

**EFFECT OF PLANNED TEACHING ON KNOWLEDGE AND PRACTICES
REGARDING PREVENTION AND CONTROL OF RESPIRATORY PROBLEMS
AMONG COTTON MILL WORKERS IN SELECTED URBAN AREA**

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ABSTRACT

Effect of planned teaching on knowledge and practices regarding prevention and control of respiratory problems among cotton mill workers in selected urban area was carried out for partial fulfilment of the requirement for the award of Master of Nursing at Maharashtra University of Health Sciences, Nasik.

Objectives of the study are

1. To assess the knowledge and practices regarding prevention & control of respiratory problems among cotton mill workers in a selected area.
2. To determine the effectiveness of planned teaching on knowledge and practices regarding prevention & control respiratory problems among cotton mill workers in a selected urban area.
3. To identify the association between knowledge and practices with selected baseline variables such as age, gender, education, working experience, and section of working.

Hypothesis

H1- There is significant change in pre-test and post-test knowledge and practices score after planned teaching.

Research Methodology

One group pre test post test design was used, with an evaluative approach.

Validity

It refers to a degree of which an instrument measures what it is suppose to be measuring.

In order to obtain content validity, the tool was given to one expert in statistics, two experts in prevention & social medicine, seven experts in nursing, and experts from nursing department.

The suggestions were given for section A (demographic data) to write; other experts suggested to reframe the options of work experience.

In section B, it was suggested by one of the experts to reframe the options of few questions.

After receiving the opinion from the experts and consultation from the guide some modifications were

done in framing the items and same were incorporated into the tool.

Result

The results shows that there was significance difference between pre test and post test knowledge score in relation to knowledge regarding prevention and control of respiratory problems among cotton mill workers.

In pre-test score mean is 14.2, standard deviation is 3.4 and in post test score mean is 21.0 standard deviation is 2.1. and calculated table value is 16.6 at 0.000 (less than 0.05) level which is significant.

Similarly, a significant difference between pre test and post test practice score in relation to practice regarding prevention and control of respiratory problems among cotton mill workers was also observed.

In pre-test score mean is 2.7, standard deviation is 1.2 and in post test score mean is 4.5, standard deviation is 1.0. calculated table value is 11.7 at 0.000 (less than 0.05) level which is significant.

The figure stated clearly represents that there is increase in the level of score in post test in comparison to pre test.

Thus the planned teaching programme was effective.

Conclusion

The conclusions drawn from the finding of the study are as follows:-

The 't' test used to find the effect of planned teaching programme on knowledge and practice regarding prevention and control of respiratory problems among cotton mill workers revealed that there is highly

significant gain in knowledge and practice of cotton mill workers who had been attended the planned teaching programme.

The study concludes that cotton mill workers need the training about ergonomics and proper practices to be carried out while working in cotton mill to avoid problems.

CHAPTER I INTRODUCTION

“PREVENTION IS BETTER THAN CURE”

K. Park

India being a developing country is facing with traditional public health problems like communicable diseases, malnutrition and inadequate medical care on one hand, while globalization and industrialization has resulted in emergence of occupational health related issues which adds to burden of effectively addressing health care in India. Some occupational diseases have been recognized for many years and affect the workers in different ways depending on the nature of hazards, the route of exposure etc. some well known occupational diseases includes asbestosis, silicosis, pneumoconiosis, lead poisoning, lung disease, occupational cancer, occupational asthma, bagasosis, byssinosis etc. The major occupational diseases or morbidity of concern in India are COPD (bronchitis, emphysema), asthma, pneumoconiosis etc. which continue to cause permanent disabilities and deaths. According to World Health Survey in 2012 the global prevalence of asthma in adults was estimated at 4.3% prevalence of clinical asthma was 4.5% with a range of 1% in Vietnam & 21.5% in Australia. It is estimated that asthma accounts for about 1 in every 250 deaths worldwide. According to National Institute for Occupational Safety & Health (NIOSH) 15% of all cases of asthma in adults within industrialized nations.^[1,2]

Industries are necessary for the progress of any nation. Along with industrial growth in different countries, there exists an intimate relationship among health, environment, safety, and welfare of the industrial workers and all other occupations. The uncontrolled rampant growth of industries and other economic activities, while providing comfort and prosperity to the mankind also products an adverse impact on health of community who are directly or indirectly associated with it.

Respiratory problems are widespread. They may be acute or chronic. Acute disorders range from minor inconvenience such as colds or flue to more life threatening problems such as asthma, some type of pneumonia and chest trauma. Chronic respiratory problems are widespread, causing significant disability. There are many causes of respiratory problems allergies, occupational factors, genetic factors, smoking and tobacco use, infection, neuromuscular disorders, chest abnormalities trauma, pleural condition etc.

The joint committee of WHO on occupational health, held in 1950 for the first time gave the definition of occupational health, “ The general aim of occupational health should be the promotion and maintenance of highest degree of physical, mental & social wellbeing of workers in all occupations, the prevention among workers of departures from health caused by their working conditions, the protection of workers in their respective employments from risk resulting from factors adverse to health, the placing & maintenance of the workers in an occupational environment adopted to their physiological and psychological equipment , and to summarize, the adaptation of work to man and each man to his job.”^[3,4]

Occupational health is a branch of community medicine which deals with the effects of occupation or workplace on human health. According to National Institute for Occupational Safety & Health (NIOSH) Occupational accidents and disease claim two million lives around every year. More than 160 million workers suffer each year from occupational hazards. More than 1,00,000 workers lose their lives every year due to occupational disease and accidents in India. Every occupation is associated with one or other ill effects on health. One such occupational group is cotton mill workers. Cotton mill workers are susceptible to various morbid conditions by virtue of workplace and working conditions. Cotton and synthetic textile industry in India is the largest industry in the country providing employment to millions of workers. The workers are at risk of suffering from various chronic respiratory illnesses like byssinosis, chronic bronchitis due to exposure to the cotton dust in the worksites. Even though quite a few studies have been conducted in textile mills in India enough emphasis has not been given on the epidemiological aspects of chronic respiratory illness among the workers in these mills of the 81% byssinosis related fatalities reported in the United states in 2008, 48% victims of byssinosis. In the United states 2005 North Carolina accounted for about 37% of all deaths caused by byssinosis with 31 followed by south Carolina (8) & Georgia (7).^[5]

BACK GROUND OF THE STUDY

Cotton is a natural fibre used in the production of cloth. When cotton is being processed; it emits fine cotton dust into the air. These particles when breathed into the lungs by the person working with the fibre cause several respiratory diseases to the person. Cotton industry workers are exposed to various hazards in the different departments of textile factories. Due to inhalation of cotton dust a person can have an allergic reaction which is similar to an asthma attack. This allergic reaction causes the small airway in lungs to contract so the air cannot quickly leave the lungs. Any air that is trapped in the lungs at the time of the attack has to force its way out of the body through narrowed lung passages which in turn produces wheezing sounds. Visible small cotton dust particles enter into the alveoli of the lung through inhalation and accumulate in the lymph causing damage

to the alveoli and reducing the capacity of retain oxygen. As the cotton dust accumulates, the worker develops a brown lung and suffers from byssinosis.

