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Knowledge regarding prevention of pulmonary tuberculosis among tuberculosis patient

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ABSTRACT

Introduction: Tuberculosis is a infectious disease caused by Mycobacterium Tuberculin. The disease primarily affects the lungs and cause pulmonary tuberculosis. It can also affect structure such as Intestine, meanings, bones and joints, lymph gland, skin and others tissue and body parts. The disease also affects animals like cattle; which is known as "bovine tuberculosis" which may also communicate to man. Pulmonary tuberculosis is the most common form of Tuberculosis, which affect the man.

Materials and Methods: A quantitative evaluative approach with one group pre-test design was used for the study. The samples consisted of 60 tuberculosis patient selected by Non probability purposive sampling technique. Data was collected by administering a structured knowledge questionnaire by the investigator before and after self-instructional module. Post-test was conducted after 7 days. Data were analysis using descriptive & inferential statistics (Paired't' test, Chi- square test, Karl- Person's correlation.

Results: The result of this study indicates that there was a significant increase in the post-test knowledge scores compared to pre-test scores of first aid minor ailments of prevention of tuberculosis. The mean knowledge score was observed 1.80 ± 0.40 in the pre-test and after implementation of self-instructional module post-test mean knowledge score was observed with 3.30 ± 0.46. T-test is shows the effectiveness of self-instructional module was -25.66.

Conclusion: State will happened the experiment doesn't make any difference H0 will be no significant difference between pre-test and post test knowledge scores regarding prevention of Pulmonary Tuberculosis. Thus, after the analysis and interpretation of the data, we can conclude that the hypothesis H1 that, "There will be a significant difference in the pre-test and post-test knowledge score regarding prevention of Pulmonary Tuberculosis among tuberculosis patients is being accepted. And the hypothesis H2 "it was found out that the age, gender, educational status, occupation and previous knowledge found to be insignificant at the level of P< 0.05 is being rejected. From the above results, we can conclude that there was a statistically significant effectiveness seen in knowledge of tuberculosis patients. Thus, the intervention "Self- instructional module" was effective in improving the knowledge of tuberculosis patients.

1. Introduction

Tuberculosis is a disease where people have social stigma. An untreated or poorly treated person can become a source of infection to all the people who comes in contact with him.[1] Social factors like poor quality of life. Poor housing, overcrowding, population explosion, under nutrition, lack of education. Large families, lake of awareness of transmission of infection and preventive measures are inter-related and contributing to the occurrence of tuberculosis Tuberculosis – or TB, as it's commonly called- is a contagious infection that usually attacks your lungs. It can spread to other parts

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of your body, like your brain and spine. A type of bacteria called Mycobacterium tuberculosis causes it.[2]

In the early 20th century, TB was a leading cause of death in the United States. Today, most cases are cured with antibiotics. But it takes a long time. You have to take meds for at least 6 to 9 months.

In the 20^{th} century, TB was a leading cause of death in the United States. Today, most cases are cured with antibiotics. But it takes a long time. You have to take meds for at least 6 to 9 months.[3]

The sources of infection are by human or bovine, human source in the sense the main source of infection is the patient whose sputum is positive for tubercle bacilli. The bovine source of infection is usually infected milk and milk products. The incubation period of tuberculosis may be weeks or months depending upon the host-parasite relationship and the dose of infection.[4] The mode of transmission of tuberculosis is mainly through droplet infection by an infectious case, coughing generates the largest number of droplets. The other mode of transmission is by inhalation of infected dust.[5]

When tuberculosis becomes active, 75% of cases involve infection in the lungs. Persons with diabetes mellitus have a risk for developing active TB that is two to four times greater than persons without diabetes mellitus, and this risk is likely to be greater in persons with insulin-dependent or poorly controlled diabetes. Pulmonary TB can cause permanent lung damage if not treated early. Medicines used to treat TB may cause side effects, including liver problems. Other side effects include changes in vision, orange or brown colored tears and urine, rash etc. There are some tests done in order to diagnose the tuberculosis. They are sputum examination and culture, biopsy of the affected tissues, chest CT scan, Chest X-ray, Bronchoscopy, Tuberculin skin test, Thoracentesis, interferon-gamma blood test such as QFT-gold test to test for TB infection. The basic principles of tuberculosis control are early case finding, Chemotherapy, BCG vaccination, proper health education etc.[6]

