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A Study to Assess the Knowledge Regarding Pulmonary Tuberculosis and its Prevention among Workers in Selected Garment Factories at Bengaluru with a View to Develop an Information Booklet

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ABSTRACT

Introduction: Pulmonary tuberculosis is infectious disease of lungs which is characterized by cough, haemoptysis, weight loss, fever. The primary cause of pulmonary tuberculosis is exposure to mycobacterium tuberculosis, mainly by droplet infection.
Method: A cross-sectional descriptive design was used. Structured questionnaire was developed to collect information. In the first part of tool socio-demographic related questions were included. In the second part structured questionnaires related to pulmonary tuberculosis and its prevention were constructed on the basis of review literature, experts' guidelines. Data were analysed for descriptive as well as inferential analysis. All ethical aspects were followed.
Results: The samples knowledge score regarding pulmonary tuberculosis and its prevention among garment factory worker 47% had inadequate knowledge and 48% had moderate knowledge and 05% had adequate knowledge. The chi square test (χ^2) was carried out to determine association between the knowledge and socio demographic variables such as age, gender, educational qualification, monthly income of family type of family, and sources of previous information. The calculated χ^2 values was less than the table value in terms of age (12.057), monthly income (4.878) and source of information (8.527). Therefore the null hypothesis H_0 stated as there is no significant association between the level of knowledge and selected socio demographic variables was accepted .Out of which χ^2 value of age (12.057), gender (10.264) ,educational qualification (25.327),monthly income (4.878) , type of family (12.666), sources of information (8.527) were found to be significant at 5% level of significance. Hence, null hypothesis was rejected.
Conclusion: The present study revealed that majority of the garment factory workers had inadequate and moderate knowledge regarding pulmonary tuberculosis and its preventive measure.

Keywords: Pulmonary Tuberculosis, Garment Factories, Information Booklet

1. INTRODUCTION

Tuberculosis is an ancient disease that has left it traces in Stone Age Skeletons and Egyptian Mummies. Pulmonary Tuberculosis is a contagious bacterial infection that involves the lungs caused by Mycobacterium Tuberculosis. India accounts of nearly one - third of global burden of Tuberculosis, every year approximately 1.8 million persons develops Tuberculosis, of which 0.8 million are new smear positive, about 4.17 lakhs of people dies of TB every year, one person die every minute and above 1000 people die

every day.[1] In India highest incidence of TB is reported in Uttar Pradesh (22,369 / 1,00,000), Karnataka (11,005 / 1,00,000) and lowest in Jammu Kashmir (172/ 1,00,000). In Karnataka the highest incidence of TB is in Bengaluru city, the number of smear positive clients diagnosed were 1588/ 1,00,000.[2]

Factors favouring the development of TB are environmental insanitation, poor nutrition, prolonged physical and mental strain, anxiety, poor quality of life, poor housing, overcrowding, population explosion, lack of education and lack of awareness about the rapid spread of diseases.[4]

Many of the population are unaware about the spread of disease, signs and symptoms of TB such as unexplained weight loss, fever, chills, night sweats, weakness or fatigue, loss of appetite etc. Most specific symptoms may include cough that last for three weeks or longer, pain in the chest, cough with blood or sputum. Early awareness about TB symptoms helps for early diagnosis and early treatment.[3]

TB is no longer considered as incurable. A proper knowledge about a healthy lifestyle practices, adequate nutrition and its role in health maintenance, knowledge resources, prevention and control of disease etc helps to overcome the disease. To counter the effects of these factors the nurse has to educate the people to follow strictly the guidelines given by the health care centre regarding, the drugs to be taken continuously and motivate them to follow the simple hygienic precautions such as covering the face while sneezing or coughing, importance of safe disposal of sputum to prevent the spread of diseases, importance of hand washing, need for adequate nutrition and awareness about BCG Vaccination for newborns also should be encouraged.[4]