It is a contagious may spread by direct or indirect contact. viruses causes about 90%of cases of acute bronchitis while bacteria account for less than 10% .The most common symptoms are cough ,low grade fever, sore throat, nasal congestion, malaise, wheezing and shortness of breath.

According to WHO, world health report 2002, there are 1,829,000 COPD cases in developing countries and 748,000 cases in developed countries have been found. According to centres for disease control there are 1,90,000 of residents with COPD, 13% of bronchitis deaths, 740 bronchitis deaths per 1,00,000 population. 59 per 1000 with chronic bronchitis, 11.4 million with COPD including 9.4million with chronic bronchitis, 3.6% of population self-reported having bronchitis in Australia 2001.^[6,12]

In India, there are about 1.07 million workers engaged in the manufacture of cotton textiles. The low prevalence reported in those studies created an impression that the disease is not an important problem. The epidemiological studies conducted by NIOH for the first time showed a very high prevalence of the disease. According to the report by National Institute of Occupational Health the prevalence of some of the occupational lung disease are as follows: Byssinosis-Textile Mills (Blow Room)30 %, Textile Mills (Card Room) 38%, Jute Mills 48.8%; Asbestosis- Asbestos mine & mill 11%, Asbestos Textile workers 9%, Studies have estimated an annual incidence of occupational disease between 924,700 and 1,902,300 and 121,000 deaths in India. Occupational asthma is more common among young adults with a predominance of women (67.7%). The textile sector dominated with a share of 74.9% of occupational asthma prevalence.^[7]

According to a study of the Breathing problems among Silk Industry Workers in India, Dr. Ajeet Jaiswal, Ph.D., Assistant Professor, Department of Anthropology, Pondicherry University had done analysis for 345 subjects and detected 127 cases of respiratory problems, of which 58 had associated chest pain with cough.

A total of 735 workers were interviewed and 437 workers had respiratory examinations carried out on them. Byssinosis was diagnosed in 8 out of 405 workers (prevalence of 1.98%) who were not directly exposed to cotton dust, and 21 out of 330 workers (prevalence of 6.36%) who were directly exposed to cotton dust. The spinning department had the highest prevalence of 11.5%. Study concluded that Byssinosis and other respiratory problems were more prevalent in sections of the textile mill industry that were directly exposed to cotton dust.

The study conducted by Dr. R. Senthil Kumar on impact of cotton dust on human health and environment in the textile industry, in the year of 2007, found that information regarding cotton dust exposure impacts on workers and its control strategies is missing among textile employers, management and employees.

There is growing interest in preventable, non-smoking causes of chronic obstructive pulmonary disease (COPD), among which are chronic exposures to respiratory irritants in the workplace. Sources of data Reviews of occupational COPD in specific occupations and industries and in general populations; supplemented with other or more recently published material. Areas of agreement There is good evidence for an increased risk of COPD from certain specific exposures (coal mine dust, silica, welding fume, textile dust, agricultural dust, cadmium fume).Areas of controversy Less clear is the causal role of non-specific dusts or fumes/gases in general populations where the available literature is notably uncritical. Growing points Other specific exposures, such as diesel fume; interactions between specific exposures and cigarette smoking; the development of safe working limits. Areas timely for developing research Occupations with large numbers of exposed employees, particularly in low-income countries.

NEED FOR STUDY

Work plays a central role in people's lives since most workers spend at least eight hours a day in the workplace. Therefore, environment should be safe and healthy. In fact some employers do not even know that they have the moral and often legal responsibility to protect workers. As a result of hazards and lack of attention given to healthy and safety, work related accidents and diseases are common in all parts of the world.

Cotton mill workers are susceptible for various morbid conditions like asthma, byssinosis, bronchitis, & COPD. To create awareness among cotton mill workers regarding respiratory problems there is need to educate & provide latest most correct information to cotton mill workers regarding preventive measures & control of respiratory problems so that they can take prevention for their better health.

Occupational health nurse with updated knowledge of preventive concepts has a major role in intensity of complication caused by bronchitis. She or he being one of the members of health team comes in contact with the community at various situations like home visiting, conducting survey and health programme. By understanding the importance of community participation it is the responsibility of the nurses to educate and provide finest counselling for the individual of the community and the community as a whole with the latest most correct information.

Breathing is a basic human need that we tend to ignore unless we have some difficulty with it, only then we are aware of the process. Breathing is a physiologic function that is almost synonymous with being alive. We experience difficulty in breathing as we threaten to life itself. People with respiratory disorder are often very anxious, fearing they may die and perhaps uncomfortably.

Growing population of India is the major concern of the government and is considered as the principal obstacle to the economic growth of the country. Emerging occupational health problems are to be tackled along with the existing traditional public health problems. Globalization and rapid industrial growth in the last few years have further complicated the occupational health related issues. Neglect of occupational health and safety of the workers may result in invisible burden to the economy, which, in some cases, may be substantial. Ill health of the workers results in reduced production due to inefficiency of the workers and sickness absenteeism. Moreover, the workers have to be paid sickness benefits and compensation. There is also increased expenditure either on the part of the factory management or the Government to meet the medical expenses for treatment.

Work in the textile industry has been recognized as hazardous. It has been associated with many symptoms involving the respiratory tract. Byssinosis is the most prevalent occupational lung disease in textile industry. The distinguishing feature of the clinical history in byssinosis is its relationship to the work week. It is characterized by chest tightness beginning on Monday (or the first day of the work week) afternoons. The tightness subsides that evening and the worker is well for the remainder of the week, only to re-experience the symptoms on the following Monday. At the later stages dyspnoea and non-productive cough may be present.

