A study to assess the effectiveness of Information Booklet regarding Anti Tubercular Treatment in terms of knowledge gain among DOTS Providers of selected area at DOTS centers of Indore city

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ABSTRACT

"A study to assess the effectiveness of Information Booklet regarding Anti Tubercular treatment in terms of knowledge gain among DOTS Providers of selected area at DOTS centers of Indore city in the year 2014-2015" was undertaken by Ms. Ranjna Singh Rajpoot, towards partial fulfillment of the requirement for the award of the degree of Master of Science in Nursing, at Government College of Nursing, Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh during the year 2014-2015.

The objectives of the study were:

1. To assess the pre existing knowledge among DOTS Providers regarding Anti tubercular treatment.

2. To assess the effectiveness of information booklet regarding Anti tubercular treatment among DOTS providers.

3. To find out the association between pre test knowledge score and selected demographic variables.

Methods: The study utilized an evaluative research approach with Pre-experimental one group pre test and post – test design. The population comprised of DOTS Providers of selected area at DOTS centers / TB unit of Indore city. A sample size of 40 DOTS Providers were selected using purposive sampling. The independent variable was the Information Booklet and the dependent variable was the knowledge score of the DOTS Providers. A self structured knowledge questionnaire was developed by the investigator for data collection. A information booklet was developed regarding anti tubercular treatment. Both self structured knowledge questionnaire and information booklet were validated by the experts. Reliability of the tool was calculated by using Karl's Pearson (correlation coefficient) and split half formula and it was found to be significant i.e.

r =   0.82. Permission for conducting the study was taken from the concerned authority. After conducting the pilot (trial) study, a main study was carried out in the same way as that of pilot study. The actual data collection period was from the 26th June to 6th July 2015.

Results: The finding showed that DOTS providers have deficit knowledge regarding anti tubercular treatment. The total mean score secured by the DOTS providers in pre-test is 11.45 on a scale of 1 – 30. This shows that the existing knowledge is around . The mean post test knowledge score is 23.67 which is higher than mean pretest score is 11.45. The statistical paired "t" test computed is t = 36.93 which is significant at p< 0.001 and degree of freedom 39. The value of S.D. in pre – test is 2.19 and the value of S.D. in post test is 1.79. The above results clearly indicate that the proposed Null hypothesis H_0 is rejected and research hypothesis H_1 is accepted. Hence, Information Booklet was effective in increasing the knowledge score of DOTS providers. The computed chi square value between pre-test knowledge score and demographic variables, most of the subjects 47.5% were between the age of 31-40 years, 27.5% subjects age were between 21-30 years, some subjects age 22.5% were between 41-50 year, and very few subjects 2.5% had age above 50 years. Data shows that most of the subjects 57.5 % were male and 42.5 % subjects were belongs to female gender. Data reveals that 62.5% subjects were graduate, 15% educated up to higher secondary, 10% were diploma holders, 12.5% passed only middle school, none of subjects 00% were belongs to primary standard. Most of the subjects 60% were belongs to joint family type and 40% were belongs to nuclear family type. Most of the subjects 72.5% had private clinic, 10% were USHA and 10% was aganwadi workers, 5% subjects were shopkeeper, and remaining 2.5% subjects were School teacher. 45% subjects have an experience of more than 3 year, 25% had an experience of 1-2 year, 15% has an experience of 2-3 year and 15% has an experience of 0-1 year.

Conclusion - The study concluded that Information Booklet was effective in increasing the knowledge score of DOTS providers.

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Tuberculosis (TB) remains a major infectious killer today. As per the WHO Global Report on Tuberculosis 2013, India accounts for 64,000 MDRTB cases out of 3,00,000 cases estimated globally to occur among the notified pulmonary TB cases annually. India continue to be the number one country with largest number of new cases in the world and also holds highest number of MDR-TB cases in Southeast Asia region.

India is one of the countries in the world with the highest burden of multidrug - resistant tuberculosis (MDR-TB). WHO Global tuberculosis report 2012 confirms that TB remains a major infectious killer today in the world. In 2011, there were an estimated 8.7 million new cases of TB (13% co-infected

with HIV) and 1.4 million people died from TB, including almost one million deaths among HIV-negative individuals and 4,30,000 among people who were HIV- positive. In India, there were an estimated 2.3 million new cases of TB and 0.32 million people died (Excluding HIV +TB) from TB. WHO estimates that there were about 0.5 million new MDR-TB cases in the world in 2011.

There were 73000 estimated MDR TB among notified cases in India in 2011. MDR TB is more difficult to treat than drug - susceptible strains of TB. Tuberculosis has been treated with combination therapy for over fifty years. Drugs are not used singly (except in latent TB or chemoprophylaxis), and regimens that use only single drugs result in the rapid development of resistance and treatment failure.

Anti – tuberculosis drugs constitute a two – edged sword – while they destroy tuberculosis (TB) organisms, they also select for organisms that are naturally resistant. In this way strains can become sequentially resistant to several agents and patients become more vulnerable to the acquisition of further resistance. More than 10 million bacteria exist in the actively multiplying bacteria in any given patient, there are always a few mycobacterium resistant to one or another of the anti TB drugs, DOTS are given in Combination because If only one drug is given bacteria resistant to that drug will continue to develop and multiply, however if more than one drug is used, the bacteria that may be resistant to the first drug are killed by the second drug that's by multiple drug therapy is used.

The problem is greatly exacerbated by inadequate treatment such as direct or indirect mono therapy, resulting from intake of a single anti - TB drug or from intake of several drugs with suboptimal concentrations. Susceptible bacilli are killed rapidly and resistant mutants are then able to multiply.

1.2 NEED FOR THE STUDY

Since tuberculosis is one of the major killer and infectious disease today. There is a responsibility for the successful treatment is assigned to the health care provider not only to the patient and his family members. Medical colleges play a central role in training and shaping the attitudes of the future generations of medical practitioners. Although the adoption of DOTS has given impressive results with higher treatment success, default continues to occur in certain situation and is a matter of concern. Therefore, an efficient network of health infrastructure with committed treatment organization is most essential for the success of DOTS. Health care professionals should consult their health department's tuberculosis control programme to ensure their tuberculosis patients are able to adhere to a prescribed treatment regimen. Adherence to therapy among patients with TB is a major determinant of treatment outcome.

As the DOTS providers are continue to be in the touch of patient and their family members so they should have thorough knowledge about the cause of tuberculosis and its symptoms. DOTS providers should be aware about the treatment regimen, duration of the treatment, different phases of the treatment like intensive phase and supportive phase of the treatment regimen. DOTS providers should be

knowledgeable about anti tubercular drugs and its doses. They should be aware of possible side effects and the management of these side effects. They should know about the importance of taking medications regularly for the full week of the treatment and importance of adherence on treatment regimen. DOTS providers should also have an awareness regarding importance of sputum examination , its frequency. DOTS providers should be able to understand the schedule and the results of the sputum examinations. As the tuberculosis is an air borne disease so the DOTS providers must know the correct technique of cough hygiene which will help to prevent the further transmission of the disease to other personnel. They should know about the mode of transmission and aware for the prevention of spreading of the tuberculosis in the family as well as in the community. DOTS providers should know about the screening of the family workers and should educate the family members regarding the health promotional activities. Regularly they should concern about the treatment regimen and follow up care. It is very necessary to educate and to bring out awareness among the persons who are providing anti tubercular treatment to the tuberculosis patient.

So here investigator felt immense need for educating DOTS providers about anti tubercular treatment in regards to compliance of complete DOTS course, its side effects management, follow up and treatment outcomes of patient and documentation of all patient . So All DOTS providers should have thorough knowledge about the anti - tubercular treatment regimen which will help in the early promotion of health and will minimize new MDR TB.

