



A study to assess the effectiveness on planned teaching programme on knowledge regarding prevention of multiple drug resistance tuberculosis among tuberculosis patient in selected community health centre (DOTS Center), Dadra and Nagar Haveli

Ms. Anita Patel¹ and Mrs. Saphiga Barnabas²

¹M.Sc. Nursing, Shri Vinoba Bhave college of Nursing Silvassa, India.

²Assistant Professor, Shri Vinoba Bhave college of Nursing Silvassa, India.

Article Information:

Type of Article: *Research Article (Original)*

Received On: 9th April 2024

Accepted On: 18th April 2024

Published On: 20th April 2024

Abstract

Background: MDR-TB is a preventable and curable disease, but its chronic nature can lead to complications if tuberculosis treatment is not followed properly. Recognizing the lack of knowledge among individuals in preventing MDR-TB and the potential for long-term complications, there is an urgent need to address health education in tuberculosis. By enhancing patient knowledge, individuals can play a more active role in preventing MDR-TB and its associated risks.

Aim: The aim of the study was to assess the effectiveness of planned teaching programme on knowledge regarding prevention of MDR-TB among tuberculosis patients.

Methodology: A pre-experimental research design, specifically a one-group pre-test-post-test design, was employed using non-probability randomized sampling to select 60 samples from a selected Community Health Center in Dadra and Nagar Haveli (DNH). Initially, a pre-test was conducted using a demographic performa and a structured knowledge questionnaire. Following the pre-test, an intervention was administered, after which a post-test was conducted to measure the effectiveness of the intervention. Data analysis was performed using descriptive and inferential statistics to interpret the findings of the study.



Results: The study results revealed a significant difference between the mean pre-test score (9.75) and post-test score (16.9) of tuberculosis patients regarding the prevention of multiple drug-resistant tuberculosis, as evidenced by a 't' test value of 24.83 and a highly significant p-value of < 0.007 , thereby accepting H1. Additionally, H2 was accepted, indicating an association between occupation and type of house.

Conclusion: The study concluded that the planned teaching programme on prevention of MDR-TB was effective among tuberculosis patients, which helps to prevent MDR-TB among tuberculosis patients.

Keywords: Effectiveness, Knowledge, Planned Teaching Programme, Tuberculosis Patient, MDR-TB.

Introduction:

Multi-drug-resistant tuberculosis (MDR-TB) poses a significant challenge to global health,¹ characterized by resistance to the two most potent first-line anti-TB drugs, isoniazid and rifampicin, along with other drugs.² This resistance complicates treatment, often requiring more prolonged and costly regimens with less effective and more toxic drugs. MDR-TB has emerged as a major clinical and public health problem in many countries, hindering efforts to effectively treat TB and threatening global TB control initiatives.

In 2019, India faced the highest absolute burden of TB globally, with 2,404,815 cases reported. However, there was a 24.9% decrease in reported cases in 2020, with 1,805,670 cases, followed by a slight increase to 2,135,830 cases in 2021, which was 11.2% lower than the 2019 figure.^{3,4,5,6} Pulmonary TB cases accounted for the majority of cases, comprising 73.4% of cases in 2019 (1,764,416 pulmonary cases) and 72% in 2021 (1,528,000 pulmonary cases).^{7,8,9,10}

The development of drug-resistant TB can be attributed to various factors, including inadequate treatment regimens and interruptions in treatment.^{11,12,13} When individuals infected with TB do not complete their prescribed treatment, some bacteria survive, increasing the risk of developing resistance. MDR-TB can also arise through direct contact with an individual already infected with MDR-TB. These factors contribute to the global spread of MDR-TB and pose a significant challenge to TB control efforts worldwide.