At present the world focuses on two epidemics from TB. (1) re-emergence of TB itself (2) the increasing combination of TB with HIV. Garment Factory workers are more prone to develop Pulmonary Tuberculosis since they are exposed to dust continuously (especially those who are in cutting the clothes, Tailors, Packers)poor ventilation, overcrowding of work place, low socio economic status, unhealthy life style practices and low grade living environment. By creating awareness about TB, its causes, signs and symptoms and treatment helps to detect and prevent the occurrence of Pulmonary Tuberculosis among the Industrial workers.[5]

1.1 NEED FOR THE STUDY

Pulmonary Tuberculosis is an infectious disease that primarily affects the lung parenchyma. It spreads from person to person by airborne transmission and also may be transmitted to other parts of the body such as meninges, kidneys, bones, and lymph nodes. Tuberculosis continues to be a leading cause of death worldwide and it remains a serious public health problem in developing countries. A statistical report on Tuberculosis published by WHO (2004) states that India, China and Indonesia accounts for half of all tuberculosis cases in the world. Nearly 40% of the world Tuberculosis patients lives in south-east Asia region. Every year 3 million newly diagnosed cases and nearly one million death from TB takes place in south-east Asia region. India account of nearly 1/3rd of the global TB burden and the annual incidence of smear positive cases are 75 /100000. Every day 20000 people become infected with TB, more than 5000 develop TB and more than 1000 dies because of TB. Pulmonary Tuberculosis is one of the biggest public health problems in India and the burden of suffering cases is enormous. People with Tuberculosis loose one an average about 83 work days because of disease, 48 of which are lost while shopping for diagnosis, 2 million new cases are reported annually, the national loss per year works out to 166 million work days at a cost of 200 million Dollar. [1]

A statistical report on Tuberculosis published by WHO (2014) states that In 2012, there were an estimated 8.6 million

new cases of TB and 1.3 million people died from TB. Over 95% of TB deaths occur in low- and middle-income countries. Poor communities and vulnerable groups are most affected, but this airborne disease is a risk to all. TB is among the top 3 causes of death for women aged 15 to 44. There were an estimated 500 000 cases and 74 000 deaths among children in 2012.Around 3 million people (equal to 1 in 3 people falling ill with TB) are currently being 'missed' by health systems.[6]

The study conducted to assess the knowledge regarding Pulmonary Tuberculosis among TB patients in a rural community of south India. The result shows that most of the infectious TB cases in a rural community are at least conscious of the symptoms of disease. About 3/4 are worried about their sickness and about ½ of them are actively seek treatment for their symptoms at rural medical hospital. The existing facilities deals with a very small fraction of these patients who are actively seeking treatment.[7]

In India awareness of tuberculosis is centred on the extent of people's knowledge regarding the most important facts about the disease. Most of the people are either ignorant or not fully knowledgeable about the disease. Knowledge about the cause, symptoms, transmission, prevention, Medications, dietary patterns, Life style and hygienic practices are still required to a large extent in the country to reduce its severity.[8]

Most of the Garment Factory workers are females and Tuberculosis affects more in women at the reproductive age group than any other infectious diseases. In India nearly 1/3 of female infertility is caused by Tuberculosis because they tend to neglect their illness till they are too sick and they depend on others to get necessary medical attention.[1]

The incidence of TB is increasing among Garment Factory workers because of poor ventilation in their working environment and living spaces, poverty, malnutrition and poor life style practices. The responsibility for the prevention and control of Tuberculosis rests primarily in the individual patient, family and the care giver. I felt the need to conduct the present study among Garment Factory workers since they are exposed to dust, poor ventilation, poor socio-economic status and low grade living environment. To create awareness about tuberculosis, its causes, signs and symptoms, treatment, I will develop an information booklet if they don't have satisfactory adequate knowledge which will help to prevent the occurrence of Pulmonary Tuberculosis.