Mishra AK, et al conducted a case controlled study during 2003 to identify the prevalence of Byssinosis among 761 male textile workers in Pondicherry showed that the prevalence of Byssinosis was more among males who were aged 30 years and above who worked for more than or equal to 10 years in spinning and weaving section. The study concluded that by reducing the dust level in worksite and by reducing smoking, the risk of developing Byssinosis could be minimized.^[7]

Raj Narayan, Vijay Babar conducted a study to identify the common morbid conditions among cotton textile workers at Wardha. The researchers concluded that the common morbid conditions include amoebiasis 4.1%, byssinosis 2.3%, Chronic bronchitis 4.5%, eosinophilia 19.8% and upper respiratory tract infections 7.2%.^[7]

A study was conducted to determine the effects of past cotton dust exposure on the respiratory tract, The results showed that most common respiratory symptom was

chest tightness (20.3%). The prevalence of byssinosis was 14.2% in cotton-processing workers. Among these cases, 28.6% had symptoms on the 1st day of the week, and 71.4% had symptoms on all days of the week. An acute effect was seen in 53.6% of the workers with byssinosis.^[8]

Kassahun Alemu, et al, 2009 conducted a cross-sectional study among 417 randomly selected factory workers to determine the prevalence of and factors associated with byssinosis among workers in cotton mills of Akaki textile factory. The prevalence of byssinosis was 38%; the highest being recorded in the carding section at 84.6%. This study provides evidence of a strong relationship between exposure to cotton dust and byssinosis which is mediated through chronic ventilator impairments. Preventive measures are warranted in order to reduce the high prevalence of byssinosis and other respiratory disorders in textile manufacturing.

A study was conducted in 2008 in Belgaum, to assess knowledge regarding prevention of occupational health hazards among textile workers. Result shows that in the pre-test 11% of the samples had good knowledge whereas in post-test 75% had good knowledge.^[7]

A study was conducted in Karachi in 2009, to assess the knowledge regarding occupational health safety among 257 textile workers. Result shows that 15% of the sample had gained good knowledge in pre-test whereas 59.9% gained good knowledge in the post test.^[7]

Occupational asthma affects 5% to 10% of people and about 10% of these individuals report that their symptoms are worse when they are at work and improve when they are away from work. Prevention would play an important role in dealing with this problem since these diseases are mainly the result of inhalation of hazardous substances with most often workers are unaware of. Often occupational health is not given priority because very little research has been undertaken to study exposure to such hazards and its impact on health. For all the reasons given above, it is crucial that workers are committed to health and safety. Effective work place, health and safety programme can help to save the lives of workers by reducing hazards and their consequences and also have positive effects on both workers morale and productivity. At the same time, it can save employers a great deal of money.

PROBLEM STATEMENT

“Effect of planned teaching on knowledge and practices regarding prevention and control of respiratory problems among cotton mill workers in selected urban area.”

OBJECTIVES

1. To assess the knowledge and practices regarding prevention & control of respiratory problems among cotton mill workers in a selected area.

2. To determine the effectiveness of planned teaching on knowledge and practices regarding prevention & control respiratory problems among cotton mill workers in a selected urban area.
3. To identify the association between knowledge and practices with selected baseline variables such as age, gender, education, working experience, and section of working.

OPERATIONAL DEFINITIONS

1. Effect

According to oxford dictionary effect means to bring about result, consequence.

In this study, effect refers to the change in knowledge score of prevention of respiratory problems after planned teaching as assessed with structured questionnaire.

2. Planned teaching

According to the oxford dictionary teaching means to impart knowledge to or instruct someone how to do something. Planned teaching giving systematic information with a scheme prepared before hand.

In this study planned teaching refers to meaningful interaction between the investigator and workers using a pre- prepared subject matter on prevention of respiratory problems which includes diseases like bronchitis, asthma, and byssinosis and their

1. Definition
2. Causes
3. Sign & symptoms
4. Preventive measures
5. Control

3. Knowledge

According to oxford dictionary, knowledge means a state of being aware of or informed.

In this study, knowledge refers as the information regarding prevention& control of respiratory problems like asthma, byssinosis and bronchitis among cotton mill workers.

4. Practice

According to oxford dictionary practice means habitual action or performance.

In this study practice refers to the self-expressed habitual actions accepted by workers regarding protective devices, like wearing masks, physical exercises, breathing exercises, proper ventilation in mill etc.

5. Prevention

According to oxford dictionary prevention means to keep from happening or arising.

In this study, prevention refers to minimize the occurrence of respiratory problems such as asthma, Byssinosis& bronchitis among cotton mill workers in a selected urban area.

6. Control

According to Webster dictionary, control means to reduce the severity of especially to innocuous levels.

In this study control refers to minimise the sign & symptoms who are having respiratory problems like asthma, byssinosis and bronchitis among cotton mill workers.

7. Respiratory problems

According to oxford dictionary respiration means a process in living organism involving the production of energy typically with intake of oxygen and the release of CO₂ from the oxidation of complex organic substances.

Problem means a matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome.

In these study respiratory problems means infections in the respiratory system which can be defined as the disorders or diseases like Asthma, Byssinosis, Bronchitis etc caused by the intake of allergens, infection, etc.

8. Worker

According to oxford dictionary worker means a person who works especially for an employer.

In this study worker refers to person who are working in the cotton mill permanently.

9. Cotton mill

In this study, cotton mill can be defined as the factories which are using cotton as a material for the preparation of textile products.

ASSUMPTIONS

1. Cotton mill workers may have some knowledge regarding prevention& control of respiratory problems.
2. Cotton mill workers may be practicing some preventive measures for prevention& control of respiratory problems.
3. Knowledge and practices may vary depending upon years of experience.
4. Planned teaching may enhance their knowledge and practices.

HYPOTHESIS

H₀ – There will no significant change in pre-test and post-test knowledge and practices score after planned teaching.

H₁- There will be significant change in pre-test and post-test knowledge and practices score after planned teaching.

SCOPE OF THE STUDY

The study findings have several implications in nursing. They can be categorised under nursing services, nursing education, & nursing research.

- a) Nursing services-

Nurses have an important role in prevention of occupational diseases, which can be achieved through appropriate health teaching.

b) Nursing education-

Findings of the study can be used by nurse educator to illustrate the importance of health teaching to cotton mill workers regarding prevention & control of respiratory problems.

c) Nursing research –

Methodology, tools & findings of this study can add to nursing literature in India future research can be done to strengthen this study.

ETHICAL ASPECT

1. The research problem and the objectives will be approved by the ethical committee.
2. Consent will be taken from the authority in charge of the mill.
3. Purpose of the study will be explained to the participants and confidentiality will be assured.
4. Informed approval will be obtain from the participants.