The WHO's End TB Strategy, spanning from 2016 to 2035, aims to eradicate the global TB epidemic, defined as achieving a TB incidence rate of around 10 new cases per 100,000



Glorious International Journal of Nursing Research

(An International Peer-Reviewed Refereed Journal)

ISSN: 2583-9713

www.gloriousjournal.com

population per year. This incidence rate is comparable to that of countries with a low burden of TB in 2015.¹ The strategy outlines key interventions and milestones to accelerate progress towards ending the TB epidemic, emphasizing the importance of innovation, funding, and political commitment to achieve this ambitious goal.

The study aims to assess the effectiveness of a planned teaching program on knowledge regarding the prevention of multiple drug-resistant tuberculosis (MDR-TB) among tuberculosis patients in a selected Community Health Centre (DOTS Center) in Dadra and Nagar Haveli. The objectives include assessing the initial level of knowledge on MDR-TB prevention, evaluating the impact of the teaching program, and exploring any associations between knowledge levels and demographic variables. The study is delimited to a single setting, a limited follow-up of 2 cycles, a sample size of 60 patients, patients who understand Hindi, Gujarati, or English, and variable treatment durations.

Research Methodology:

The research methodology employed in this study utilized a quantitative approach, employing a pre-experimental one-group pre-test-post-test design. The research was conducted at a selected Community Health Centre in Dadra and Nagar Haveli, focusing on patients newly diagnosed with tuberculosis. A non-probability randomized sampling technique was used to select the sample, which included patients above 15 years of age, willing to participate, and available at the time of data collection. Exclusion criteria comprised patients suffering from chronic disorders like cancer and HIV, those below 15 years, disabled individuals, those with mental retardation, bedridden patients, and those unwilling to participate.¹⁴

The data collection tool consisted of two parts. Part 1 gathered socio-demographic data, including gender, age, religion, marital status, type of house, type of family, education, occupation, type of food, ventilation, and family history of TB. Part 2 was a structured knowledge questionnaire with 20 items, each offering four options for responses. The correct response was scored as 1, while an incorrect response was scored as 0, with a maximum possible score of 20 indicating adequate knowledge.

Administrative permission was obtained from the institutional ethical committee and the national Tuberculosis Elimination Program Officer. Written consent was obtained from the tuberculosis patients, and the data was collected personally using the structured knowledge



questionnaire. A pre-test was conducted, followed by a planned teaching program, and finally a post-test after 7 days. The data collection period lasted for 4 weeks. Descriptive and inferential statistics were used to analyze and interpret the data, revealing an increase in knowledge on the prevention of MDR-TB among the tuberculosis patients in the experimental group, indicating the effectiveness of the planned teaching program.

Results:

Section I: Description of demographic variables

Table 1: Frequency and percentage wise distribution of demographic variables

(n= 60)

Sr. No.	Demographic variables	Frequency (f)	Percentage (%)
1	Gender:		
	Male	29	48.3
	Female	31	51.7
	Others	0	0
2	Age in year		
	15-25	14	23.3
	26-35	20	33.3
	36-45	10	16.7
	46-55 years and above	16	26.7
3	Religion:		
	Hindu	54	90
	Muslim	6	10
	Christian	0	0
	Others	0	0
4	Marital Status:		
	Married	49	81.7
	Unmarried	11	18.3
	Widow	0	0
	Divorced	0	0
5	Type of House:		
	Pakka house	42	70
	Kachcha house	18	30
6	Type of Family:		
	Joint family	23	38.3



	Nuclear family	37	61.7
7	Education:		
	Illiterate	4	6.7
	Primary	11	18.3
	Secondary	20	33.3
	Higher secondary	22	36.7
	Diploma /graduate	3	5
8	Occupation		
	Farmer	3	5
	Private job	20	33.3
	Govt. job	0	0
	Self- employee	37	61.7
9	Type of food:		
	Vegetarian	24	38.3
	Non vegetarian	36	61.7
10	Ventilation		
	Well ventilated	30	50
	Cross ventilated	21	35
	No ventilated	9	15
11	Family history of tuberculosis:		
	Yes	0	0
	No	60	100

Section II: Comparison frequency and percentage between pretest and post-test on knowledge regarding prevention of multiple drug resistance tuberculosis

Table-2: Frequency and percentage wise distribution between pre-test and post-test

(n= 60)

Level of knowledge	Pre-test score		Post test score	
	f	%	F	%
Poor	38	63.3	0	0
Average	22	36.7	13	21.7
Good	0	0	47	78.3
Overall	60	100	60	100

Table-2: Frequency and percentage wise distribution between pre-test and post-test to assess the effectiveness on planned teaching programme on knowledge regarding prevention of



multiple drug resistance tuberculosis among tuberculosis patient in selected community health center.