1.3 CONCEPTUAL FRAMEWORK

The conceptual framework for this study was derived from general system model of Ludwig von Bertalanffys model (1968) was used. This model consists of three main components such as input throughput and output. Input of this model according to the present study is the assessment of demographic variables such as age, gender, educational qualification, monthly income, type of family and source of information. Throughput consist of the process of assessment of the level of knowledge on pulmonary tuberculosis and its prevention among garment factory workers includes the assessment of knowledge on introduction ,incidence ,risk factors, sign and symptom, management and prevention of pulmonary tuberculosis. The output consists of the outcome or result of the knowledge assessment done among garment factory workers. The outcome might be positive or negative. Positive outcome refers to adequate level of knowledge on pulmonary tuberculosis and negative results refers to inadequate knowledge.

1.3 CONCEPTUAL FRAMEWORK

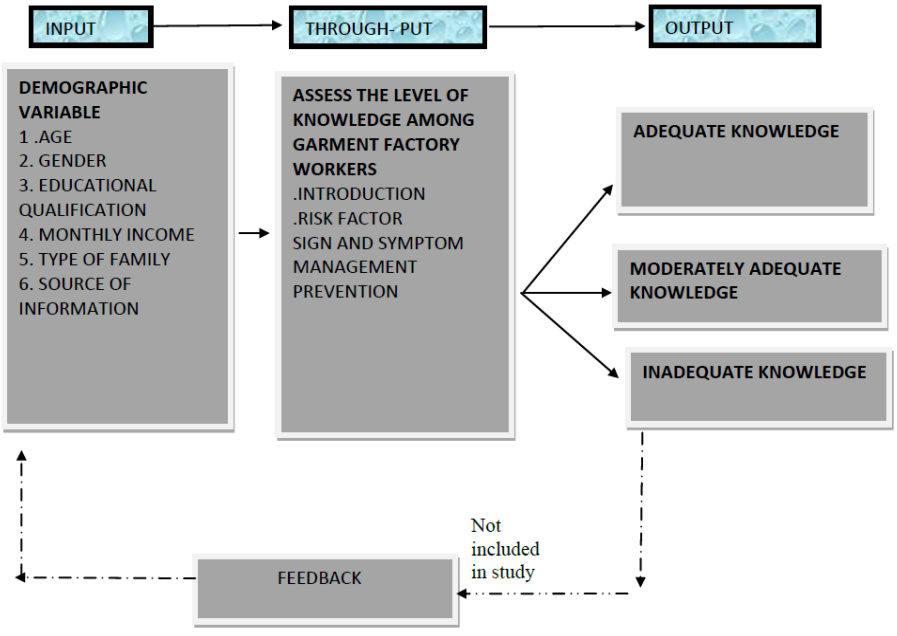

FIGURE 1: MODIFIED LUDWIG VON BERTALANFFY GENERAL SYSTEM MODEL

2. METHODS AND MATERIALS

A descriptive cross-sectional study was used in the study to gather information and analyze the data on knowledge regarding pulmonary tuberculosis and its prevention among workers in venketeshwara clothing co. Yelahanka Newtown, Bangalore. A total 100 respondents were selected by using convenient sampling. Structured questionnaire was developed to collect information. In the first part of tool socio-demographic related questions were included. In the second part of tool, life pulmonary tuberculosis related questions were included. Socio demographic questionnaire and pulmonary tuberculosis related questionnaire were constructed on the basis of literature review and consulting with subject expert. The pilot study was conducted on Venkateshwara clothing co. Residency road Bangalore.The reliability of the tool was tested by using spearman brown split half method and it was found to be r = 0.84 for knowledge questionnaires. Content validity was maintained by reviewing related literature and consulting subject expert. Ethical approval was taken from Miranda college of Nursing, Bangalore and from Venkateshwara clothing co, Bangalore. All data were entered on database and analyzed. Descriptive and inferential statistics were applied. Statistical analysis-The data were analyzed through descriptive (frequency, percentage, mean, median, standard deviation) and inferential (chi-square) statistics. The association between socio-demographic variables as well as knowledge on pulmonary tuberculosis and its prevention was measured with the chi-square value of 0.05. The sample (n=100) included garment factories.

