

## Effectiveness of structured teaching program (STP) on knowledge regarding prevention and control of tuberculosis

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**Abstract: Background:** Tuberculosis continues to be a major health problem in the world particularly in the developing countries. The nursing personal are more prone to develop the risk of tuberculosis so they should have adequate knowledge about the prevention and control of tuberculosis.

**Aims and objectives:** The study aimed at assessing the knowledge of internship GNM students on prevention and control of tuberculosis, to develop and administer the structured teaching programme, evaluate its effectiveness on knowledge of prevention and control of tuberculosis and to find an association between pre and posttest knowledge scores with their socio-demographic variables.

**Material and Methods:** A one group pre-test post-test pre-experimental approach was adopted. The study was conducted among 60 nursing students conveniently selected from two nursing school of Vadodara. The content validity of the tool and teaching plan was established. The reliability of tool was established by testing the internal consistency by using Test -retest method.

**Results:** Result of study indicate that total pretest mean percentage 52.73% and posttest mean percentage 81.05 % which shows the increase post-test knowledge compare to the pretest knowledge score of the participants

**Conclusion:** This study concluded that structure teaching program is effective tools to improve the knowledge of internship GNM students on prevention and control of tuberculosis

**Key words:** Internship GNM students, knowledge, Prevention and control of Tuberculosis, Structure teaching programme.

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### I. Introduction

The world TB day campaign 2012 allows people all over the world to make an individual call to stop TB in their lifetimes. Mycobacterium tuberculosis, the bacteria that causes tuberculosis, has been around for centuries.<sup>[1]</sup>

Tuberculosis was first formally described by Greek physician Hippocrates around 460 B.C.E. He called it phthisis which is the Greek word for consumption; because it described the way the disease consumed its victims.<sup>[2]</sup>

India is the highest TB burden country with World Health Organization statistics for 2011 giving an estimated incidence figure of 2.2 million cases of TB for India out of a global incidence of 8.7 million cases the disease kills two people every three minutes while India has been relying on DOTS treatment to fight the disease.<sup>[3,4]</sup>

When people suffering from active pulmonary TB coughs, sneeze, speak, or spit, they expel infectious aerosol droplets 0.5 to 5 µm in diameter droplet nuclei may then be inhaled by a susceptible person.<sup>[5]</sup>

The lungs are not the only tissue to be affected by TB other than pulmonary are: acute miliary (the blood is affected with spread of disease to spleen, liver, kidney, meningis and lymph node); lupus vulgarize (the skin is affected) and TB edema (the lymph node are affected).<sup>[6]</sup>

Pulmonary TB is treated primarily with chemotherapeutic agents (anti-tuberculosis agents) for 6 to 12 months. Prolonged treatment duration is necessary to ensure eradication of the organisms and to prevent relapse. A worldwide concern and challenge in TB therapy is the continuing (since the 1950s) and increasing resistance of M. tuberculosis to TB medications.<sup>[7]</sup>

The nursing personal are more prone to develop the risk of tuberculosis so they should have adequate knowledge about the prevention and control of tuberculosis and structure teaching programme help to prevent the risk of getting infection.

## **II. Statement Of The Problem**

Effectiveness of structured teaching programme on knowledge regarding “Prevention and Control of Tuberculosis among internship GNM students in selected schools at Vadodara”

### **OBJECTIVES OF THE STUDY**

1. Assess the knowledge of internship GNM students on prevention and control of tuberculosis.
2. Develop and administer the structured teaching programme.
3. Evaluate the effectiveness of structured teaching programme on knowledge of internship GNM students on prevention and control of tuberculosis.
4. To find an association between pretest and posttest knowledge scores of internship GNM students with their socio-demographic variables.

### **HYPOTHESES**

H1: There will be significant difference in pretest and posttest knowledge level of internship GNM students on prevention and control of tuberculosis.

H2: There will be significant association between pretest, posttest knowledge scores of internship GNM students with their socio-demographic variables.

## **III. Materials And Methods**

**Research Approach:** Evaluative research approach was used.

**Research Design:** A one group pre-test post-test Pre experimental research design was adopted

**Setting of the Study:** The study was conducted in two selected nursing schools of Vadodara district.

**Target Population:** The target population for this study consisted of GNM internship students are studding in nursing schools of Vadodara, Gujarat.

**Sample:** The sample for the present study comprises of 60 internship GNM students in selected schools of Vadodara.

**Sampling technique:** Non-probability convenience sampling technique was used.

**Development of tool for data collection:** it consists of 2 parts:-

**Part 1:-**The demographic variables are age, Gender, demographic area, family income and previous exposure to prevention and control of Tuberculosis programme.