In India, Tuberculosis remains a major public health problem. Every year approximately 18- lakh people develop Tuberculosis and about 4 lakh die from it. India accounts for one fifth of global incidence of Tuberculosis and tops the list of 22 high Tuberculosis burden countries. Unless sustained an approximately 20 lakh people in India are estimated to die of Tuberculosis in next five years.[7]

Tuberculosis is a infectious disease caused by Mycobacterium Tuberculi. The disease primarily affects the lungs and cause pulmonary tuberculosis. It can also affect structure such as Intestine, meninges, bones and joints, lymph gland, skin and others tissue and body parts. The disease also affects animals like cattle; which is known as "bovine tuberculosis" which may also communicate to man. Pulmonary tuberculosis is the most common form of Tuberculosis, which affect the man.[8]

1.1. Need for the study

In the light of above, the investigator found it desirable to evaluate the knowledge and attitude of OPD clients about Pulmonary Tuberculosis. The investigator's decision for selecting the topic on Pulmonary Tuberculosis for the study grew out of his clinical experience during his study period with clients who had limited awareness regarding the origin, treatment, prevention and control measures of Pulmonary Tuberculosis.[9] There for it is very clear that the clients must need to update their knowledge regarding Pulmonary Tuberculosis. An information booklet is one of the effective teaching strategy which consists of figures which will help to draw the attention of the clients. The contents of this Information Booklet depend on the results of the study. Information Booklet is not only effective for clients; it can be used by any person in the community.[10]

1.2. Statement of the problem

A study to assess the impact of self-instructional module on knowledge regarding prevention of pulmonary tuberculosis among tubercolusis patient in selected rural area at indore."

2. Objectives of the Study

1. To assess the pretest knowledge regarding prevention of Pulmonary Tuberculosis among tuberculosis patient in selected rural area of Indore before administration of Self-instructional module.
2. To determine the impact of self-instructional module on knowledge regarding prevention of Pulmonary Tuberculosis among tuberculosis patient in selected rural area of Indore.
3. To determine the associate between pre-test knowledge score with selected socio demographic variables.

2.1. Hypothesis

1. H0: There will be no significant difference between pre-test and post test knowledge scores regarding prevention of Pulmonary Tuberculosis.
2. H1: There will be significant difference between pre-test and post test knowledge scores regarding prevention of Pulmonary Tuberculosis.
3. H2: There will be a significant association between pre-test knowledge score with selected demographic variables.

2.2. Operational definitions

1. *Assess:* In this study, it refers to estimate or determine or get the measure of a particular thing.
2. *Impact:* In this study, it refers to the extent to which the self-instructional module has achieved the desired impact, determined by the gain in knowledge scores

in the post test as measured by the self- structured knowledge questionnaire.

3. *Self-instructional module:* It refers to the systematic developed instructional method and teaching aids designed for the tuberculosis patients in a selected rural area at Indore to provide information regarding the awareness of Tuberculosis.
4. *Pulmonary Tuberculosis:* in this study, tuberculosis is a chronic infectious disease caused by tubercle bacilli. The disease primary affects lungs and causes Pulmonary Tuberculosis.
5. *Knowledge:* in this study, it refers to the level of awareness of information regarding the prevention of Pulmonary Tuberculosis.

3. Review of Literature

In this study the review of literature is divided into two parts.

1. Literature related to prevalence of pulmonary tuberculosis.
2. Literature related to knowledge, cause and risk factors of pulmonary tuberculosis.
3. Literature related to prevention & control of pulmonary tuberculosis.

4. Materials and Methods

4.1. Research approach

In view of the nature of the problem selected for the present study and the objectives to be accomplished, a quantitative evaluative approach was considered appropriate for the present study.

4.2. Research design

Pre-Experimental One Group Pre and Post Test Design

$$\frac{X1}{Pre\,Test} - \frac{0}{STP} - \frac{X2}{Post\,Test}$$

The selection of design depends upon the purpose of the study, research approach and variables to be studied. The research design used for the present study is pre-experimental; one group pre-test post-test design. It includes manipulation, no randomization and no control group.

4.3. Variables

Variables are qualities, properties or characteristics of the person, things or situation that change or vary.

The variables included in this study are independent variable and dependent variable and extraneous variable.

4.4. Independent variable

Self-instructional module on prevention of tuberculosis.