1.3 PROBLEM STATEMENT

A study to assess the effectiveness of Information Booklet regarding Anti Tubercular Treatment in terms of knowledge gain among DOTS Providers of selected area at DOTS centers of Indore city in the year 2014 - 2015

1.4 OBJECTIVES

- To assess the pre existing knowledge among DOTS Providers regarding Anti tubercular treatment.
- To assess the effectiveness of information booklet regarding Anti tubercular treatment among DOTS providers.
- To find out the association between pre test knowledge score and selected demographic variables.

1.5 HYPOTHESES

- ✓ H_0 – There is no significant difference between pre test knowledge score and post test knowledge score of DOTS providers regarding Anti tubercular treatment after   administering information booklet.
- ✓ H_1 – The mean post-test knowledge score of the DOTS providers regarding Anti tubercular treatment will be significantly higher than mean pre test knowledge score after administering information booklet.

1.6 OPERATIONAL DEFINITIONS

- **Assess -** It means to evaluate the knowledge of DOTS providers regarding Anti tubercular treatment .

- **Effectiveness –** It refers to improvement in post-test score of the DOTS providers after provision of information booklet as compared to the pre-test score.

- **Information Booklet -** It is an small written hand book containing picture and written material regarding anti tubercular treatment which is helpful for the DOTS providers to understand about Anti tubercular treatment .

- **Knowledge -** It refers to the appropriateness of response given by the DOTS providers on Anti tubercular treatment through structured questionnaire.

- **Anti tubercular Treatment –** It is the prescribed standard anti tubercular treatment regimen prescribed by RNTCP for the treatment of pulmonary tuberculosis and extra pulmonary tuberculosis.

- **DOTS Providers –** DOTS providers are those persons who are willing to distribute Anti tubercular treatment regimen.

1.7 DELIMITATION: The study is delimited to -

- Assessment of knowledge is limited to written response given to self structured knowledge questionnaire.

- Availability of DOTS providers during the data collection process and their willingness to participate in the study

1.8 CONCEPTUAL FRAMEWORK

Conceptual framework is a theoretical approach to study the problem that are scientifically based and emphasizes the same selection and classification of its concepts. A conceptual framework states functional relationship between events and is not limited to statistical relationship. Because a conceptual framework is by nature, very broad and abstract, it can only serve to guide rather than perceptively direct.

Conceptualization is a process of forming ideas, designs and plans. Conceptual framework is a theoretical approach to the study of problems that scientifically based and emphasis the selection, arrangements and classification of its concepts.

A conceptual framework deals with the concepts assembled together by virtue of their relevance to the research problem which provides a certain framework of references for clinical practice research and education. **Polit and Hungler (2008)**

The present study uses the Ludwig Von Bertalanffy (General System Model).

D. E Raj (2011) aimed at evaluating the knowledge on Anti tubercular treatment among DOTS Providers of selected area of DOTS centre.

RESEARCH METHODOLOGY

According to **Denise. F. Polit (2009)**, Research methodology is a way to systematically solve the research problem. The methodology of research indicates the general pattern of organizing the procedure together with valid and reliable data for problem under investigation.

This chapter deals with description of methodology and different steps which were taken for gathering and organizing data for investigation. It includes description of research approach, research design, setting, sample and sampling technique, development of data collection tools and technique, development of structured knowledge questionnaire, preparation of Information Booklet, pilot study, data collection procedures, and plan for data analysis for determining the effectiveness of Information Booklet.

3.1 RESEARCH APPROACH

A research approach tells the researcher as to what data to collect and how to analyze it. It is the overall plan or blue print chosen to carry out the study. It also suggests the possible conclusion to be drawn from the data. In view of the objectives of the present study, an evaluative research approach was considered to be most suitable.

The purpose of an evaluative research is to measure the effects of a programme organized against the goals, it sets out to accomplish as a means of contributing to subsequent decision making about programme and improving future programming **(Wood & Haber, 2002).**

According to **Polit and Hungler (2004)** "An evaluative research is an applied form of research that involves finding out how well a programme, practice, procedure or policy is working."

The strategy for conducting an evaluative research consists of four phases:

- Determining the objectives of a research study.
- Developing the means of measuring the attainment of those objectives.
- Collecting the data.
- Interpreting the data vis-à-vis the objectives

3.2 RESEARCH DESIGN

According to **Polit and Hungler (2004)** the research design is an overall plan for obtaining answers to the questions being studied and handling source of the difficulties encountered during research process. It deals with plans for collecting and analyzing the data including specifications for enhancing the internal and external validity of the study. It spells out the basic strategies that the researcher adopts to develop information that is accurate and interpretable.

The selection of research design depends upon the purpose of the study, research approach and variables to be studied.

The research design selected for the study is pre-experimental one group pretest posttest design. This design is widely used in educational research. This study intended to measure the gain in knowledge scores of DOTS providers who will be introduced to information booklet. Here only one group is observed before and after introducing the independent variable.
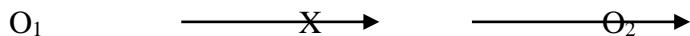
The design can be represented as:

O_1 ———— X ———— O_2 ———

Figure 2: One Group Pre-test Post-test Pre-Experimental Design

 Key:-

O_1 -   Pre-test knowledge score

X   -   Treatment variable (Information Booklet.)

O_2 -   Post - test knowledge score

The schematic representation of the study design shows that the study will be conducted in three phases and it is depicted in Figure No. 3 on the next page.

3.3 VARIABLES UNDER STUDY

According to **Chinn and Kramer (2007), "**Variables are concepts at different level of abstraction that are concisely defined to promote their measurement or manipulation with in study".

A variable is an attribute to which numerals or values are assigned. An independent variable is presumed cause of the dependent variable which is the presumed effect. Two types of variables was identified in this study.

Independent Variable

The independent variable is the condition or characteristics manipulated by the researcher.

In the present study the independent variable is the information booklet regarding anti tubercular treatment among DOTS providers.

Dependent Variable

The dependent variable is the condition or characteristics that appear or disappear as a result of an independent variable.

In the present study the dependent variable refers to the knowledge of DOTS providers regarding anti tubercular treatment.

3.4 SETTING OF THE STUDY

The study was conducted in selected DOTS centers. The DOTS centers are the settings, where TB patients are treated by providing anti tubercular treatment.

3.5 POPULATION

The total group of people or things meeting the designated criteria of interest to the researcher.

According to **Polit and Hungler (2004),** "Population is the entire aggregation of cases that meet a designated set of criteria."

The researcher specifies the broad population (target population) as well as the actual population that is available for the study (accessible population).

The target population

The target population also called the universe is made up of the group of people to which the researcher wishes to generalize the finding of the study.

Target population in this study is the knowledge of DOTS providers regarding anti tubercular treatment.

The accessible population

Accessible population in this study is the DOTS providers who meet the designated criteria and who are available for the research study.

3.6 SAMPLE

The sample for this study comprised of 40 DOTS Providers of selected area at DOTS centers of Indore city.

3.7 SAMPLING TECHNIQUE

In this study, the sample will be selected through a purposive sampling technique because of the limited time and availability of DOTS providers according to the sampling criteria.

3.8 SAMPLE CRITERIA

The investigator identified all DOTS providers of the selected area at DOTS centers of Indore city, who met the sample criteria. The criteria set for the selection of the DOTS providers are:

Inclusion Criteria

- Those who are registered in the DOTS centers.
- Those who are available at the time of data collection.