CONCEPTUAL FRAMEWORK

According to Polit and Hungler, “conceptual framework represents a less formal and less well developed attempt at organizing phenomena than theory and deal with abstractions that are assembled by virtue of their relevance to a common theme.”^[13]

Treece and Treece states that, “one of the important purposes of conceptual frame work is to communicate clearly the inter-relationship of various concepts”^[14]

Conceptualisation provides a frame of reference for research, education & practice. It directs research by pointing out solutions to problems. A framework for a research study helps to organize the study and provides content for interpretation of the study findings. It helps to explain the relationships between the concepts and formalizes the thinking process, so that others may read and know the frame of reference, basic to the research problem. The conceptual framework is also enlightens the investigator regarding relevant questions on the phenomena under study.

The present study assess the effectiveness of a planned teaching on knowledge & practices regarding prevention of respiratory problems among cotton mill workers. The framework is based on modified Imogen king’s goal attainment model.

The goal of the investigator is to improve knowledge of workers because workers are the backbone of the industries. The concept of self, perception, goal, settings, action, interaction and transaction are selected.

1. SELF

Self is the individual whose perception and role influence that person’s communication, interaction and decision making in groups. This model focuses the process where by individual interact mutually to set goals attainment.

In this study, self means the researcher or investigator.

2. PERCEPTION

In the present study the investigator perceives the inadequate knowledge among the worker regarding prevention of respiratory problems.

3. GOAL SETTING

Investigator sets a goal in the present study to improve knowledge & practices regarding prevention of respiratory problems along with subjects.

4. ACTION

During action phase, the investigator prepares the structured questionnaire on prevention of respiratory problems and planned teaching program on same topic to provide knowledge.

5. INTERACTION

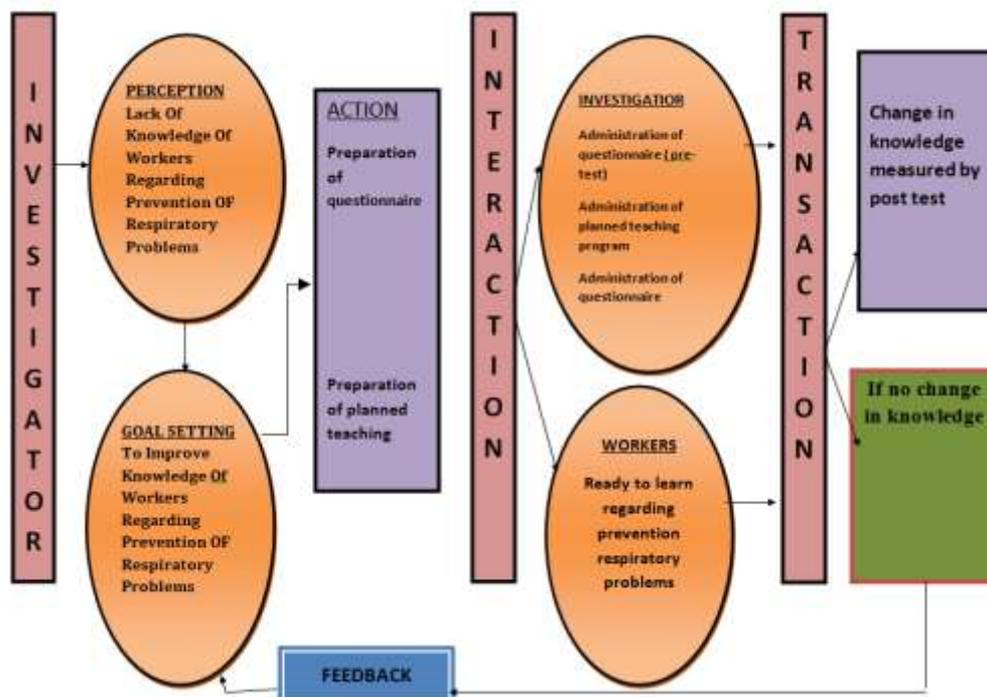
During interaction the investigator administers questionnaire to assess the knowledge of workers on prevention& control of respiratory problems such as asthma, byssinosis and bronchitis. After the pre-test, the investigator administers the planned teaching program, and then a post test is taken with the same tools.

6. TRANSACTION

In the present study transaction can be to gain adequate knowledge. This is assessed through a comparison between the pre-test and post-test knowledge score of respiratory problems. This is helpful to workers to prevent themselves from respiratory problems & maintain good health. Workers will also understand regarding important protective measures and will use them for preventing illness.

7. FEEDBACK

It is the process that enables a system to regulate it, save and provides information about the transaction and interaction.



CHAPTER II REVIEW OF LITERATURE

“ALL OUR WORDS AND ACTS ARE PASSING IN REVIEW BEFORE GOD”

-Ellen G. White Review of literature is a critical summary of research on a topic of interest, often prepared to put a research problem in content. A literature review helps to lay the foundation for a study and can also inspire new research ideas.

The review of literature is defined as broad, comprehensive in depth, systematic & critical review of scholarly publication, unpublished scholarly print material, audio-visual aids, and materials & personal communication.

Review of literature is a key step in research process. Review of literature refers to an extensive, exhaustive & systemic examination of publications relevant to the project. Before any research can be started, a literature review of the previous study & experiences related to the proposed investigation should be done. A researcher analysis existing knowledge before dealing into a new area of study while conducting a study, when interpreting the result of the study & when making judgments about application of new knowledge.

The review of relevant literature is nearly always a standard chapter of a thesis or dissertation. The review forms an important chapter in a thesis where its purpose is to provide the background and justification for the research undertaken. Various books, journals, reports and internet were accessed for the related literature.

The studies reviewed are arranged under the following headings-

- A) Studies related to impact of cotton dust on respiratory tract.
- B) Studies related to incidence & prevalence of health effects on cotton mill workers.
- C) Studies related to knowledge & practices among cotton mill workers.
- D) Studies related to health teaching.

A) IMPACT OF COTTON DUST ON RESPIRATORY SYSTEM

1 An article presented by Beckett, 2000, occupational respiratory diseases reported that work-aggravated asthma is caused by mechanical irritation of the airways from non allergenic dust and by chemical irritation. Most inhaled dust is filtered out by the upper airways or cleared by the ciliated epithelium of large airways. If these defenses are overwhelmed by fine dust, the lung reacts with an alveolar and interstitial inflammation that may cause adverse effects on respiratory system.