4.5. Dependent variable

Knowledge of tuberculosis patient on prevention of tuberculosis.

4.6. Setting of the study

Study done at bawliya khurd rural urban areas of Indore, Madhya Pradesh was selected.

4.7. Pouplation target

4.7.1. Population

The target population is defined as the "entire aggregation of cases that meets designated set of criteria".

The target population of the present study includes all the tuberculosis patients those who are living in rural area, Indore.

4.7.2. Accessible population

The accessible population of the present study includes the tuberculosis patients those who are living in bawliya khurd rural area, Indore.

4.7.3. Sample and sample size

A Sample consists of a sub-set of a population selected to participate in a research study.

The sample used for this study was 60 tuberculosis patients of Indore, those who fulfill the inclusion and exclusion criteria.

4.7.4. Sampling technique

Sampling refers to the process of selecting a portion of the population to represent the entire population.

The investigator had utilized purposive sampling technique for the selection of the subjects.

4.8. Criteria for the aelection of the aample

4.8.1. Inclusion criteria

1. Tuberculosis patients who are living in selected rural area at Indore.
2. Tuberculosis patients who are willing to participate.
3. Tuberculosis patients who know English and Hindi.

4.8.2. Exclusion criteria

1. Tuberculosis patients who are not willing to participate.
2. Tuberculosis patients who are not available at the time of data collection.

4.9. Description of the tool

Self-administration of questionnaire

Part A: Performa for collecting demographic data.	**Part A:** Part A dealt with demographic data which was used to collect the characteristics of the samples with an instruction to participants to put a tick mark against the appropriate choice closely representing their answers. It contains 10 items such as age, gender, educational status, Previous knowledge related to Pulmonary tuberculosis.
Part B: Self-structured knowledge questionnaires on prevention of tuberculosis to assess knowledge of tuberculosis patients regarding prevention of tuberculosis.	**Part B**: A Self-structured knowledge questionnaire with 30 items was constructed to assess the Knowledge of tuberculosis patients regarding prevention of pulmonary tuberculosis. The questionnaire consists of 30 multiple choice questions. Each item had 4 choices out of which one was correct answer and the remaining 3 were wrong answers. A score value of 1 was allotted to each correct response and for wrong response zero was awarded. Thus there were 30 maximum obtainable scores. The level of Knowledge was categorized based on percentage of scores obtained.

5. Result

5.1. Section- A frequency and percentage distribution of selected samples

The present section comprises of selected demographic variables with their tabular and graphic representation which involves the interpretation of data in term of frequency and percentage distribution. The present section also concerned with data pertaining to the baseline information such as age, gender, educational status, occupation and previous knowledge.

There were 13 (21.7%) tuberculosis patient in the age group 20-25 years, 16 (26.7%) tuberculosis patient were in the age group 26-30 years, while 31 (51.7%) tuberculosis patient were in the age group above 30 years, Majority of the tuberculosis patient were in the age group above 30 years.

Table 1 There were 50 (50.0%) males and 50 (50.0%) females in the present study, showing equal number in the study.

Table 2 There were 5 (8.3%) tuberculosis patient were not having formal education, 13 (21.7%) tuberculosis patient were having primary educational status, 16 (26.7%) tuberculosis patient were having Secondary educational status and 18 (30.0%) tuberculosis patient were having higher secondary status, while 8 (13.3%) tuberculosis patient were graduate.

Table 3 In this study 3 (5.0%) tuberculosis patients were housewife, 36 (60.0%) tuberculosis patients were Laborer, 21 (35.0%) tuberculosis patient were Industrial worker, while none of them were businessman.

Table 4 There were 8 (13.3%) tuberculosis patient were having previous knowledge regarding prevention of tuberculosis, 52 (86.7%) were not having previous knowledge regarding prevention of tuberculosis.

5.2. Section- B comparison of pre test and post test knowledge score among the tuberculosis patients

For assessing the effectiveness of Self-instructional module, structured knowledge questionnaire consist of 30 questions were given to the tuberculosis patients for each correct answer the tuberculosis patients was given 1 mark and for every wrong answer was given 0 mark. Only 1 question was correct for every question. Thus, a student could obtain a minimum of 0 marks and maximum of 30 marks. These marks were graded as poor (0-5), average (6-10), good (11-20) and excellent (21-30).