Exclusion Criteria

- Those who are providing DOTS from a longer period of time and have enough knowledge regarding Anti Tubercular treatment.
- Those whose pre test knowledge score is higher than expected score.
- Those who are willing but do not have time for reading.

3.9 DATA COLLECTION TOOLS AND TECHNIQUES

Treece and Treece (1994) states that questionnaire, unlike other method of data collection are generally much less costly and require less time and energy to administer, especially group administered questionnaire.

It offers the possibility of anonymity, closed ended items are efficient, easily to administer and analyze.

As the study aimed to evaluate the effectiveness of information booklet in terms of gain in knowledge regarding anti tubercular treatment.

A self structured knowledge questionnaire is prepared to assess the knowledge of the DOTS providers regarding anti tubercular treatment. Questionnaire is considered to be most efficient and objective method. Questionnaire is quick and generally inexpensive means of obtaining data from large number of respondents and questionnaire are one of the easiest research instrument to test for reliability and validity.

A self reporting data collection technique by using paper and pencil method was used in order to obtain data.

3.10 DEVELOPMENT OF THE TOOL

3.11 PREPARATION OF THE BLUE PRINT

A blue print is prepared and the items are developed based on the level of understanding of the DOTS providers regarding anti tubercular treatment. Blue print depicted the distribution of items according to the content areas.

Structured knowledge questionnaire included three domains with relevant questions.

- Knowledge   - 56.1%
- Comprehension   - 23.1%
- Application   - 20.8%

3.12 CONTENT VALIDITY OF TOOL

The tool was submitted to 5 experts including four nursing personnel from the field of medical surgical nursing and one MD along with the blue print, criteria checklist, answer key to establish the content validity. The experts were requested to check for the relevance, sequence and language of the tool. Modifications were done according to experts opinion and final tool was developed.

3.13 RELIABILITY OF THE TOOL

According to (**Polit & Beck 2008**), Reliability is the degree of consistency or dependability with which an instrument measures an attribute.

Reliability of the tool was carried out among 8 DOTS providers in Indore city. The tool was found to be clear and understandable. The DOTS providers answered the tool within 20-30 minutes.

Reliability was established by split half method. The reliability co-efficient for the knowledge test was calculated by using Karl's Pearsons formula. The reliability coefficient was found to be 0.82 which proved that the tool was highly reliable. No modification was made. Thus, tool was found to be valid, reliable and feasible for the purpose of the study.

As per book co-relation co-efficient is :-

= 0.01- 0.5 mild co-relation

= 0.5- 0.74 moderate co-relation

= 0.75- 0.99 High co-relation

= 1 Perfect

3.14 DESCRIPTION OF THE TOOL

The tool consisted of two sections:

Section I: Demographic Variables.

It describes the demographic variables. It comprises of 6 items for obtaining information regarding DOTS providers age, gender, educational qualification, type of family, occupation, working experience as a DOTS providers.

Section II: It consists of Information booklet having knowledge items.

The test items are objective type consisting of Multiple Choice Question with one correct answer. Every correct answer was awarded a score of one point (1) and every wrong answer was assigned a zero (0) score. The maximum total score of the knowledge questionnaire was 30. Score was graded as follows:

SCORE	GRADE
21-30	Very Good
11-20	Good
01-10	Fair

3.15 DEVELOPMENT OF INFORMATION BOOKLET

The information booklet was developed based on review of related research and non-research literature, discussion with experts and personal experience of the investigator. The general and specific objectives stated for the knowledge test. The information booklet was structured for enhancing knowledge of DOTS providers. It consisted of the following content areas:

- TB and Anti Tubercular Treatment
- Principles of the Anti Tubercular Treatment
- Components of Anti Tubercular Treatment
- Types of TB Cases & Its Definitions
- Classification & Supply of Anti Tubercular Drugs
- Anti Tubercular Treatment category
- Anti Tubercular Drug dosages
- Treatment for pediatric patient
- Evaluation of Treatment Outcome
- Determination of Treatment Outcome
- Adverse Drug Reactions (ADRs)
- Side Effects of Anti Tubercular Drugs & Its Management

- Adherence & Measures To Promote Adherence To Anti Tubercular Treatment
- DOTS Providers & Responsibilities of DOTS Providers

3.16 CONTENT VALIDITY OF INFORMATION BOOKLET

The information booklet was submitted to the same 5 experts who validated the data collection tool. All the experts has given 100% agreement on the content of the information booklet.

Experts suggested some modifications. Correction in the Information Booklet were made according to expert suggestions and the final draft of Information Booklet was prepared.

3.17 PILOT STUDY

After obtaining the formal administrative approval pilot study was conducted from **4th June to 11th June 2015 at Arnya Nagar scheme no. 78, Indore**. The pilot study was aimed at evaluating the effectiveness of the information booklet regarding the anti tubercular treatment among DOTS provider.

The purpose of the study was explained to the respondents and confidentiality was assured by administering the tool on day one, pre-test was conducted to 8 DOTS providers, who fulfilled the sample criteria. The time taken to complete the questionnaire was 20 to 30 minutes. after administering the pre-test , Information booklet was given to each DOTS providers regarding anti tubercular treatment on the same day and on the seventh day post-test was conducted with the same tool to assess the knowledge level.

Data analysis was done using descriptive and inferential statistics. No further changes were made in the tool after the pilot study.

3.18 PROCEDURE FOR DATACOLLECTION

Formal Written permission was obtained from the concerned authority before data collection.

Data collection was held in a selected area at DOTS centers of Indore city. The data collection period extended from 26th June to 6th July 2015.

A sample of 40 DOTS providers were selected using purposive sampling technique.

The investigator introduced herself and the purpose of the study was explained to the subjects and informed consent was obtained. The pre test was given using a structured knowledge questionnaire. The time taken to complete questionnaire was 20-30 minutes.

Following the pre test a copy of self instructional module was given to the DOTS providers with the following instructions-

- Read it thoroughly
- Come for the post test on the 7th day
- Doubts in the Booklet will be cleared

The post test was conducted on the 7th day after the pre test to evaluate the effectiveness of information booklet using the same tool as used for pre test. The average time taken for the post-test knowledge questionnaire was 15-20 minutes.

The investigator thanked and appreciated all the participants for their cooperation.

3.19 PLAN FOR DATA ANALYSIS

According to **Pilot and Hungler (2004),** "Analysis is the systematic organization and synthesis of research data and the testing of research hypothesis using those data."

Plan for data analysis would be as follows:

A master data sheet was prepared to complete the data by the investigator.

Baseline Performa containing demographic characteristics was analyzed using frequency and percent age distribution.

Mean and standard deviation of pre-test and post-test knowledge score

Paired 't' test to determine the significance of difference between mean pre test knowledge score and mean post-test knowledge score.

Chi-square test for association was used to find out the significant association between the pre-test knowledge and selected demographic variables.

The data would be represented in the form of tables and diagrams.

SUMMARY

This chapter dealth with description of methodology and different steps which were taken for gathering and organizing data for investigation. It includes research approach, research design, variables under study, setting, population sample and sampling technique, development of the tool and information booklet, content validity, establish reliability, pilot study, procedure for data collection and plan of data analysis.

DATA ANALYSIS AND INTERPRETATION

"Success is a science; if you have the conditions, you get the result."

-Oscar Wilde

4.1   Text

This chapter deals with analysis and interpretation of data collected to evaluate the effectiveness of information booklet regarding anti tubercular treatment among DOTS providers.

According to **Polit and Beck (2008),** data analysis is the systematic organization and synthesis of research data and testing of hypothesis using those data.

Analysis and interpretation of data are based on data collected through structured knowledge questionnaire. Analysis and interpretation of data was done by using descriptive and inferential statistics based on the objectives of the study and hypothesis to be tested.