Development and description of the tool:

Data collection tools are the procedures or instruments used by the researcher to observe or measure key variables in the research problem.

Method of developing instrument: The prepared tool was based on:

- Literature review.
- Discussion with the experts.

Components of the Instrument:

The instrument consists of two sections:

Section A: This consists of six items related to socio-demographic variables (age, gender, educational qualification, monthly income, type of family and source of information) among garment factory workers at selected garment factory at Bangalore.

Section B: Consists of 30 items regarding the knowledge of pulmonary tuberculosis

Scoring technique: The structured knowledge questionnaire consisted of 30 close ended multiple choice questions with a single correct answer. Every correct answer was accorded a score of one (1) and every incorrect / unanswered item was accorded zero (0). The maximum score on knowledge questionnaire was thirty (30). A scoring key item was prepared showing item numbers and correct responses.

Obtained score

Percentage

Total score

The different levels of knowledge are categorized as follows:

Inadequate Knowledge- <15 or <50.

Moderately adequate Knowledge- 15-22 or 51-74%.

Adequate Knowledge - 23-30 or >75%.

Ethical Consideration:

For this study the investigator took into consideration of the ethical issues. No ethical issue confronted while conducting this study. The purpose of the study was explained to the samples and informed consent was obtained prior to the data collection, to get their cooperation

Pilot study:

Pilot study was conducted during the month of May at venkateshwara clothing co. #16/2, Residency road Bangalore, with 10 samples. Permission was obtained from the manager of venkateshwara clothing co. #16/2, Residency road (Bangalore). Consent was obtained from the participants. The pilot study was done to check the clarity of items in the tool and feasibility in conducting the study. Garment factory workers, who fulfilled the inclusion criteria, were selected by purposive sampling technique. Confidentiality was assured to all the respondents.

Knowledge was conducted by administering the structured knowledge questionnaire. Data were analyzed and found it to be feasible. The pilot study participants were excluded from the main study.

Procedure for data collection:

Formal written permission was obtained from the Miranda college of Nursing and Venketeshwa clothing factory for conducting the main study. The method of data collection adopted for the study was structured knowledge questionnaire. The subjects of the study were gathered in the garment factory. After brief introduction of self, the investigator explained the purpose of the study and obtained consent from them.

A test was conducted by distributing the structured knowledge and instructions were given on data collection answering the questionnaire and doubts were clarified. Each worker took 45 minutes to answer the demographic data and to fill the questionnaire. Adequate explanation was provided where ever needed.

3. RESULTS

Tables 01- depict the frequency and percentage distribution of garment factory workers with demographic variables such as age, gender, educational qualification, monthly income, type of family and source of information. The findings indicate that majority of garment factory workers (49%) were of the age group of 21-30years and 28% were of age group of 31-40 years and 17% were of age group above 40 Years and 6% were in the age of below 21 years. Distribution of gender of garment factory workers shows that majority 77% were female and 23% were male. Distribution of

Educational qualification of workers shows that majority 39% were high school level and 38% were pre-university and above and 23% primary educated .With regard of family income per month, most them (65%) had income of 10000-15000, 22% had income of below 10,000 and 13% each had income of above 15,000.Regarding sources of information received previously majority (41%), had received from mass health education/health professionals, 30% from mass media, 16% from magazines / newspaper and 13% received from internet.

Table 1: Frequency and percentage distribution of garment factories workers.

S.N	VARIABLES	FREQUENCY	PERCENTAGE
1	**Age**		
	Below 20	6	6%
	21-30	49	49%
	31-40	28	28%
	Above 40	17	17%
2	**Gender**		
	Male	23	23%
	Female	77	77%
3	**Educational qualification**		
	No formal	-	-
	Primary school	23	23%
	High school	39	39%
	Pre-university and above	38	38%
4	**Monthly income of family**		
	Less than 10000	22	22%
	10000-15000	65	65%
	Above15000	13	13%
5	**Type of family**		
	Nuclear	29	29%
	Joint	56	56%
	Extended	15	15%
6	**Previous information about pulmonary tuberculosis**		
	Yes	100	100%
	No	0	0%
7	**Source of information**		
	Internet	13	13%
	Mass media	30	30%
	Magazine/Newspapers	16	16%
	Mass health education program/health personnel	41	41%

Table -2: Frequency and percentage Distribution of samples according to their knowledge score regarding pulmonary tuberculosis and its prevention.