2 Lapatin BS, et al in 2000 conducted a study to examine for clinical and functional examination of the upper respiratory tracts (URT). Study was performed in 240 employees exposed to novel active vinylsulfone dyes at cotton dye works. Those in contact with active dyes developed affections of URT mucosa leading to chronic sub-atrophic and catarrhal rhino-pharyngitis occurring in dye-exposed subjects 3 times more frequently than in the non-exposed. The severity of URT lesions depended on the occupation and length of service. Special tests provided evidence for early harmful action of the dye aerosols on URT in the majority of the examinees.

3 A survey done by Vasantha Kandaswamy on occupational hazard in textile industries reveals that most of the workers and family members at Coimbatore (Tamilnadu) India, in 2003 suffer from either asthma, allergy, TB or from frequent attacks of cold. Only few or negligible people suffered from cancer. Another strange ailment were nose block, throat infection, which were also a frequent problem faced by them, it is also found that the number of weavers who suffered from skin problem was less than the number of weavers who faced with respiratory problems, thus the major occupational health hazards faced by weavers was respiratory problem.

4 A study was conducted by Nilvarangkul, et.al aiming to strengthen the self care of women of Khon Kaen textile, Thailand in 2006. Study showed that 63% of the women had respiratory problems such as asthma due to cotton dust, or respiratory irritation due to inhalation of chemicals used to bleach silk and cotton.

5 An article presented by Lai PS, Christiani DC, 2013 March, it discussed that Over 60 million people worldwide work in the textile or clothing industry. Recent studies have recognized the contribution of workplace exposures to chronic lung diseases, in particular chronic obstructive pulmonary disease (COPD). Early studies in textile workers have focused on the relationship between hemp or cotton dust exposure and the development of a syndrome termed byssinosis. Effect of long-term exposure to organic dust in textile workers on chronic respiratory disease in the broader context of disease classifications, such as reversible or irreversible obstructive lung disease (i.e. asthma or COPD), and restrictive lung disease.

6 Wang XR, Pan LD, Zhang HX et al. conducted a study in 2002 to identify early pulmonary responses to cotton dust exposure and associated gram-negative bacterial endotoxin, respiratory symptoms and pulmonary function in 225 newly-hired textile workers. Study revealed that all the workers were females and nonsmokers, with an average age of 18 years. Symptom incidence at three months was 3.6% for usual cough with phlegm, and 6.7% for usual dry cough. Workers reporting respiratory symptoms at three months showed a significantly greater cross-shift drop in FEV1 (- 2.3%) than those without the symptoms (-0.7%). These results suggest that the occurrence of respiratory symptoms represents the earliest response to cotton dust exposure, followed by lung function changes. Early respiratory symptoms may be a risk factor for subsequent loss of pulmonary function in cotton textile workers.

7 Lung function studies and clinical examinations of 493 workers in eight cotton mills in New South Wales in 2000 revealed 12 workers with byssinosis, 20 workers with asthma and 7 workers with breathlessness.

8 Shi J, Hang JQ, et al conducted a prospective cohort in 2010 and the objective of the study was to investigate changes in lung function and respiratory symptoms after cessation of textile work and to determine whether past exposure to cotton dust and endotoxin or smoking history modify the associations. study consisting of 447 cotton textile workers exposed to cotton dust and 472 unexposed silk textile workers, with a 25-year follow-up. Study revealed that years since cessation of textile work was positively associated with 11.3 ml/yr and 5.6 ml/yr gains in 5-year FEV(1) change for cotton and silk workers, respectively. Among male cotton workers, smokers gained more FEV(1) per year after cessation of exposure than did nonsmokers, and the risk of symptoms of chronic bronchitis and byssinosis was larger for smoking than for nonsmoking male cotton workers.

B] STUDIES RELATED TO INCIDENCE & PREVALENCE OF HEALTH EFFECTS ON COTTON MILL WORKERS

9 Thoreia Mohamed Mahmoud et.al conducted a study in Assuit Spinning Factory, Egypt from July to the end of December 2001. The aims of the work are study the occupational health hazards among the workers in Assuit Spinning factory and to assess the different protective measures used during working day to prevent the different hazards. The total number of the studied sample was 550 workers out of 650 who worked in productive and repair sectors. And the study revealed that the workers suffer from cough are in the blending & picking department- 68.3%, carding and spinning department-60.2%, and combing and twisting department-73.7% and workers suffer from dyspnea are in the blending & picking department- 70.7%, carding and spinning department- 68.1%, and combing and twisting department-71.9% Ear disease and ear secretion were common symptoms among more than half of the workers in the above mentioned departments. Only 63.8% of workers were performed periodic medical examination. It was found that workers are suffering Chronic bronchitis- 13.4% Chronic bronchitis with emphysema- 11.1% Bronchial asthma- 2.3

Sensory deafness- 13.4% Sensory conductive deafness- 9.9%

10 Saoji Ajeet, Deoke Aniruddha, Kulkarni Meenal & Nayse Jaydeep, conducted a study to find out the prevalence of chronic respiratory morbidities and related epidemiological factors among spinning mill worker in Babashaheb Kedar Sut Girni Nagpur during Nov 2008 to Oct 2009. Study revealed that among 462 workers, (25.3%) had chronic respiratory morbidity and the morbidities were due to Byssinosis-11.7 %, chronic bronchitis-5.8%, Bronchial asthma- 4.5%, Tuberculosis- 1.5% ,other obstructive pulmonary disease -1.7%

11 A study was conducted by Pravin N. Yerpude and Keerti S. Jogdand at Guntur district of Andhra Pradesh to find out the morbidity pattern among cotton mill workers

in January 2009 to May 2009. Total 474 workers were included in the study. All study subjects were male. The researcher found that common morbid conditions were eosinophilia (18.35%), iron deficiency anemia (28.90%), byssinosis grade 1 (7.80%), dental stains (6.54%), refractive errors (7.80%), chronic bronchitis (4.85%), and upper respiratory tract infection (8.64%).

12 Chaari N, Amri C et al in 2009 conducted a descriptive study of 600 apprentices; to determine the prevalence of Rhinitis and Asthma in a textile and clothing vocational training centre in the Monastir area, Tunisia and to describe their epidemiologic and clinical profiles. Results revealed that 120 apprentices (20%) developed allergic respiratory reactions due to exposure to textile dust (exclusively cotton) during their training 28 apprentices (4.6%) presented symptoms of asthma. Rhinitis was associated with asthma in 45% of cases. Study concluded that the frequency of respiratory disorders caused by allergens remains high in the textile and clothing industry.