The objectives of the study were as follows:

- To assess the pre existing knowledge regarding Anti tubercular treatment among   DOTS Providers.

- To assess the effectiveness of information booklet regarding Anti tubercular treatment among DOTS providers.

- To find out the association between pre test knowledge score and selected demographic variables.

ORGANIZATION AND PRESENTATION OF DATA

Raw data was collected and entered in a master sheet for the statistical analysis. It was interpreted using descriptive and inferential statistics. The data finding have been organized and presented under following sections:

Section I   **:**   Sample characteristics.

        :   The pre test knowledge score of DOTS providers regarding anti tubercular treatment.

:   Effectiveness of information booklet in terms of gain in knowledge scores.

:   Association between pre-test knowledge score and selected demographic variables.

Section I : Sample Characteristics

This section deals with the data pertaining to the sample characteristics of the subjects. It is presented and analyzed in terms of frequency and percentage distribution.

Table - 1 shows the distribution of sample characteristics with respect to age, gender, educational qualification, type of family, occupation, working experience as a DOTS provider.

Table No. 1

Frequency and percentage distribution of sample characteristics

(N=40)

S. No.	Selected demographic variables	Frequency total	Percentage(%)
1.	**Age (in years)**		
	21-30	11	27.5
	31-40	19	47.5
	41-50	09	22.5
	Above 50	01	2.5
2.	**Gender**		
	Male	23	57.5
	Female	17	42.5
3.	**Educational qualification**		
	Primary	00	00
	3.2 Middle	05	12.5
	3.3 Higher Secondary	06	15
	3.4 Diploma	04	10

S. No.	Selected demographic variables	Frequency total	Percentage(%)
	3.5 Degree	25	62.5
4.	**Type of family**		
	Nuclear	16	40
	Joint	24	60
5.	**Occupation**		
	Shopkeeper	02	05
	USHA	04	10
	School teacher	01	2.5
	Aganwadi worker	04	10
	Private clinic	29	72.5
6.	**Working experience as a DOTS providers**		
	0-1 year	06	15
	1-2 year	10	25
	2-3 year	06	15
	6.4 More than 3 year	18	45

Data presented in Table No. 1 reveals that most of the subjects 47.5% were between the age of 31-40 years, 27.5% subjects age were between 21-30 years, some subjects age 22.5% were between 41-50 year, and very few subjects 2.5% had age above 50 years.

Data shows that most of the subjects 57.5 % were male and 42.5 % subjects were female.

Data reveals that 62.5% subjects were graduate, 15% educated up to higher secondary, 10% were diploma holders, 12.5% passed only middle school, none of subjects 00% were belongs to primary standard.

Most of the subjects 60% were belongs to joint family type and 40% were belongs to nuclear family type.

Most of the subjects 72.5% had private clinic, 10% were USHA and 10% was aganwadi workers, 5% subjects were shopkeeper, and remaining 2.5% subjects were School teacher.

From the Data represented in above table , It is evident that 45% subjects have an experience of more than 3 year, 25% had an experience of 1-2 year, 15% has an experience of 2-3 year and 15% has an experience of 0-1 year.

Section II : The pre test knowledge score of DOTS providers regarding anti tubercular treatment

The assessment of existing knowledge was based on broad areas about TB and anti tubercular treatment , principles of the anti tubercular treatment ,components of anti tubercular treatment , types of TB cases & its definitions ,classification & supply of anti tubercular drugs ,anti tubercular treatment category ,anti tubercular drug dosages ,treatment for paediatric patient ,evaluation of treatment outcome ,determination of treatment outcome ,adverse drug reactions (ADRS) ,side effects of anti tubercular drugs & its management ,adherence & measures to promote adherence to anti tubercular treatment ,DOTS providers & responsibilities of DOTS providers.

The pre test knowledge score is represented in Table No. 2.

Table No. 2

Pre test knowledge score of the sample

N = 40

S. No.	Score		Frequency	Percentage
1.	21 – 30	(Very Good)	00	00
2.	11 - 20	(Good)	25	62.5
3.	01 – 10	(Fair)	15	37.5
	Total		**40**	**100%**

- Pre- test mean score = 11.45
- S.D. = 2.19

This data in Table 2 shows that 62.5 % of sample had good knowledge score ranging between 11 – 20 and 37.5 % samples had fair in knowledge score ranging between 01 – 10 regarding anti tubercular treatment. The mean pre-test knowledge score was 11.45 and S.D. was 2.19.
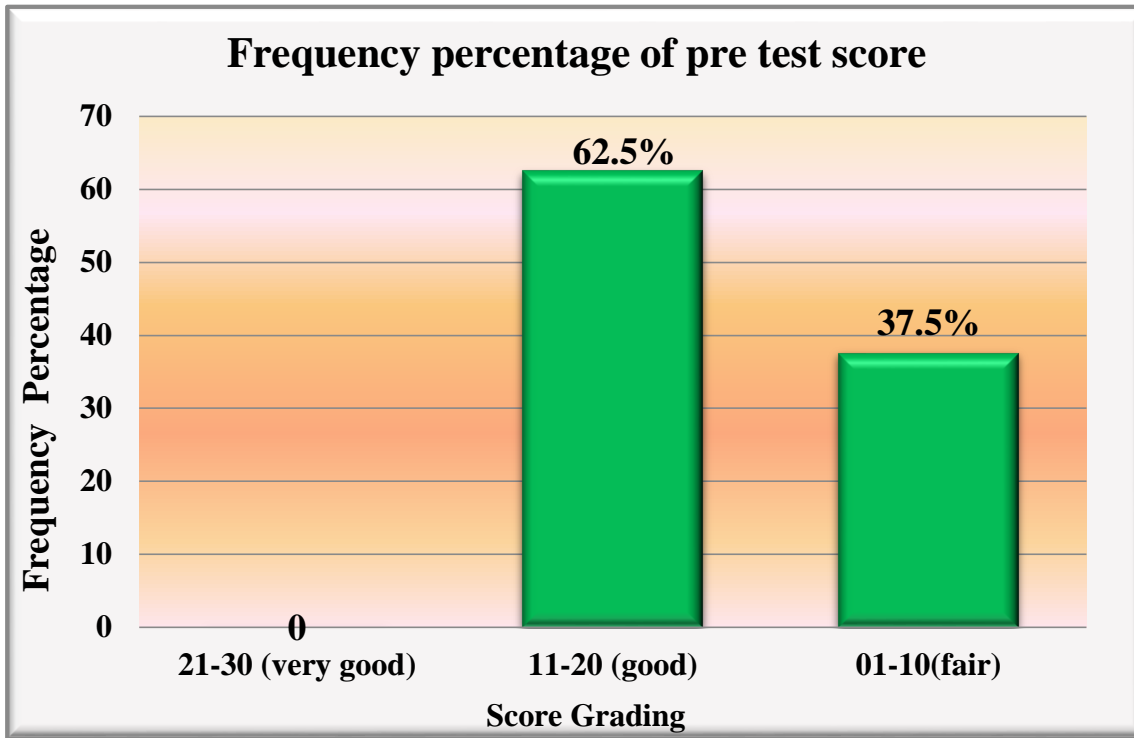
Figure 11 : Column diagram showing percentage distribution of pre-test knowledge score

Section III : Effectiveness of information booklet in terms of gain in knowledge scores.

This section deals with analysis and interpretation of the data in order to evaluate the effectiveness of information booklet in terms of gain in knowledge.