Table 5 The above table shows the pretest and posttest knowledge Grade.

The knowledge questionnaire consisted of 30 questions. For each correct answer 1 mark was given, for each wrong answer 0 mark was given. The score was further graded as Poor (0-5), Average (6-10), Good (11-20) and Excellent (21-30).

In the pretest, 12 (20.0%) tuberculosis patients got poor knowledge Grade, 48 (80.0%) tuberculosis patients got average knowledge Grade, none of them tuberculosis patient got good knowledge Grade and excellent Grade.

Then an intervention was given to these tuberculosis patients and the same set of knowledge questionnaire was re-administered.

In the posttest, 18 (30.0%) tuberculosis patients got good knowledge Grade, 42 (70.0%) tuberculosis patients got excellent knowledge Grade, none of them tuberculosis patient got poor knowledge Grade and average Grade.

Thus, the intervention was helpful in improving the posttest knowledge Grade of the tuberculosis patients.

5.3. Section- C association between pre test knowledge score with selected demographic variables

Table 6 The above table shows the comparison of pretest and posttest knowledge score.

The pretest knowledge score was 1.80 ± 0.40, while the posttest knowledge score was 3.30 ± 0.46. The difference was found to be statistically significant ('t' value = — 25.66, df=59, p value=<0.05, Significant), showing a higher posttest knowledge score.

Table 1: Frequency and percentage distribution of tuberculosis patient according to age

S. No.	Demographic Variable	No.	Percentage
1.	**Age**		
	a. 20-25years	13	21.7
	b. 26-30 years	16	26.7
	c. More than 30 years	31	51.7

Table 2: Frequency and percentage distribution of tuberculosis patient according to gender

S.No.	Demographic Variable	No.	Percentage
2.	Gender		
	Male	30	50.0
	Female	30	50.0

Table 3: Frequency and percentage distribution of tuberculosis patient according to Educational status.

S.No.	Demographic Variable	No.	Percentage
3.	**Educational status**		
	a. No formal education	5	8.3
	b. Primary	13	21.7
	c. Secondary	16	26.7
	d. Higher secondary	18	30.0
	e. Graduate	8	13.3

Table 4: Frequency and percentage distribution of tuberculosis patient according to Occupation.

S. No.	Demographic Variable	No.	Percentage
4.	**Occupation**		
	a. Housewife	3	5.0
	b. Laborer	36	60.0
	c. Industrial worker	21	35.0
	d. Business man	0	0.0

Table 5: Frequency and percentage distribution of tuberculosis patient according to previous knowledge regarding prevention of tuberculosis

S. No.	Demographic Variable	No.	Percentage
5.	**Previous knowledge**		
	a. Yes	8	13.3
	b. No	52	86.7

Table 6: Comparison of the pretest and posttest knowledge Grade

S. No.	Knowledge grade		Pretest		Posttest	
			No.	%	No.	%
1.	Poor	(0-5)	12	20.0	0	0.0
2.	Average	(6-10)	48	80.0	0	0.0
3.	Good	(11-20)	0	0.0	18	30.
4.	Excellent	(21-30)	0	0.0	42	70.0
	Total		60	100.0	60	100.0

Table 7: Comparison of the pretest and posttest knowledge score

S.No.	Knowledge Score	Mean ± SD	't' value	P value
1.	Pretest	1.80 ± 0.40	-25.66, df=59	<0.05
2.	Posttest	3.30 ± 0.46		

Paired 't' test applied. P value = <0.05, Significant

Table 8: Association of pretest knowledge grade with age

S. No.	Age	Pretest Knowledge grade				2	P value
		Poor (0-5)	Average (6-10)	Good (11-20)	Excellent (21-30)		
1.	Age						
	a. 20-25 years	0	13	0	0		
	b. 26-30 years	5	11	0	0	4.64, df=2	>0 05,NS
	c. Above 30years	7	24	0	0		
	Total	12	48	0	0		60

2=4.64, df=2, p value = 0.05, not significant

Table 9: Association of pretest knowledge grade with gender

S. No.	Gender	Pretest Knowledge grade				2	P value
		Poor (0-5)	Average (6-10)	Good (11-20)	Excellent (21-30)		
2.	**Gender**						
	a. Male	4	26	0	0	1.66, df=1	>0.05, NS
	b. Female	8	22	0	0		
	Total	12	48	0	0		60