13 Kobayashi H. et al published article in "Thorax clinics in chest medicine" 2004 Dec in Saitama, Japan, regarding a 66 year old man who had inhaled cotton fiber for 50 years at his workplace. He did not have any respiratory symptoms. Chest CT scans revealed diffuse centri-lobular and peri-bronchovascular interstitial thickening. Lung biopsy specimens confirmed the presence of string-like foreign bodies as well as granulomas and fibrosis in the peri-bronchial region. Infrared spectro-photometry confirmed that the foreign bodies were composed of natural cellulose. This is the first study to show directly by examination of biopsy samples that cotton fiber inhalation can cause diffuse lung disease. The clinical features of the disease were entirely different from those of byssinosis.

14 Ahasan M R, Ahmad A. conducted a study in 2003, to investigate the respiratory health profile of textile mill workers in Bangladesh, aiming to develop workers' awareness and public attention, and to ensure a proper implementation of health and safety measures. Forced vital capacity was measured by peak expiratory flow rate instrument among 210 subjects. The subjects who had a considerably low peak expiratory flow rate (<290 liters/min), and had symptoms of chronic respiratory illness, underwent X-ray examination. A statistically significant low peak expiratory flow rate was identified among 52.9 % of workers. The researchers concluded that 42.9 % had symptoms of cough with or without phlegm; 5.7 % had a history of chronic bronchitis and/or asthma, and 4.3 % experienced chest tightness or breathlessness.

15 Altin R., Sevinc C, conducted a study in 2002 in in Tanzania, East Afrika to determine the effects of past cotton dust exposure on the respiratory tract, 223 cotton mill workers of Tanzania cotton mill were included in this study. The results showed that most common respiratory

symptom was chest tightness (20.3%). The prevalence of byssinosis was 14.2% in cotton-processing workers. Among these cases, 28.6% had symptoms on the 1st day of the week, and 71.4% had symptoms on all days of the week. An acute effect was seen in 53.6% of the workers with byssinosis. The researchers concluded that in spite of technological improvements, respirable dust concentrations are still above the permissible limits, and thus the risk of byssinosis remains. Workers in the cotton industry where obsolete technology is used and standardized protection measures are not applied should be followed for byssinosis.

16 Raza SN, et al in 2002 conducted a study to evaluate the chronic effects of exposure to cotton dust in China. 447 cotton textile workers were included, and 70-85% of the original 472 silk textile workers as a control group. The prevalence of byssinosis increased over time in cotton workers, with 15.3% at the last survey versus 7.6% at the baseline, whereas no byssinosis was found in silk workers. More workers in the cotton group consistently reported symptoms than in the silk group, although symptom reporting varied considerably from survey to survey, and chronic bronchitis in cotton workers. Workers who consistently (three or four of the surveys) reported byssinosis or chest tightness at work had a significantly greater 15-yr loss of FEV₁. The researcher concluded that long-term exposure to cotton dust is associated with chronic or permanent obstructive impairments. Consistent reporting of respiratory symptoms, including byssinosis and chest tightness at work, is of value to predict the magnitude and severity of chronic impairments in textile workers.

17 Mukherjee AK et al in 2003 conducted a study to examine airborne endotoxin and its relationship to pulmonary function among workers in an Indian jute mill, Kolkata. Endotoxin was estimated in water extract of jute dust from 3 milling areas, and in outside air, by the Limulus amoebocyte lysate gel clot technique. The batching, spinning, and weaving areas of the jute mill showed endotoxin levels. Respiratory morbidities among the workers included typical byssinotic symptoms, along with acute changes in post shift forced expiratory volume in 1 s (FEV_{1.0}) (31.8%). Results of this study demonstrated that increased exposure to bacterial endotoxin in airborne dust is related to byssinotic symptoms among Indian jute mill workers.

18 Wang XR, Zhang HX et al conducted A 20-year follow-up study on chronic respiratory effects of exposure to cotton dust from 1981 to 2001 in Huntington Avenue, Boston, 447 cotton textile workers were included along with 472 silk textile controls. The results from five surveys conducted over the 20-yr period are reported, Cotton mill workers had more persistent respiratory symptoms and greater annual declines in forced expiratory volume in one second (FEV₁) and forced vital capacity as compared with silk workers. After exposure cessation, in the final 5-yr period, the rate

of FEV1 decline tended to slow in nonsmoking males, but not in nonsmoking females. Workers who reported byssinotic symptoms more persistently suffered greater declines in FEV1. Chronic loss in lung function was more strongly associated with exposure to endotoxin than to dust. In conclusion, the current study suggests that long-term exposure to cotton dust, in which airborne endotoxin appears to play an important role, results in substantial adverse chronic respiratory effects.

19 Dube KJ, Ingale LT, Ingle ST in 2012 conducted a study to determine the prevalence of respiratory symptoms among cotton-ginning workers. This study involved 188 workers of 10 cotton-ginning factories. Forced vital capacity (FVC), peak expiratory flow rate (PEFR), and forced expiratory volume in 1s (FEV1) declined significantly with increasing duration of exposure of the cotton-ginning workers. Results of a standard respirator medical evaluation questionnaire indicated that, depending on duration of exposure, 51%-71% of cotton-ginning workers suffered from chest tightness, 55%-62% experienced chest pain, while 33%-42% of the workers reported frequent cough. Workers showed higher values of erythrocyte sedimentation rate, eosinophils, and white blood cells when exposure was longer. Byssinosis symptoms were observed among the workers. Researchers recommend regular periodical medical check-ups, compulsory use of personal protective equipment, and proper ventilation at the workplace.

20 Nafees A.A, et al in 2010 conducted a study to determine pattern and predictors for respiratory illnesses and symptoms and lung function among textile workers in Karachi, Pakistan. This was a cross-sectional survey of 372 adult male textile workers from the spinning and weaving sections of 15 textile mills from Karachi. Prevalence of byssinosis was 10.5%, chronic cough 7.5%, chronic phlegm 12.9%, wheeze with shortness of breath 22.3%, shortness of breath (grade 2) 21%, chest tightness ever 33.3%; whereas, a low prevalence of asthma (4%), Prolonged duration of work predicts breathlessness grade 1 -95% and grade 2 -95% as well as decrements in Forced Expiratory Volume in the first second (FEV(1)) and FEV(1)/Forced Vital Capacity ratio.