Table No. 3

Mean, Standard Deviation and 't' value of pre-test and post-test knowledge score

(N= 40)

Knowledge score	Mean	Standard Deviation	Mean Difference	't' value	d. f.	'P' value
Pre-test	11.45	2.19	12.225	36.93***	39	P ≤ 0.001
Post-test	23.67	1.79				

't' (40) = 36.93, P ≤ 0.001.

NOTE:

*** Highly significant

The data presented in Table No. 4 shows that the mean post test knowledge score (23.67) is apparently higher than the mean pre test knowledge score (11.45). The dispersion of pre test scores (SD $\pm$ 2.19) is more than that of their post-test scores (SD $\pm$ 1.79) and the computed paired 't' test value shows that there is a significant difference between pre test and post test mean knowledge score   (t_{40} =36.93, $P \leq 0.001$ level).

Interpretation- The finding showed that DOTS providers have deficit knowledge regarding anti tubercular treatment. The total mean score secured by the DOTS providers in pre-test is 11.45 on a scale of 1 – 30. This shows that the existing knowledge is around. The mean post test knowledge score is 23.67 which is higher than mean pretest score is 11.45. The value of S.D. in pre – test is 2.19 and the value of S.D. in post test is 1.79.

The statistical paired "t" test computed value is $t_{40} = 36.93$ which is significant at $P \leq 0.001$ and degree of freedom 39.

(tabulated "t" value is $t_{(40)} = 3.55$ at $P \leq 0.001$)

The above results clearly indicates that the proposed Null hypothesis H_0 is rejected and research hypothesis H_1 is accepted. Hence, Information Booklet was effective in increasing the knowledge score of DOTS providers.
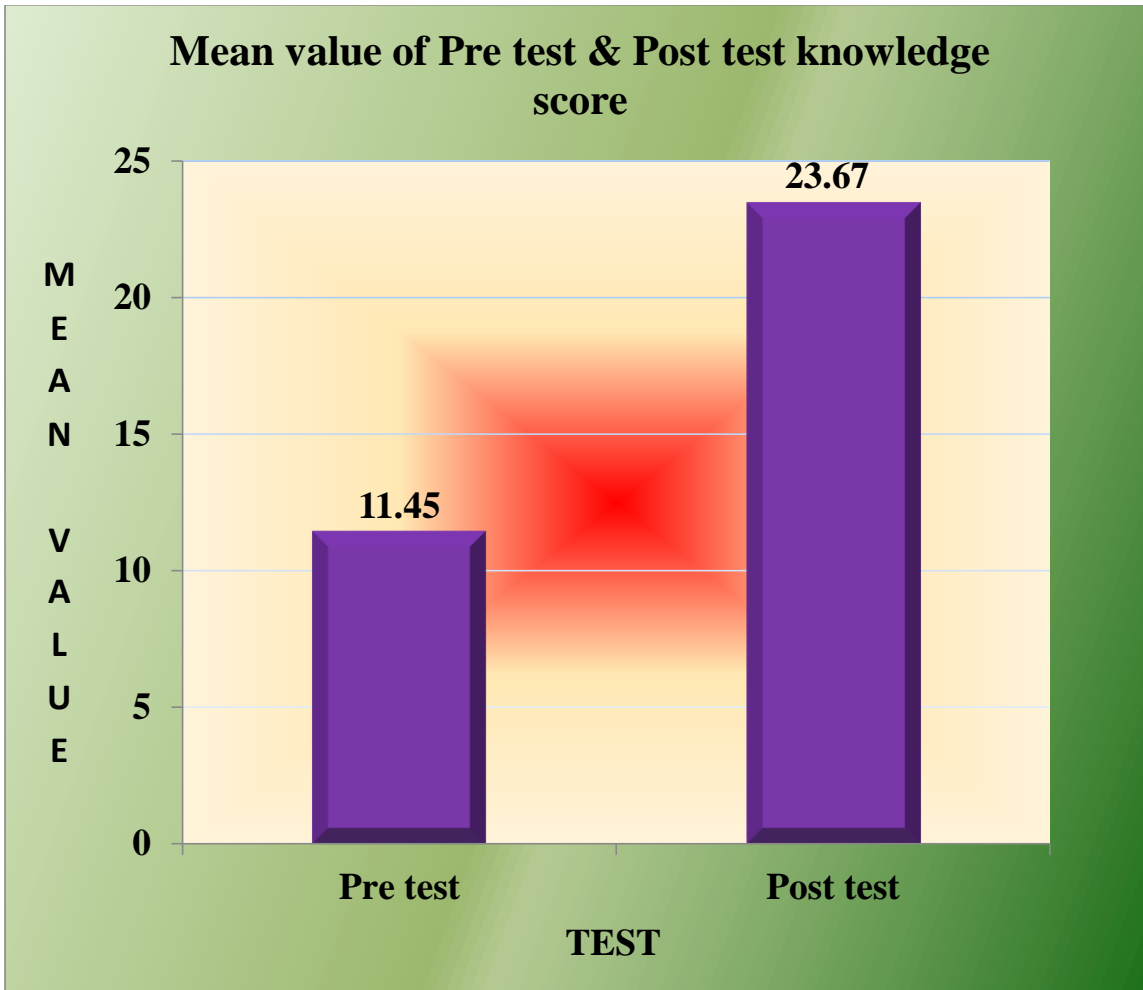
Figure 13 : Column diagram showing Mean value of pre-test knowledge score and post-test knowledge scor

Table No. 4

Grading Of Sample Based On Pre test and Post test Knowledge Score

(N= 40)

Score	Grading	Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
21 - 30	Very Good	0	0	38	95%
11 – 20	Good	25	62.5%	2	5%
01 – 10	Fair	15	37.5%	0	0