2=1.66, df=1, P value = >0.05, Not Significant

Table 10: Association of pretest knowledge grade with educational status

S. No.	Educational status	Pretest Knowledge grade				2	P value
		Poor (0-5)	Average (6-10)	Good (11-20)	Excellent (21-30)		
3.	**Educational status**						
	a. No formal	3	2	0	0		
	b. Primary	3	10	0	0	6.26, df=4	>0.05, NS
	c. Secondary	3	13	0	0		
	d. Higher Secondary	2	16	0	0		
	e. Graduate	1	7	0	0		
	Total	12	48	0	0		60

2=6.26, df-4, P value = >0.05, Not Significant

Table 11: Association of pretest knowledge grade with Occupation

S. No.	Occupation	Pretest Knowledge grade				2	P value
		Poor (0-5)	Average (6-10)	Good (11-20)	Excellent (21-30)		
4.	Occupation						
	a. House wife	1	2	0	0		
	b. Laborer	5	31	0	0	2.13, df=2	>0.05,NS
	c. Industrial worker	6	15	0	0		
	d. Businessmen	0	0	0	0		
	Total	12	48	0	0		60

2=2.13, df=2, P value = >0.05, Not Significant

Table 12: Association of pretest knowledge grade with previous knowledge

S. No.	Previous knowledge	Pretest Knowledge grade				2	P value
		Poor (0-5)	Average (6-10)	Good (11-20)	Excellent (21-30)		
5.	Previous knowledge						
	a. Yes	2	6	0	0	0.14, df=1	>0.05,NS
	b. No	10	42	0	0		
	Total	12	48	0	0		60

2=0.14, df=1, P value = >0.05, Not Significant

Table 7 The above table shows the association between pretest knowledge grade and age.

There is a statistically no significant association seen between pretest knowledge grade and the age (2=4.64, df=2, P value = >0.05, Not Significant), showing that pretest knowledge grade is independent of the age of the tuberculosis patient.

Table 8 The above table shows the association between pretest knowledge grade and gender.

There is a statistically no significant association seen between pretest knowledge grade and the gender (2=1.66, df=1, P value = >0.05, Not Significant), showing that pretest knowledge grade is independent of the gender of the tuberculosis patient.

Table 9 The above table shows the association between pretest knowledge grade and educational status.

There is a statistically no significant association seen between pretest knowledge grade and the educational status (2=6.26, df=4, P value = >0.05, Not Significant), showing that pretest knowledge grade is independent of the educational status of the tuberculosis patient.

Table 10 The above table shows the association between pretest knowledge score and occupation.

There is a statistically no significant association seen between pretest knowledge grade and occupation (2=2.13, df=2, P value = >0.05, Not Significant), showing that pretest knowledge grade is independent of the occupation of the tuberculosis patient.

Table 11 The above table shows the association between pretest knowledge grade and previous knowledge.

There is a statistically no significant association seen between pretest knowledge grade and previous knowledge (2=0.14, df=1, P value = >0.05), showing that pretest knowledge grade is independent of the previous knowledge of tuberculosis patient.

6. Conclusion

It was found out that there were 13 (21.7%) tuberculosis patient in the age group 21-26 years, 16 (26.7%) tuberculosis patient were in the age group 27- 32 years, while 31 (51.7%) tuberculosis patient were in the age group above 32 years, Majority of the tuberculosis patient were in the age group above 32 years. It was observed that there were 50 (50.0%) males and 50 (50.0%) females in the present study, showing equal number in the study. It was also found out that there were 5 (8.3%) tuberculosis patients were not having formal education, 13 (21.7%) tuberculosis patients were having primary educational status, 16 (26.7%) tuberculosis patient were having Secondary educational status and 18 (30.0%) tuberculosis patient were having higher secondary status, while 8 (13.3%) tuberculosis patient were graduate. It was found that 3 (5.0%) tuberculosis patients were housewife, 36 (60.0%) tuberculosis patients were Laborer, 21 (35.0%) tuberculosis patient were Industrial worker, while none of them were businessman. It was observed that there were 8 (13.3%) tuberculosis patient were having previous knowledge regarding prevention of tuberculosis, 52 (86.7%) were not having previous knowledge regarding prevention of tuberculosis.

7. Source of Funding

None.

8. Conflict of Interest

None.

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