Knowledge level	score	Frequency (n = 100)	Percentage
Inadequate knowledge	<15 or <50%	47	47%
Moderately adequate knowledge level	15-22 or 50-74%	48	48%
Adequate knowledge level	23-30 or >75%	05	05%

The table 2 -shows that knowledge level of garment factory workers, majority 48 (48%) had moderate knowledge with a score level ranged between 15-20 or 50%-74%. and 47(47%) respondents had inadequate knowledge level with score level <15 or <50% .Only 5 (5%) Subjects had good knowledge score ranged between 23-30 or <75% regarding pulmonary tuberculosis.

Table-3: : Area wise mean, SD, Mean% of the knowledge scores among garment factory workers.

S.N.	Knowledge on area wise	Number of item / Maximum score	Mean	Mean percentage	S.D.
1	Unit-1.Anatomy and physiology, definition ,incidence, aetiology and risk factors	10	4.58	45.8%	±1.76
2	Unit -2 Sign and symptom ,diagnostic test and complication	4	1.77	44.25%	±0.89
3	Unit-3 Management and Prevention	16	8.78	54.87%	±2.78
	Total	30	15.30	51%	±5.43

Table 3, depicts with the area of anatomy and physiology of respiratory system, definition, etiology, incidence and risk factors the mean knowledge scores was 45.8% (4.58 ±1.768). The mean knowledge scores in the area of signs and symptoms, diagnostic test and complications was 44.25% (1.77±0.89) In the area of prevention and management the mean knowledge scores was 54.87% (8.78±2.78).The overall findings reveal that, the percentage of mean score was 51%

Table-4 : association between knowledge score and their selected demographic variables.

S.N	Demographic variables	Categories	Inadequate knowledge	Moderate knowledge	Adequate knowledge	Total	Result
1	Age	Below20	4	7	0	6	$\chi2$ = 12.057 table value = 12.59 df=6 (NS)
		21-30	22	27	0	49	
		31-40	10	14	4	28	
		Above 40	11	5	1	17	
2	Gender	Male	11	8	4	23	$\chi2$ = 10.264 table value=5.99 df = 2 (S*)
		Female	36	40	1	77	
3	Educational qualifications	No formal education	-	-	-	-	$\chi2$ = 25.327 table value=9.49 df = 4 (S*)
		Primary school	17	6		23	
		High school	24	13	2	39	
		Pre-university education and above	6	29	3	38	
4	Monthly income of family	Below10000	8	14	0	22	$\chi2$ = 4.878 table value=9.49 df = 4 (NS)
		10000-15000	32	28	5	65	
		Above 15000	7	6	0	13	
5	Type of family	Nuclear	7	21	1	29	$\chi2$ = 12.666 table value=9.49 df =4 (S*)
		Joint	29	23	4	56	
		Extended	47	4	0	15	
6 a.	Previous information about pulmonary tuberculosis	Yes	47	48	5	100	
		No	-	-	-		
6 b.	If yes, Sources of health information	Internet	5	8	0	13	$\chi2$ = 8.527 table value=12.59 df =6 (NS)
		Mass media	20	8	2	30	
		Magazine/Newspapers	6	9	1	16	
		Mass health education/ health personnel	16	23	2	41	

Df=degree of freedom , (NS)=Not significant (P≤0.05) , (S) =Significant*

Table 4 depicts with association between knowledge score and their selected demographic variables of garment factory workers.