**Part 2:-**It consists of 33 items regarding knowledge of G.N.M. internship students regarding the knowledge on prevention and control of tuberculosis. The questionnaires consist of total 6 sections this are:-

- SECTION I: It consist of Introduction about TB
- SECTION II: It consist of Risk factors and causes of tuberculosis
- SECTION III: Sign and symptoms of tuberculosis
- SECTION IV: It consists of Diagnostic evaluation of TB
- SECTION V: - It consists of Treatment of tuberculosis
- SECTION VI:-It consists of Prevention and control of tuberculosis

**Validity of instrument:** To ensure the content validity of the prepared tool, it was submitted to 12 experts in which 1 from the TB chest medicine department HOD, 1 from HOD of community medicine, 1 is researcher, 1 is statistician, and 8 are different experts of nursing field from India.

**Reliability:** The reliability of tool was established by testing the internal consistency. The internal consistency was assessed by using Test -retest method. Co-efficient correlation was found 0.92 which indicated the high degree of reliability of the tool.

**Data collection procedure:** The data collected from 1 November to 1 December 2013 Sample was selected according to the selection criteria of the study from the Sigma Institute of Nursing and Nrupur Institute of Nursing Science &Research, Vadodara, Gujarat where the feasibility of conducting study was ensured after a written permission was obtained from the college authority/principal for undertaking the study Informed consent was also taken from the participants. On the first day, the pre-test data was obtained using the structured teaching programme. On the same day the structured teaching programme was administered. On the seventh day, post-test was conducted using the same tool to assess the knowledge of internship GNM students on prevention and control of tuberculosis

**Analysis of data**

Both descriptive and inferential statistics analyzed on the basis of the objectives and hypotheses of the study. Mean, median, range and standard deviation calculated. The significance of difference between the mean pre-test and post-test knowledge score of internship GNM students would be calculated using paired ‘t’ test. The association between demographic variables and post-test knowledge score regarding prevention and control of tuberculosis would be determined by chi-square test and ANOVA. Data presented in the form of tables and graphs.

**IV. Results**

The finding discussed under the following headings based on objectives of the study.

- **Section I:** - description of demographic data of the sample.
- **Section II:** - Analysis of the knowledge score of sample before and after administration of structure teaching program on prevention and control of tuberculosis.
- **Section III:** - Evaluate effectiveness of the structure teaching programme
- **Section IV:** - Association between pre and posttest knowledge scores of internship GNM students with their socio-demographic variables.

**Section I: - Description Of Demographic Data Of The Sample**

- Age wise distribution of sample reveals that majority (78.3) percent respondents belongs to the age group of 21-23 years of age while in the age group of below-20 years of age 11.7% participants respondents, and in the age group of 26-above only 3.3% participant’s respondents in particular study.
- Gender wise distribution of sample reveals that majority (81.7%) percentage of the respondents was female and (18.3%) percentage of the respondents was male.
- The percentage distribution of students in rural and urban areas shows that about (50%) of the respondents are belongs to the urban area and same (50%) of respondents are belongs to the rural area.
- The percentage distribution of students that shows about (41.7%) parentage of the students belongs to the socio-economic condition more the rupees 10000 family incomes per month and 21.7 % participants belongs to the economic condition between 5000 – 10000 per month family income.
- The percentage distributions of the students that shows that (36.7%) of the respondents are participated in national TB programme, (26.7%) percentage of respondents are attended workshop/seminar, (20 %) percentage of respondents are participated other programme related to the TB control programme and (16.7%) percentage of the respondents are having previous knowledge through mass media.

**Section II: - Analysis Of The Knowledge Score Of Sample Before And After Administration Of Structure Teaching Program On Prevention And Control Of Tuberculosis.**

The pretest and posttest scoring interpretation of the respondents it proves that there are highest 32 respondents (53.3 %) percentage of participants are belongs to the average categories, 26 respondents (43.3%) percentage of respondents are good 2 respondents (3.3%) belongs to poor categories and no any participants belong to excellent group which increase in posttest level up to 43 respondents (71.7%) excellence, 17 respondents (28.3%) are good and no participants belongs to the average or poor categories. So it indicates that there is increased the level of knowledge of students in posttest compare to the pretest after administration of the structure teaching program so it proves that my structure teaching program is effective for respondents.