Data in table No. 4 shows that maximum number of DOTS providers 95% had score ranging between 21-30 and few DOTS providers 5% had score ranging between 11-20 compared to pre-test where maximum of the DOTS providers 62.5% obtained score ranging between 11-20 and some DOTS providers 37.5% obtained score ranging between 0-10. It indicates a considerable gain in the knowledge scores and the effectiveness of information booklet.
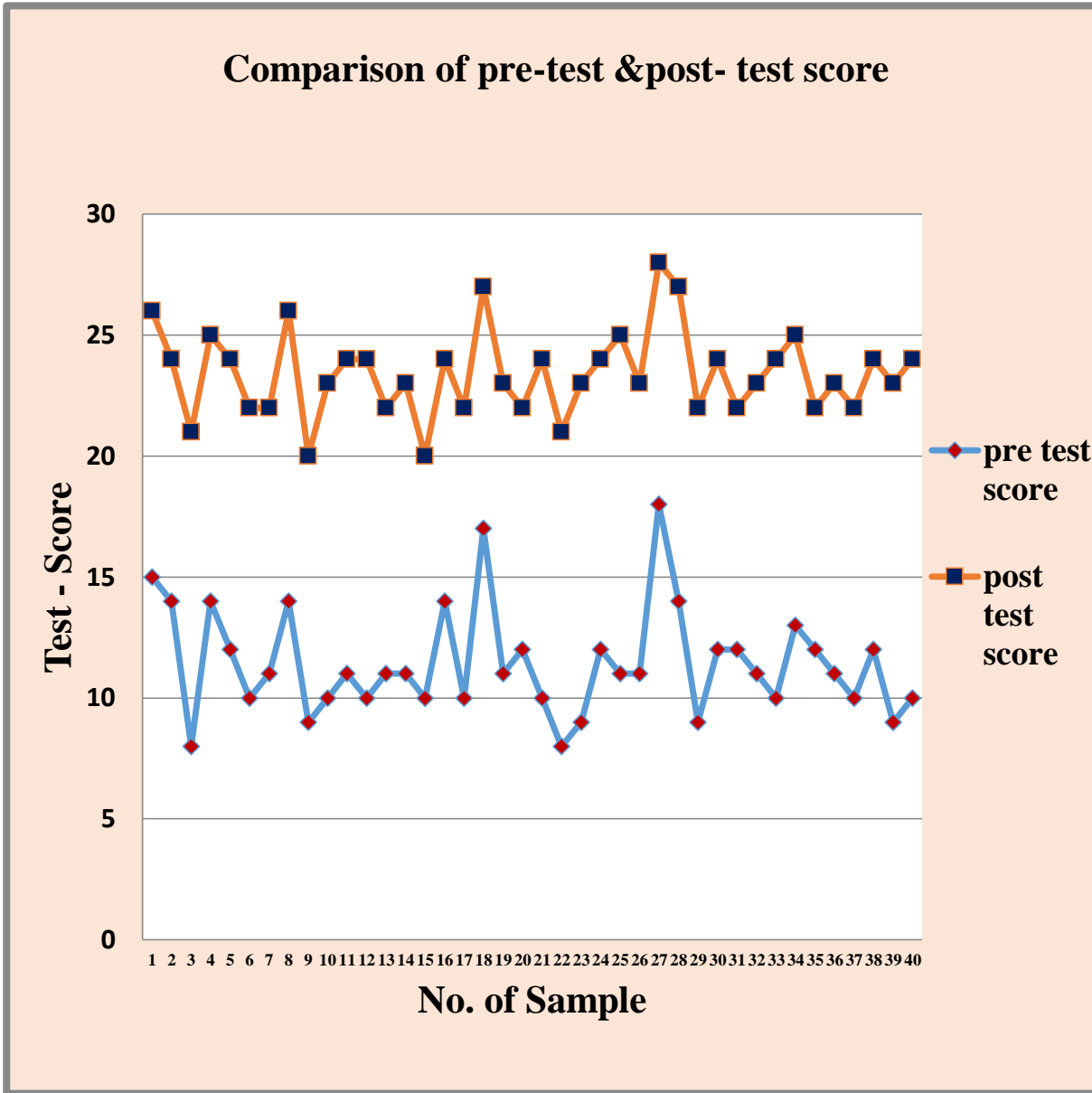

Figure 12 : Line diagram showing comparison of pre–test and post-test knowledge score

Section IV : Association Between Pre test Knowledge Score and Selected Demographic Variables

Table No. 5

Chi-square value showing association between pre test knowledge score & selected demographic variables

N = 40

S. No.	Selected demographic variables	Pre test knowledge score			d. f.	Computed χ2 value	Tabulated χ2 value
		01 - 10 (Fair)	11 - 20 (Good)	21-30 (Very good)			
1.	**Age (in years)** 1.1 21-30 31-40 41-50 1.4 Above 50	4 8 2 1	7 11 7 0	0 0 0 0	6	2.34*	
2.	**Gender** Male Female	7 10	16 7	0 0	2	3.22*	
3.	**Educational qualification** Primary Middle Higher Secondary Diploma Degree	0 2 4 2 7	0 3 2 2 18	0 0 0 0 0	8	3.42*	
4.	**Type of family** 4.1 Nuclear Joint	7 8	9 16	0 0	2	0.44*	
5.	**Occupation** 5.1 Shopkeeper USHA School teacher Aganwadi worker Private clinic	0 3 0 2 10	2 1 1 2 19	0 0 0 0 0	8	4.58*	
6.	**Working experience as a DOTS providers** 0-1 year 1-2 year 2-3 year 6.4 More than 3 year	3 4 3 5	3 6 3 13	0 0 0 0	6	1.55*	

Non Significant *

The data represented in Table No. 5 shows that computed Chi-square value indicates no significant difference between pre test knowledge score and selected demographic variable i.e., age, gender, educational qualification, type of family, occupation, working experience as a DOTS providers at $p < 0.05$ level.

SUMMARY

This chapter dealt with the analysis and interpretation of data collected from 40 DOTS providers regarding anti tubercular treatment. Descriptive and inferential statistics were used for analysis. It was found that mean post test knowledge score of DOTS providers were higher than mean pre test knowledge score. The 't' value computed ('t_{40}'= 36.93) at the level of $p \leq 0.001$ showed significant differences suggesting that the information booklet was effective in increasing the knowledge of DOTS provider regarding anti tubercular treatment.

DISCUSSION, SUMMARY, CONCLUSION, RECOMMENDATIONS, IMPLICATIONS AND LIMITATIONS

This chapter deals with discussion, summary, conclusion, recommendations, implications with clinical practice and limitations.

5.1 DISCUSSION

In this chapter, major findings of the study are discussed in line with objectives, hypotheses, and conceptual framework.

The main aim of this study was to evaluate the effectiveness of a information booklet regarding anti tubercular treatment.

Pre test Knowledge Score of the DOTS providers regarding anti tubercular treatment.

The findings showed that DOTS providers have less knowledge regarding anti tubercular treatment. The total mean score secured by the DOTS providers is 11.45 on a scale of 1-30. The finding shows that 62.5% responded had good knowledge and 37.5 % had fair knowledge.

It found that the DOTS providers have inadequate knowledge regarding anti tubercular treatment, thus there is a need to educate the DOTS providers in order to improve their knowledge regarding anti tubercular treatment.

Effectiveness of information booklet regarding anti tubercular treatment in Terms of Gain in Knowledge Score

Pre test knowledge score of 25 respondents (62.5%) was limited to 11-20 score (41-60%) and 15 respondents (37.5%) had score limited to 1-10 score. This indicates that the subjects had inadequate knowledge regarding anti tubercular treatment. In the post test maximum number of DOTS providers 95%

had score ranging between 21-30 and few DOTS providers 5% had score ranging between 11-20 compared to pre-test where some of the DOTS providers 37.5% obtained score ranging between 01-10 and some DOTS providers 62.5% obtained score ranging between 11-20. The mean post test knowledge score 23.67 higher than mean pre test score 11.45.

Further to know the statistical significance between pre-test and post-test knowledge score. 't' value ('t'$_{40}$ = 36.93) showed that there was a highly significant difference between pre-test and post-test knowledge score (P $\leq$ 0.001).

The above results clearly indicate that information booklet was effective in increasing the knowledge score among DOTS providers regarding anti tubercular treatment.

Association Between Pre test Knowledge Score and Selected Demographic Variables

In order to find the relationship between pre test knowledge and selected demographic variables chi-square test was used. The finding on relationship of selected demographic variables to DOTS providers pre test knowledge score regarding anti tubercular treatment shows that there is no significant relationship between age, gender, educational qualification, type of family, occupation, working experience as a DOTS providers.

A hypothesis was formulated that the mean post knowledge score of the DOTS providers about anti tubercular treatment will be significantly higher than mean pre test knowledge score.

The findings of the present study proved that mean post test knowledge score (23.67) is higher than mean pre test knowledge score (11.45). Hence, the null hypothesis (H$_0$) is rejected and the research hypothesis (H$_1$) is accepted. This indicates that information booklet is effective in increasing knowledge score of DOTS providers regarding anti tubercular treatment.

The conceptual study for the present study was based on the General System Model given by Ludwig Von Bertalanffy in 1968 for development, utilization and evaluation of Informational Booklet for the DOTS providers. The model consists of three phases: input, through put and output in specific context including evaluation of all phases.

The present study was aimed to prepare and evaluate the Informational Booklet on anti tubercular treatment for DOTS providers with the view to educate them, and to promote their knowledge regarding anti tubercular treatment.

SUMMARY :

Summary includes objectives, hypothesis, assumptions, tool used for the study and the findings of the study.