The chi square test (χ^2) was carried out to determine association between the knowledge and socio demographic variables such as age, gender, educational qualification, monthly income, type of family previous knowledge about tuberculosis and source of information.

Table depicts that the calculated χ^2 values was less than the table value in terms of age (12.057), monthly income (4.878) and source of information (8.527). Therefore the null hypothesis H_0 stated as there is no significant association between the level of knowledge and selected socio demographic variables was accepted .Out of which χ^2 value of gender (10.264), educational qualification (25.327), type of family (12.666) were found to be significant at 5% level of significance. The observed χ^2 value is more than the table value at 5% level. Hence, the null hypothesis H_0 was rejected.

4. DISCUSSION AND CONCLUSION

The chapter presents the major findings of the study and discusses them in relation to similar studies conducted by other researchers. The study was conducted to assess the knowledge regarding pulmonary tuberculosis and its prevention among garment factory worker. The findings of the study have been discussed

with reference to the objectives and hypotheses stated with findings of other studies.

Objective 1: To assess the knowledge regarding Pulmonary Tuberculosis and its prevention among workers in selected Garment Factories.

The total number of samples was 100. In test score shows that knowledge level of garment factory workers, majority 48 (48%) had moderate knowledge with a score level ranged between 15-20 or 50%-74%. and 47(47%) respondents had inadequate knowledge level with score level <15 or <50%. Only 5 (5%) Subjects had adequate knowledge score ranged between 23-30 or <75% regarding pulmonary tuberculosis

The findings of the present study was supported by the study Lu, S-H. Tian, B-C. Kang,Zhang, Meng, Lo et al (2009)[9], which revealed that people in the farming industry and other with low educational level has poorer knowledge about tuberculosis .The study shows that garment factory workers awareness in terms of pulmonary tuberculosis and its prevention was not satisfactory and hence an utmost need of frequent awareness programme was strongly felt .

Objective 2: To find the association between the knowledge scores of Pulmonary Tuberculosis and its prevention with selected demographic variables of garment factory workers.

The chi square test (χ 2) was carried out to determine association between the knowledge and socio demographic variables such as age, gender, educational qualification, monthly income, type of family previous knowledge about tuberculosis and source of information.

The calculated χ^2 values was less than the table value in terms of age (12.057), monthly income (4.878) and source of information(8.527) .Therefore the null hypothesis H_0 stated as there is no significant association between the level of knowledge and selected socio demographic variables was accepted .Out of which χ 2 value of gender (10.264), educational qualification (25.327), type of family (12.666) were found to be significant at 5% level of significance. The observed χ 2 value is more than the table value at 5% level. Hence, null hypothesis was rejected. The findings of the study was uniform with the findings of Hasim DS, Al Kuhaisy W, Al Dulayml A (2004)[10]

Objective 3: To develop an Information Booklet regarding Pulmonary Tuberculosis and its prevention.

In test score shows that knowledge level of garment factory workers, majority of sample had inadequate and moderate knowledge, samples 48 (48%) had moderate knowledge with a score level ranged between 15-20 or 50%-74% . and 47(47%) respondents had inadequate knowledge level with score level <15 or <50% . The study shows that garment factory workers awareness in terms of pulmonary tuberculosis and its prevention was not satisfactory and hence information booklet was developed and distributed.

The findings of the present study was supported by the study Fathima L. (2003) [11] which revealed that significant improvement in care givers knowledge regarding home care management of haemodialysis in post test after administering information booklet.

CONCLUSION

The present study revealed that majority of the garment factory workers had inadequate and moderate knowledge regarding pulmonary tuberculosis and its preventive measure. Therefore, it was concluded that the information booklet will be very effective in improving the knowledge regarding pulmonary tuberculosis and its preventive measure.

Recommendations:

Based on the findings of the study, following recommendations have been made:

- A similar study can be replicated on a large sample to generalize the findings.
- A similar study can be conducted by including attitude aspect.
- A similar study can be carried out to in other factory areas also.
- A similar study can be undertaken by adopting an experimental research.

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