**Table I: Comparison Of Pre-Test And Post-Test Individual Knowledge Score Of Respondents**

Pretest scoring interpretation				Posttest scoring interpretation		
Interpretation	Frequency	Percent	Cumulative Percent	Frequency	percent	Cumulative Percent
Valid	Excellence	0	0	43	71.7	71.7
	Good	26	43.3	17	28.3	100.0
	Average	32	53.3	0	0	100.0
	Poor	2	3.3	100.0	0	100.0
	Total	60	100.0	100.0	60	100.0

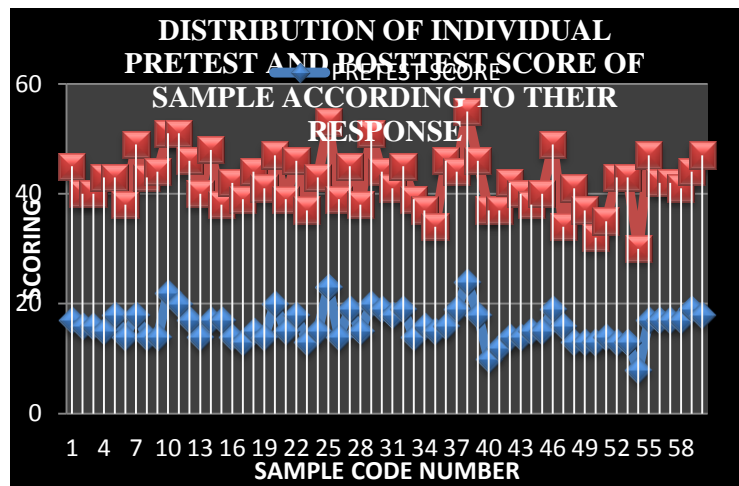


Figure 1: distribution of individual pretest and posttest score of sample according to their response

### Section III: Evaluate Effectiveness Of The Structure Teaching Programme

- The outcome of section wise distribution of the pretest and posttest knowledge score of the internship GNM students on prevention and control of tuberculosis in selected schools at Vadodara district of Gujarat state reveal that in “Introduction about the TB” the mean percentage of pretest knowledge score 63.75 % which increase in posttest up to 90.40 % so the effectiveness is 26.66 %.
- In section II “Risk factors and causes of tuberculosis” the mean percentage in pretest 37.91 % which increase in posttest up to 73.75 % and effectiveness is 35.83 %.
- The knowledge score in pretest 75.83 % which increase up to 90.83 % in posttest and effectiveness is 15 % for the sign and symptoms of tuberculosis.
- The knowledge score in pretest 35.83 % which increase up to 70.83 % in posttest and effectiveness is 35 % for the Diagnostic evaluation of tuberculosis.
- The knowledge score in pretest 64.16 % which increase up to 84.71 % in posttest and effectiveness is 20.77 % for the Treatment of tuberculosis.
- The knowledge score in pretest 38.97 % which increase up to 75.77 % in posttest and effectiveness is 36.80 % for the Prevention and control of tuberculosis.

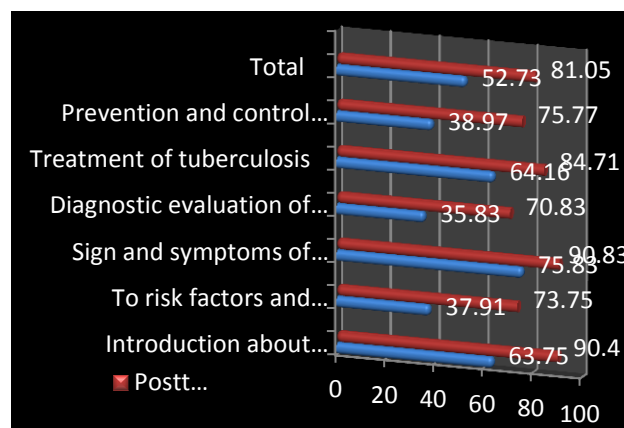


Fig 2: section wise distribution of mean, SD and mean percentage of the participants in pretest and post test

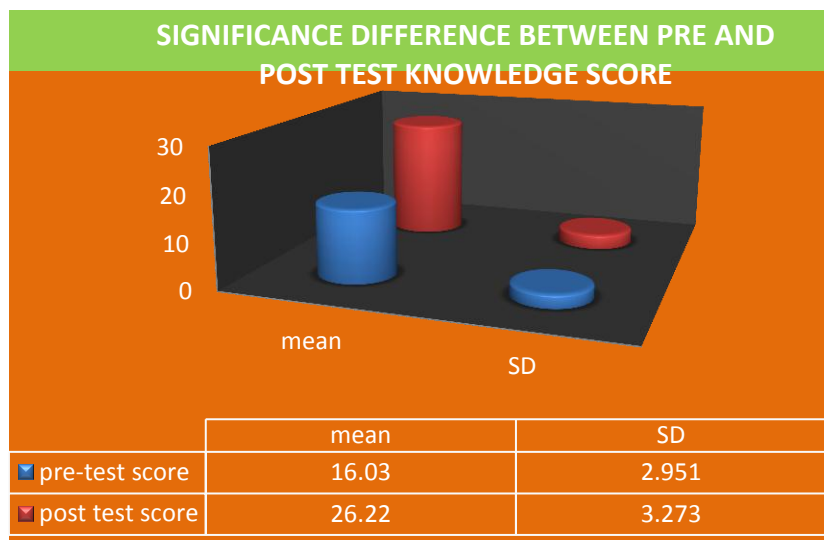
### Testing The Research Hypothesis H<sub>1</sub>