Section III: Evaluation of the effectiveness of planned teaching programme regarding prevention of mdr-tb

Table-3: paired ‘t’ test to assess the effectiveness on planned teaching programme on knowledge regarding prevention of multiple drug resistance tuberculosis among tuberculosis patient in selected community health center.

(n= 60)

Level of knowledge	Pre-Test Score			Post Test score			Difference in mean	‘t’ test	p-value
	Mean	SD	Mean%	Mean	SD	Mean%			
Overall	9.75	2.67	49	16.9	1.74	85	7.15	24.83	P<0.007** HS

The data presented in table showed that the pretest SD were (2.67) and posttest SD were (1.74) the mean of pre-test was (9.75) and posttest were (16.9). The difference mean is 7.15 ‘t’ test value 24.83, p value <0.007 that is highly significant. Hence H1 accepted as there is a effectiveness of planned teaching programme regarding prevention of multiple drug resistance tuberculosis among tuberculosis patients.

Section IV: association of pretest knowledge score with selected demographic variables

Table 4.: Association for level of knowledge test in pre-test and selected demographic variables

(n= 60)

Demographic variables	Inadequate		Moderate		Adequate		χ ² -value	p-value
	F	%	F	%	F	%		
1.Gender:								
Male	17	28.3	12	20	0	0	0.536	0.464
Female	21	35	10	16.7	0	0	(df=1)	NS



Glorious International Journal of Nursing Research

(An International Peer-Reviewed Refereed Journal)

ISSN: 2583-9713

www.gloriousjournal.com

Others	0	0	0	0	0	0		
2.Age in Years:								
15-25	10	16.7	4	6.7	0	0	4.69 (df=3)	0.196 NS
26-35	9	15	11	18.3	0	0		
36-45	8	13	2	3.3	0	0		
46-55 years and above	11	18.3	5	8.3	0	0		
3. Religion:								
Hindu	33	55	21	35	0	0	1.15 (df=1)	0.284 NS
Muslim	5	8.3	1	1.7	0	0		
Christian	0	0	0	0	0	0		
Others	0	0	0	0	0	0		
4.Marital Status:								
Married	30	50	19	31.7	0	0	0.51 (df=1)	0.474 NS
Unmarried	8	13.3	3	5	0	0		
Widow	0	0	0	0	0	0		
Divorced	0	0	0	0	0	0		
5.Type of House:								
Pakka house	22	36.7	20	33.3	0	0	7.23 (df=1)	0.007** HS
Kachcha house	16	26.7	2	3.3	0	0		
6.Type of Family:								
Joint family	16	26.7	7	11.7	0	0	0.623 (df=1)	0.430 NS
Nuclear family	22	36.7	15	25	0	0		
7. Education:								
Illiterate	2	3.3	2	3.3	0	0	7.14 (df=4)	0.129 NS
Primary	10	16.7	1	1.7	0	0		
Secondary	14	23.3	6	10	0	0		
Higher secondary	11	18.3	11	18.3	0	0		
Diploma /graduate	1	1.7	2	3.3	0	0		
8. Occupation								
Farmer	2	3.3	1	1.7	0	0	7.13 (df=2)	0.028* S
Private job	8	13.3	12	20	0	0		
Govt. job	0	0	0	0	0	0		
Self-employee	28	46.7	9	15	0	0		