21 A study was undertaken by National Institute of Occupational Health, Nag A, Vyas H, Nag PK Meghani Nagar, Ahmedabad in 2010 to identify the work stressors among male and female weavers (n=516) in power loom and handloom and examine the association of work stressors with the prevalence of work related musculo-skeletal disorders (MSDs). Physical and psychosocial stresses of work, job diagnostics, hazards of workplace, working environment and MSDs prevalence were assessed. There is high prevalence of MSDs among weavers. Female weavers in power loom and handloom were more prone to developing MSDs in upper back and lower back. Male weavers were more prone to developing

pain in the knee, and hand. Multivariate analysis indicated that job duration >10 yr manual material handling, and poor machinery safety contributed to occurrence of MSDs amongst power loom weavers. Among the handloom weavers, age >25 yr poor machinery design, mental overload skill requirement to perform jobs had significant influence in the occurrence of pain. Gender differences exist in the prevalence of MSDs and the perception of work and psycho-social stresses among the weavers.

22 Paudyal P, Semple S. et.al conducted a cross-sectional study in four sectors (garment making, carpet making, weaving, and recycling) of the textile industry in Kathmandu, Nepal. Personal exposure to inhalable dust and airborne endotoxin was measured during a full-shift for 114 workers. This study measures personal exposure to inhalable dust and endotoxin in the textile industry. Personal exposure to cotton dust was generally low. Exposures were lowest in the weaving and the garment sector, higher in the carpet sector, and highest in the recycling sector. Endotoxin exposures were high with the overall data. The highest exposures were in the recycling sector and the weaving sector with lower levels in the garment sector. The highest endotoxin concentrations expressed as endotoxin units per milligram inhalable dust were found in the weaving sector. There was a statistically significant correlation between inhalable dust concentrations and endotoxin concentrations and this was particularly strong in the garment and the carpet sector.

23 Zhong Y, Li D, Ma Q, Rylander R. in 2001 conducted a longitudinal study of cotton mill workers was undertaken to assess the presence of work-related medical effects. 110 subjects were examined before starting work and one year later. Measurements of pulmonary function were made before and after the work shift. The 60 workers who remained after three years experienced an over-shift drop in FEV1 and an increase in airway responsiveness that did not increase after the first year. The data from the dropout group (n = 50) before work and after one year were compared with those for the active workers. The dropout group had a higher prevalence of symptoms of chest tightness and nasal irritation after one year of work. The results suggest that leaving work was related to symptoms of airways inflammation but not to atopy.

24 Osibogun A, Oseji MI, Isah EC, Iyawe V in 2004 conducted a study to determine the distribution and severity of byssinosis and other respiratory problems in the different operation sections in a textile mill industry in Asaba Nigeria. A total of 735 workers were interviewed and 437 workers had respiratory examinations carried out on them. Byssinosis was diagnosed in 8 out of 405 workers (prevalence of 1.98%) who were not directly exposed to cotton dust, and 21 out of 330 workers (prevalence of 6.36%) who were directly exposed to cotton dust. The difference was found to be

statistically significant. The spinning department had the highest prevalence of byssinosis 11.5%. The prevalence of respiratory abnormalities which did not necessarily meet the criteria for a diagnosis of byssinosis was 4.9% for persistent cough and persistent phlegm; 8.0% for dyspnoea grade 2+; 3.3% for dyspnoea grade 4 and 2.59% for dyspnoea grade 5. Smoking was not found to be associated with the disease as none of the byssinotics were current smokers.

25 Kahraman H et.al in Turkey in 2011 conducted a study to evaluate longitudinal changes in selected parameters of pulmonary function in textile workers. This prospective cohort study began with 196 textile workers in 2006 and was completed in 2011 with 49 workers. Researchers used standardized tests for pulmonary function on participants on the first day of the workweek in June of 2006 and 2011. The study revealed that Pulmonary function parameters of all participants in 2011 were significantly lower than those in 2006. In both surveys, pulmonary function in current smokers was lower, but this difference was not significant. Study concluded that the first data on pulmonary functional loss in Turkish textile workers and supports the findings of other cohort studies that workers with long-term exposure to cotton dust may lose some pulmonary function

26 Hassan MR, Bennoor KS et al, 2004 conducted a study to find out the incidence of Pulmonary Tuberculosis (PT) in garments workers of Dhaka city of Bangladesh and to find-out the relationship between the incidence of PT and socio-demographic factors of the respondents. From all garments factories of Dhaka city, 30 factories were included by stratified random sampling method. Chest X-ray, Sputum for AFB, M.T and ESR were done in the suspected cases. PT was diagnosed when any patient fulfilled predefined inclusion criteria. Out of 2400 selected workers, 2281 workers were studied finally. A total of 22 definite PT cases were identified. Sputum positive were 4/2281 cases. The study concluded that PT among the garments workers is a more alarming health issue than among the general population of Bangladesh. Improved and regular health check-up system and 'directly observed treatment short course' (DOTS) should be implemented in the working places particularly where clusters of workers are working together.

27 Singh MB, Fotedar R, 2004 conducted a study in Rajasthan, To explore the occupational health problems of the desert textile workers and their association with nutrition and environmental factors, investigations were carried-out in two districts, Jodhpur and Pali. Data on occupational disease conditions, environmental factors, nutritional deficiency signs and anemia were collected for a total of 1,240 individuals out of which 845 were textile workers and 395 were comparative group workers of the same age groups. The main disease conditions found; aches (19.4%), respiratory problems (12.1%) and

fever (7.7%), were higher in textile workers than the comparative group. Dyeing group workers suffered the most (25.5%) from aches, significantly higher than the comparative group (11.6%), may be due to a higher percentage of severe anemia, besides physical labor. Printing and bleaching group workers suffered from respiratory problems (15.5%) almost twice as much as the comparative group, possibly due to exposure to fumes of acids and use of chemical dyes. Housing conditions, personal hygiene and education showed negative associations with disease conditions but positive associations with anemia. The study revealed that in the textile industry, disease conditions vary with the categorization of work.

28 Murlidhar V, Murlidhar VJ conducted a study under the auspices of the Occupational Health and Safety Centre, a voluntary organization in Rajasthan of India. Textile workers were called to a camp conducted over 3 nights and 3 days. The diagnosis of byssinosis was made if there was chest tightness on exposure to cotton dust. Of the total 1075 workers in the mill only 273 included in the study. 54 (30%) of the 179 individuals working in the dusty sections of the mill had byssinosis among those working for less than 10 years in textile mills, 24% had byssinosis and among those working for more than 30 years, 45% had the disease. The study concluded that the prevalence of byssinosis among textile workers who worked in the dusty industries are more than non dusty industries.