Hypothesis was tested by using paired “t” test. The value of “t” was calculated to analyse the difference in knowledge of the students with their pre-test and post-test scores after calculation “t” calculated 21.87 is more than “t” table 2.000 at the 0.05 level of significance so it shows the very highly significant and association between pretest and posttest knowledge score of GNM internship students regarding prevention and control of tuberculosis. Hence research hypothesis H<sub>1</sub> is accepted

**Table II: Significance Difference Between Pre And Post Test Knowledge Score**

Pretest and posttest score	Mean	N	SD	Coefficient of Correlation	“t” value	“p” value	Significant Level
Pretest score	16.03	60	2.951	.333	21.878	.000	P<0.001 VHS
Posttest score	26.22	60	3.273				

$t(59, 0.025) = 2.000$



**Fig. 3: significance difference between pre and posttest knowledge score**

#### Section IV: Association Between Pre And Posttest Knowledge Scores Of Internship Gnm Students With Their Socio-Demographic Variables.

To find out an association of pretest and posttest knowledge score of internship GNM students with their socio demographic variable the mean, SD, “p” value, “t” value are calculated and result of study reveals that there is no any significant association of age group, gender, and economic condition with pre and posttest knowledge of respondents but there is significant association between place of residence and source of previous knowledge of respondents with their pre and posttest knowledge score.

#### V. Discussion

The present study was conducted to determine the effectiveness of structure teaching program on knowledge regarding prevention and control of tuberculosis knowledge of internship GNM students in selected schools at Vadodara city. The finding of the study were found similar to a study conducted by Prsanna Kumar.O to evaluate Effectiveness of structured teaching programme on knowledge about Prevention of Tuberculosis among junior health assistant female students at selected training centre, Bangalore. Similarly he also found that a very high significant difference (18.50) between pre and post test knowledge score of respondents indicating significant increase in knowledge after structure teaching program. Hence it is observed that structure teaching program is very effective tool in improving the knowledge of students.

#### VI. Conclusion

The findings of the present study showed that there are highest 32 respondents (53.3 %) percentage of participants are belongs to the average categories and 26 respondents (43.3%) percentage of respondents are good, only 2 respondents (3.3%) belongs to poor categories and no any participants belong to excellent group in pretest.

Total pretest mean percentage 52.73% and after administrating the structure teaching program the posttest mean percentage 81.05 % which shows the increase post-test knowledge compare to the pretest knowledge score of the participants.

Study also shows that “t” calculated 21.87 is more than “t” table 2.000 at the 0.05 level of significance so it shows the very highly significant and association between pretest and posttest knowledge score of GNM internship students regarding prevention and control of tuberculosis. Hence it proves that structured teaching program was very effective to improve the knowledge of internship GNM students regarding prevention and control of tuberculosis.

### **Acknowledgement**

I express my gratitude and thanks towards all who have directly or indirectly helped me to complete this study and their support in each major step of the study.

### **Limitations Of The Study**

1. Data collection period was limited to 4 weeks; hence the sample size was relatively small.
2. Sample was selected only from Vadodara District hence generalization can only be made for the sample studied.
3. The study did not use control group. The investigator had no control over the events that took place between pre-test and post-test.

### **Recommendations**

Based on the findings of the present study recommendations offered for the future study are:

1. Similar study can be conducted on a larger sample to generalize finding.
2. A comparative study can be conducted with control group.
3. The comparative study may be conducted to find out the effectiveness between SIM and STP regarding the same topic.
4. A similar study can be conduct on the nursing degree course students, staff nurse, community people and TB patients.
5. A descriptive study can be conducted to assess the knowledge on prevention and control of tuberculosis among GNM internship students.

### **Ethical Standards**

This study was conducted after getting approval from the Institutional Ethics Committee and after obtaining written consents from all subjects.

**Source of funding:** The authors did not receive any financial support from any third party related to the submitted work.

**Conflict of interest:** The authors had no relationship/condition/circumstances that present a potential conflict of interest.

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