9.Type of Food:								
Vegetarian	14	23.3	9	15	0	0	0.432	0.806
Non vegetarian	24	40	13	21.7	0	0	(df=2)	NS
10. Ventilation								
Well ventilated	15	25	15	25	0	0	4.60	0.540
Cross ventilated	16	26.7	5	8.3	0	0	(df=2)	NS
No ventilated	7	11.7	2	3.3	0	0		
11.Family history of tuberculosis:								
Yes	0	0	0	0	0	0	0	1
No	38	63.3	22	36.7	0	0	(df=1)	NS

***p<0.05 significant, ** p<0.01 & ***p<0.001 Highly significant.**

The above table indicate the calculated chi square of pretest value reveal that there is no significant association between the pretest score and gender, age, religion, marital status, type of family, education, type of food, ventilation and family history of tuberculosis and there is significant association between pretest score and type of house highly significant and occupation is significant H2 accepted for occupation and type of house.

Conclusion:

Numerous research articles have highlighted the importance of knowledge enhancement through the administration of planned teaching programs to effectively increase knowledge levels among patients with tuberculosis. These interventions have demonstrated significant efficacy and can be seamlessly integrated into the routine care of tuberculosis patients.

References:

1. World Health Organization. (2012). Global tuberculosis report 2022 (20th ed.). Geneva, Switzerland: WHO.
2. Matteelli, A. (2014). Extensively drug-resistant tuberculosis: Epidemiology and management.
3. Revised National Tuberculosis Control Programme. (2017). National strategic plan for tuberculosis elimination 2017-2025. New Delhi, India: Central Tuberculosis Division, Directorate General of Health Services, Government of India.



Glorious International Journal of Nursing Research

(An International Peer-Reviewed Refereed Journal)

ISSN: 2583-9713

www.gloriousjournal.com

4. Gulani, K. K. (2013). Textbook of community health nursing (principles & practices) (2nd ed.). Delhi, India: Kumar Publishing House.
5. Park, K. (2011). Textbook of preventive and social medicine. Jabalpur, India: Ms Banarsidas Bhanot Publishers.
6. Singla, N., Singla, R., Jain, G., Habib, L., & Behera, D. (2011). Tuberculosis among household contacts of multidrug-resistant tuberculosis patients in Delhi, India. *International Journal of Tuberculosis and Lung Disease*, 15, 1326-1330.
7. Sharma, S. K., & Nunn, P. (2015). MDR tuberculosis – critical steps for prevention and control. *The New England Journal of Medicine*. DOI: 10.1056/NEJMra0908076.
8. Polit, D. F., & Beck, C. T. (South Asian Edition). (2021). *Nursing Research – Generating and assessing evidence for Nursing Practice* (10th ed.). New Delhi, India: Wolters Kluwer India Pvt. Ltd.
9. Javed, H., & Tahir, Z. (2016). Knowledge and attitudes toward multidrug-resistant and extensively drug-resistant tuberculosis. *International Journal of Mycobacteriology*, 5(2).
10. Alipanah, N., & Jarlsberg, L. (2018). Adherence intervention and outcomes of tuberculosis treatment: A systematic review and meta-analysis of trials and observational studies. *PLoS Medicine*, 15(7), e1002595.
11. Khan, A., & Shaikh, B. T. (2020). Knowledge, awareness, and health-seeking behavior regarding tuberculosis in a rural district of Khyber Pakhtunkhwa, Pakistan.
12. Deshpal, H., & Chauhan, B. (2014). Knowledge on prevention of multiple drug-resistant tuberculosis among tuberculosis patients in Ahmedabad. *Journal of Emerging Technologies and Innovative Research*, 10(8).
13. Anowar, M. N. (2021). Development of nursing practice guidelines for the prevention of multidrug-resistant tuberculosis among adult patients in Bangladesh. *Nursing (International Program)*.
14. Polit, D. F., & Hungler, B. P. (1999). *Nursing research: Principles and methods* (6th ed.). Philadelphia, PA: Lippincott Co.