<b>Academic qualification</b>						
5.	Illiterate	10	5	3	11.299 <sup>NS</sup>	0.079	6
	Primary	4	5	0			
	Senior secondary	8	11	8			
	Graduation or above	9	23	14			
	<b>Occupation</b>						
6.	Private employee	0	7	5	12.085 <sup>NS</sup>	0.147	8
	Government employee	8	6	2			
	Self employed	10	11	4			
	Unemployed	10	14	8			
	Labourer	3	6	6			
	<b>Dietary pattern</b>						
7.	Vegetarian	12	12	8	1.093 <sup>NS</sup>	0.895	4
	Non- vegetarian	0	0	0			
	Both (a) and (b)	19	32	17			
	<b>Monthly income (in rupees)</b>						
8.	Less than 10,000	9	14	8	4.789 <sup>NS</sup>	0.571	6
	10,001-20,000	4	6	6			
	20,001-30,000	10	18	9			
	More than 30,001	8	6	2			
	<b>Area of living</b>						
9.	Rural	21	27	8	8.092 <sup>*</sup>	0.017	2
	Urban	10	17	17			
	<b>Since how long have you been diagnosed with tuberculosis?</b>						
10.	< 1 year	14	20	12	2.478 <sup>NS</sup>	0.870	6
	1- 4 years	6	12	6			
	4-10 years	11	11	7			
	> 10 years	0	1	0			
	<b>How long have you been taking the "DOTS"?</b>						
11.	< 2 months	12	17	11	6.77 <sup>NS</sup>	0.342	6
	2 - 4 months	7	12	5			
	4 - 6 months	3	6	7			
	> 6 months	9	9	2			
	<b>Where did you get the knowledge about tuberculosis and its treatment?</b>						
12.	From health professionals (doctors, nurses, ASHA etc.)	24	33	20	3.081 <sup>NS</sup>	0.544	4
	From mass media (newspaper, T.V., radio etc.)	5	6	1			
	Family and friends	2	5	4			
	<b>History of any chronic disease: if yes, then specify</b>						
13.	Yes	22	22	7	10.256 <sup>*</sup>	0.0059	2
	No	9	22	18			
	<b>Do you/ did you ever smoke?</b>						
14.	Never used	15	22	16	1.968 <sup>NS</sup>	0.741	4
	Past user	9	14	6			
	Current user	7	8	3			
	<b>Do you/ did you ever drink alcohol?</b>						
15.	Never used	15	19	15	2.054 <sup>NS</sup>	0.725	4
	Past user	10	17	6			
	Current user	6	8	4			
	<b>Have you ever been treated for TB before this episode?</b>						
16.	Yes	17	24	13	0.054 <sup>NS</sup>	0.973	2
	No	14	20	12			
	<b>Has any family member have ever suffered from TB?</b>						
17.	Yes	8	14	12	3.204 <sup>NS</sup>	0.201	2
	No	23	30	13			

Note: \* (Significant) at  $p < 0.05$  level and <sup>NS</sup> (Non-significant) at  $p > 0.05$  level

Table 5: Depicts that the Chi-square value shows that there is (\*) significance association between adherence to DOTS therapy with age, area of living and history of any chronic

disease. (<sup>NS</sup>) Not significance association between adherence to DOTS therapy with gender, marital status, religion, academic qualification, occupation, dietary pattern, monthly



income, since how long have you been diagnosed with tuberculosis, how long have you been taking the "DOTS", where did you get the knowledge about tuberculosis and its treatment, do you/ did you ever smoke, do you/ did you ever drink alcohol, have you ever been treated for TB before this episode, has any family member have ever suffered from TB, has any family member have ever suffered from TB.

### Discussion

The first objective of the study was to assess the knowledge about DOTS therapy among TB patients. Finding of the present study reveals that majority 40% study subjects had average knowledge, 31% had poor knowledge, 29% had good knowledge of tuberculosis and antituberculosis treatment. The mean  $\pm$  standard deviation for level of knowledge were  $8.38 \pm 4.646$ . The second objective of the study was to assess the attitude of TB patients towards DOTS therapy. Finding of the present study reveals that majority 43% study subjects had neutral attitude, 32% had positive attitude, 25% had negative attitude towards DOTS therapy. The mean  $\pm$  standard deviation for level of knowledge were  $34.975 \pm 19.314$ . The third objective of the study was to associate relationship between adherences to DOTS therapy with different socio-demographic variables. Finding of the present study reveals that study subjects with 44% had average adherence, 31% had poor adherence, whereas 25% had good adherence towards DOTS therapy. The mean  $\pm$  standard deviation for level of adherence were  $9.14 \pm 4.475$ . The Chi-square value shows that there is (\*) significance association between adherence to DOTS therapy with age, area of living and history of any chronic disease. (NS) Not significance association between adherence to DOTS therapy with gender, marital status, religion, academic qualification, occupation, dietary pattern, monthly income, since how long have you been diagnosed with tuberculosis, how long have you been taking the "DOTS", where did you get the knowledge about tuberculosis and its treatment, do you/ did you ever smoke, do you/ did you ever drink alcohol, have you ever been treated for TB before this episode, has any family member have ever suffered from TB, has any family member have ever suffered from TB. The fourth objective of the study was to investigate determinates of poor adherence with anti- tuberculosis therapy. The finding of the present study reveals that the determinates of poor adherence with anti- tuberculosis therapy are gender, marital status, religion, academic qualification, occupation, dietary pattern, monthly income, since how long have you been diagnosed with tuberculosis, how long have you been taking the "DOTS", where did you get the knowledge about tuberculosis and its treatment, do you/ did you ever smoke, do you/ did you ever drink alcohol, have you ever been treated for TB before this episode, has any family member have ever suffered from TB, has any family member have ever suffered from TB.

### Conclusion

This chapter deals with the conclusion of the study which was done to evaluate the "Knowledge, Attitude and Adherence to antituberculosis treatment among the tuberculosis patients attending DOTS centre". The mean  $\pm$  standard deviation for level of knowledge were  $8.38 \pm 4.646$  and mean% score is 49.294. The mean  $\pm$  standard deviation for level of attitude were  $34.975 \pm 19.314$  and mean% score is 43.718. The mean  $\pm$  standard deviation for level of

adherence were  $9.14 \pm 4.475$  and mean% score is 50.777.

### Limitations

- Time period for data collection was very less.
- The study was limited to only who were willing to participate in the study.
- The study was confined to only one PHC, which obviously imposed limitations to larger generalization.
- A self-structured questionnaire interview was used for data collection which restricts the amount of information that can be obtained from the tuberculosis patients attending DOTS centre at selected PHC.

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