Tuberculosis is an air borne disease caused by mycobacterium tuberculi and spread through the air by a person suffering from tuberculosis to another person. A single patient can infect 10 or more people in a year. If the diagnosis of TB is made at an early stage and the patient is not seriously ill, than it is possible to cure every patient of TB. The goal of RNTCP is achieved if patients are treated properly and the micro organism causing the disease are not resistant to the drugs, frequently used for treatment of TB.

The objectives of RNTCP are achieved through intermittent (thrice weekly) treatment regimens given under direct observation for both pulmonary and extra pulmonary tuberculosis patients. It has been proven that thrice-a-week (intermittent) treatment is as effective as daily treatment and reduces the risk of side effects.

Present study attempted to assess the effectiveness of Information Booklet regarding Anti tubercular treatment in terms of knowledge gain among DOTS Providers of selected area at DOTS centers of Indore city in the year 2014-2015"

OBJECTIVES :

1. To assess the pre existing knowledge among DOTS providers regarding anti tubercular treatment.
2. To assess the effectiveness of information booklet regarding anti tubercular treatment in terms of knowledge gain.
3. To find out the association between pre - test knowledge score and selected demographic variables.

In order to examine the effectiveness of information booklet a hypothesis was formulated that the mean post test knowledge score of DOTS providers regarding anti tubercular treatment , will be significantly higher at 0.05 level of significance. The study assumed that DOTS providers have little knowledge regarding anti tubercular treatment. Information booklet regarding anti tubercular treatment may help in enhancing DOTS providers knowledge. The level of knowledge of the DOTS providers can be measured by administering self structured knowledge questionnaire.

The variables in this study were:

Independent variable- Information Booklet regarding anti tubercular treatment

Dependent variable- knowledge of DOTS providers of selected area

This study made use of an evaluative approach with pre-experimental one group pre-test and post-test research design.the population of the was DOTS providers registered in the selected DOTS centres of indore city. Purposive sampling technique was utilized to select DOTS providers.

The investigator prepared a tool. The tool was a structured knowledge questionnaire consisting of 30 multiple choice questions to assess the knowledge of DOTS providers. Information Booklet was developed by the investigator.

Validation of the tool and Information Booklet was done by the experts. Pilot study was conducted to assess the feasibility of the tool and reliability was calculated by using Karl Pearson correlation coefficient formula and reliability was found to be $r = 0.82$ which was found to be significant. Hence, the tool was found to be feasible and practicable.

Pilot study was conducted on 8 DOTS providers registered in the arnya nagar scheme no. 78 DOTS centre. This gave a basis to conduct the main study. The main study was conducted on 40 DOTS providers of selected area at DOTS centers of Indore city. The duration of the study was from 26th June to 6th July 2015.

The findings of the study proved that the DOTS providers of selected area at DOTS centers have inadequate knowledge regarding anti tubercular treatment. The mean pre-test knowledge score was. The mean post-test knowledge score was . the mean post-test knowledge score proved that the Information Booklet provided by the investigator helped them to improve their knowledge. The effectiveness of Information booklet was tested in terms of knowledge gain and the findings showed that it was statistically significant at $p \le 0.001$ level.

On the whole carrying out the study was an enriching experience to the investigator. It is also helped a great deal to explore and improve the knowledge of researcher and respondents.

5.3 CONCLUSION

After the detailed analysis, this study leads to the following conclusions:

That DOTS providers did not have 100% knowledge regarding anti tubercular treatment . They require further education and information because all of them need to enhance their knowledge regarding anti tubercular treatment.

There was a highly significant increase in knowledge of the subjects after giving the information booklet , the paired "t" test computed between mean pre-test knowledge score (11.45) and mean post-test knowledge score (23.67) and "t $_{40} = 36.93$, which indicated a highly significant differences in the knowledge score in most of the areas. Thus, it is concluded that the information booklet on the anti tubercular treatment is effectives as teaching strategy. There was no association between Selected demographic variables and pre-test knowledge score. Hence, on the basis of above cited findings, it could be concluded undoubtedly that the written material prepared by the investigator in the form of Information Booklet helped the DOTS

providers to improve their knowledge regarding anti tubercular treatment. Information booklet will also serve as a ready reference for the DOTS providers.

5.4 RECOMMENDATIONS

On the basis of the findings of the study, it is recommended that,

1. A similar study may be replicated on a large sample so that the finding can be generalized.
2. A comparative study may be conducted to find out the effectiveness between information booklet and planned teaching programme regarding the same topic.
3. A study can be conducted to assess long term effects of information booklet in DOTS providers regarding anti tubercular treatment.
4. The practice of DOTS providers can also be assessed along with knowledge.
5. A similar study can be conducted using control group.
6. An exploratory study may be conducted to identify the attitude and self care practices of DOTS providers regarding anti tubercular treatment.

5.5 IMPLICATIONS

The finding of the study have implications for nursing practice, nursing education nursing administration and nursing research.

NURSING PRACTICE

The results of this study provide several implications for nursing practice. The study involved preparation of Information Booklet regarding anti tubercular treatment. Information booklet is an effective way of delivering knowledge to DOTS providers. Nurses can use this information booklet to distribute and circulate among DOTS providers in clinics, DOTS centres, TB units and community settings.

All the DOTS providers can be provided with a copy of information booklet that may help them for independent learning to improve their knowledge regarding anti tubercular treatment and integrate it into practice.

NURSING EDUCATION: Nurse educator can use and develop newer effective teaching strategies and enhance the psychometric domain of learning among nursing students in clinical practice. Information booklet can be used by the nursing students in clinical as well as community settings to promote learning strategy. Every nursing student should be encouraged to teach the DOTS providers regarding anti tubercular treatment.

Nursing students should be trained to acquire the knowledge and skill in assessing the learning needs of DOTS providers in community and to plan teaching programme in hospital and community settings.

IMPLICATIONS FOR NURSING ADMINISTRATION: Nurse administrator should take an initiative in creating policies or plans in providing education to the DOTS providers at the DOTS centre and TB units. This study will help nurse administrators to assess the organizational structure, communicate the findings and educate the practice. In addition it will help administrator in developing new knowledge or refining old knowledge regarding nursing administrative phenomenon. Nurse administrators should plan for man power, money, material, methods and time to conduct successful patients educational programme. Health administrators should assign the staff to conduct health teaching programme in hospital settings.

IMPLICATIONS FOR NURSING RESEARCH: The study throws light on the knowledge of anti tubercular treatment among DOTS providers. There is a lot of scope for exploration in this area. Research can be conducted regarding different responsibilities of DOTS providers while administering DOTS therapy to the clients. There is a need for extended and extensive research to assess the knowledge regarding anti tubercular treatment. Research can be done to detect attitude and practices of DOTS providers about anti tubercular treatment.

LIMITATIONS:-

The few limitations of the study are listed below:

1. The finding of the study cannot be generalized because of the small sample size (40) and purposive sampling technique.

2. The study did not use a control group. The investigator had no control over the events that took place between pre-test and post-test.

REFERENCES

Books

1. Ben Greenstein. (2005). *Traunee's clinical pharmacological for nurses*. (7th ed.). W.B. Saunder's company; 110-123

2. B.T. Basavanthappa. (2005). *Community health nursing*, Ist edition. Jaypee brothers, New Delhi.

3. B.T. Basavanthappa. (2007) *Nursing Theories*. Ist.ed, Jaypee Brothers, New Delhi India; 203- 211.

4. Chintamani. (2011). *Medical Surgical Nursing Assessment & Management of Clinical Problem.* Ist ed, Mosby Elsevier; 1360.

5. C R Henney, R J Dow. (2003), *A Handbook of Drugs in nursing practice*. (4th ed.). Churchill Livingstone; 719-721.

6. Dhaar G M, Robbani I. (2008). Foundations of community medicine. (2nd ed.).Elsevier publishers; 438-442

7. G Duncan. (1998). *Medical Surgical Nursing Approach.* Ist.ed Delmar publishers Elsevier Newyork; 282.

8. Ignatavicius, Workman. (2010). *Medical Surgical Nursing Patient Centered Collaborative Care.*(6th ed.) St. Louis Missouri; 205-215.

9. Ignatavicius, Workman. (2006). *Medical Surgical Nursing Critical Thinking for Collaborative care.* (5th ed.). Sounders Elsevier; 264-265.

10. Kamalam.S. (2005). *Essentials in Community health nursing practice*. Ist ed. Jaypee brothers, New Delhi; 205-255

11. Kapoor AK, Raju SM (2013), *Illustrated Medical Pharmacology.* Ist ed. Jaypee brothers private ltd , New Delhi; 730.

12. Kothari C R, Garg Gaurav. (2014). *Research methodology methods and techniques*. (3rd ed.). new age international publishers;

13. Laurence D R, Bennett P N. (2000). *Clinical pharmacology*. (7th ed.). Churchill livingstone; 189-193

14. Lemone Priscilla, Burke Karen, (2008). *Medical Surgical Nursing Critical Thinking in Clinical Care* (4th ed.) Dorling Kindersely India; 128.

15. Masters Katheleen. (2012). *Nursing theories a frame for professional practice*. Ist ed. Kevin Sullivan; 340-355

16. M. Joyce Black, Jane Hokanson, hawks, (2009), *Medical Surgical Nursing Clinical Management for Positive outcome.* (8th ed.) Mosby Elsevier. 1369.

17. Parker E. Marilyn. (2007). *Nursing theories and Nursing Practice*. (2nd ed.) Jaypee Brothers New Delhi; 283

18. Park K. (2013) *Text book of Preventive and Social medicine*, (22nd ed.), Banarsidas Bhanot publishers, 172-177

19. Polit & Beck. (2006). *Nursing Research principles and methods*. (7th ed.). wolters kulvoer health India Pvt. Ltd. New Delhi

20. Polit & Hungler. (1999). *Nursing Research principles and methods*. (6th ed.). Lippincott publisher, India

21. Prem Nyati. (2007). *Clinical pharmacology*. Ist ed. M S Bhalla & Co. Pvt. Ltd business; 315-316.

22. Rao Kasthuri Sunder. (2004), *Community health nursing*, (4th ed.) B.I. Publications Pvt. ltd. Chennai;

23. Roth S. Linda. (2014). *Nursing Drug Reference.* (27th ed.). Mosby's publishers New Delhi India; 30-31.

24. Sands Monahan, Neighbors, (2009). *Phipps' Medical Surgical Nursing Health & illness Perspectiveness.* (8th ed.) Mosby Elsevier U. P. India; 743.

25. Sharma K Suresh. (2013). *Nursing research and statistics*. (3rd ed.). Elsevier publishers;

26. Siddiqui H H, (2010). *Essentials of Medical Pharmacology.* Ist ed. Ms Bhalla & Co. pvt. ltd; 453.

27. Soni Samta (2013). *Textbook of Advance Nursing Practice*. Ist edition, Jaypee brothers medical publishers (P) Ltd New delhi;

28. Tripati K.D. (2005), *Essential of medical pharmacology* ,(3rd ed) Jaypee publishers ,130-135

29. Trounce John. (2005). *Clinical Pharmacology for Nurses*, (16th ed.),Churchill Livingstone; 320-325.

Journals

30. A, Bhagyalaxmi, Jain Shikha, and A M Kadri. (2010). Effectiveness of different models of DOTS providers under RNTCP, Ahmedabad city, Gujarat. Sept to Dec.

31. Ailinger RL , Black PL, Lima-Garcia N. (2008). Use of electronic monitoring in clinical nursing research. volume. 1, 1-12

32. Antico A. (2014). Long-term adherence to sublingual therapy: literature review and suggestions for management strategies based on patients' needs and preferences. 2014 Nov; 44(11):1314-26.

33. Alex Shalet, Ramesh Ancy, Sahare Vidya, (2012), Efficacy of an Information Booklet on Knowledge Regarding Cardiac Rehabilitation among Clients with Coronary Artery Disease

34. **Balabanova Y**, **et al.** (2006). The Directly Observed Therapy Short- Course (DOTS) strategy in Samara Oblast, Russian February 2006 .

35. Caminero Ja. et al. (2010). best drug treatment for multidrug-resistant and extensively drug-resistant tuberculosis,

36. Carlsson. Marie. et al. (2014). Nurses' Roles and Experiences with Enhancing Adherence to Tuberculosis Treatment among Patients in Burundi

37. Chani Kudakwashe, (2010) factors affecting compliance to tuberculosis treatment in andara kavango region Namibia, November 2010

38. Chi-ying Tse. (2012). A health education program for tuberculosis patients

39. David Anita and Banerjee Sonali , (2010), Effectiveness of Palliative Care Information Booklet in Enhancing Nurses' Knowledge

40. Diulu Kabongo. (2010). Effectiveness of home-based directly observed treatment for tuberculosis in Kweneng West subdistrict, Botswana

41. Eapen Sherin Sara & Fernandes Philomena, (2013), Effectiveness of an information booklet on home remedial measures for breast engorgement

42. El-Din M. Nour. Et al. (2013). Factors affecting defaulting from DOTS therapy under the national programme of tuberculosis control in Alexandria, Egypt

43. EM Gardner et al . (2009). Antiretroviral medication adherence and the development of class-specific antiretroviral resistance. 2009 Jun 1; 23(9):1035-46.

44. Gelmanova IY . et al. (2007). The 260 civilian adult patients enrolled in the DOTS treatment programme during the study period,

45. George Laura Jean , (2004) , Compliance with medication and directly observed therapy in the treatment of TB in Lesotho, *University of Pennsylvania*, January 1, 2004

46. Williams Veena and Kaur Harbans, (2012), The psychosocial problems of pulmonary tuberculosis patients undergoing dots therapy (direct observed treatment short course therapy) in selected areas of jalandhar district, Punjab. *IOSR Journal of Pharmacy and Biological Sciences (IOSRJPBS) ISSN :* 2278-3008 Volume 1, Issue 1 (May-June 2012*)*

47. Yükseltürk Neriman and Dinç Leyla. (2013). Knowledge about anti-tuberculosis treatment among nurses at tuberculosis clinics, nurses are primary responsible for direct observation therapy strategy and administration of anti-tuberculosis (TB) medications.

Unpublished Master of Nursing Dissertation

48. Khare Kamlesh Nandani (2013). Effectiveness of information booklet regarding awareness of oral cancer". Unpublished Nursing Thesis, University of DAVV, 2013

49. Lalge Shweta. (2014). "Effectiveness of information booklet regarding prevention of osteoporosis among menopausal womenin the selected urban community". Unpublished Nursing Thesis, University of DAVV, 2014

50. Manohar Gauri (2014). "Effectiveness of information booklet regarding awareness for prevention of cervical cancer among women of child bearing age in selected urban community". Unpublished Nursing Thesis, University of DAVV, 2014

ONLINE-

1. www.RNTCP guidelines.com.
2. www.cdha.nshealth.ca/patientinformation/nshealth net

3. www.pubmed.com.

4. http://dictionary.reference.com/browse.

5. http://en.wikipedia.org/wiki/DOTS

6. www.wellbeing.doctissimo.com

7. www.thefreedictionary.com