29 Chattopadhyay BP, Saiyed HN 2002 conducted a study in jute mill workers jute mills in West-Bengal, India, to determine the work related respiratory symptoms; acute and chronic pulmonary function changes among exposed workers, The study included 148 jute mill workers. Study revealed typical byssinotic syndrome associated with acute changes in FEV1 on the first working day after rest and reported to confirm the occurrence of byssinosis in jute mill workers. Respiratory morbidity study reported typical byssinotic symptoms along with acute post shift FEV1 changes (31.8%) and chronic changes in FEV1 (43.2%) among exposed workers. The group with higher exposure showed significantly lower FVC, FEV1, PEFR and FEF25-75% values.

CJ STUDIES RELATED TO KNOWLEDGE AND PRACTICES AMONG COTTON MILL WORKERS.

30 Soomro N, Memon A R, Aslam S, conducted a study in Jamshoro, Pakistan 3rd December 2013 and Revised on 27th April 2014. With aiming to study the problems faced by Ginning industry of Pakistan. Samples were taken from five different ginning factories were selected randomly from different areas of Sindh, Pakistan. Through this research it has been observed that 25% workers have Byssinosis, 45% have cough, 20% have phlegm and 10% have allergy diseases. This research revealed that cotton dust from machines during

ginning process directly affect the workers, that causes lung diseases like Byssinosis, asthma and phlegm to workers. For keeping good health and safety conditions in ginning industry this research is more emphasizing on two main aspects either upgrade the existing ginning technology. Through this research work the health and safety problems related to workers are improved.

31 Ahmad I, Qadir S, et.al conducted a study from October 24, 2012 to November 5, 2012 in Tribal Textile Mills, Dera Ismail Khan, It was a survey regarding Knowledge, Attitude and Practice among 50 respondents selected from 650 workers by convenience sampling. Research variables were knowledge, attitude and practice. Young age group was dominating with a frequency of 44 (88%). The frequency of rural population was 26 (52%). The difference of mean levels of knowledge, attitude and practice between the two age groups, two residence groups and three language groups were all statistically non significant. The correlations in between the knowledge, attitude and practice were all positively statistically significant.

32 Thoreia Mohamed Mahmoud et.al conducted a study in Assuit Spinning Factory, Egypt from July to the end of December 2001. The aims of the work are study the occupational health hazards among the workers in Assuit Spinning factory and to assess the different protective measures used during working day to prevent the different hazards. The total number of the studied sample was 550 workers out of 650 who worked in productive and repair sectors. a questionnaire was constructed to assess the preventive measures and information regarding pre-placement examination and periodic medical examination. The data was collected for about 6 months. The present study showed that 151(32.7%) had cotton dust exposure for more than 20 years. Only masks were provided as protective devices and 191 (41.3%) of the workers were using it. Total 160 (34.7 %) workers were smokers.

33 A quasi-experimental experimental study conducted in 2007 by Jessica S Kale in Belgaum, Karnataka, with an objective to assess the knowledge and practice of preventing occupational health hazards among textile weavers with a sample size of 55 through implementing planned teaching program. Result showed that 11% (6) had good knowledge during pre test, has improved to 100% (55) during post test. The researcher further recommended that same study can be conducted in other setting.

34 A cross sectional study was conducted by Awan A. S. 2004; with the objective to assess the level of occurrence of health problems among garment workers and their attitude, and practices to prevent occupational health problems. 216 workers were selected among them 93% workers has experienced any one or more occupational health hazards. All workers had some knowledge of personal protection measures to prevent

health problems but only few workers (4%) in cutting section were using personal protection equipments.

35 A study was conducted by J. Kamini to assess respiratory tract infection and level of knowledge on practice of personal safety measures among cotton mill workers at Kandagiri spinning mill Salem. 140 workers were selected and the study revealed their level of knowledge on practice of personal safety measures 19.29% had adequate level of knowledge on practice 50% had moderately adequate level of knowledge on practice 30.71% had inadequate level of knowledge on practice of personal safety measures.

36 A cross sectional study conducted in a garment factory of Karnataka by Paramasivan et.al in 2005. The aim of this study is to assess the level of occurrences of health problems among garment workers and their attitudes and practices to prevent occupational health problems. In this study a total of 216 workers were included. Among them 93% of workers has experienced in one or other type of occupational health hazards. All workers had some knowledge of personal protection measures to prevent health problems who are working in the garment manufacturing units, but only few workers (4%) in the cutting section were using personal protection equipment.

37 Mohammed Irfan farooq, et.al conducted a cross sectional study in the year 2006 at landhi, Karachi, Pakistan. To identify Byssinosis in cotton spinning mill workers, probable associations of disease with factors such as different work areas, safety gadget usage and overtime and to ascertain proportions of byssinosis to accidental injuries with a conventional sample of 83 and pulmonary function test was done. Of all the workers 72% used safety gadgets (masks) while working and 50% availed overtime. Results indicate a very high probability of association of disease to non-usage of safety gadgets and overtime working.

D] STUDIES RELATED HEALTH TEACHING

38 A study was done by Seeli Margarete S. from Narayana Hridayalay college of nursing Bangalore in the year of 2010 to 2012 on the topic of pre experimental study to assess the effectiveness of structured teaching on knowledge regarding pulmonary disease among middle level managers of selected garment factory in Bangalore. The findings of the study revealed that there was significant gain in knowledge among middle level managers of selected garment factory following structured teaching program regarding pulmonary disease. The results showed that in pre test 38.33% had inadequate knowledge. 23.33% had adequate knowledge 38.33% had good knowledge None had very good knowledge regarding pulmonary disease whereas in post test 68.3% had very good knowledge 31.6% had good knowledge And none had adequate & inadequate knowledge regarding pulmonary disease.

39 The Occupational Health Programme in Mirzapur was conceived by the socio-economic unit SEU to improve the health and living conditions of child and adult weavers. At the start of the programme, 200 weavers and 60 non-weaver workers from Mirzapur city, matched for age and socio-economic status, were interviewed and underwent a physical examination. Complaints of a persistent cough and cough with expectoration, backache, the common cold and joint pains occurred more often in the weaver population than in the comparison group and have been identified as 'occupational hazards'. An intervention programme has been implemented based on the results of the occupational health survey. These interventions include awareness camps, installment of Plexiglas tiles for light improvement in the loom sheds, training of community health volunteers and house-to-house health education. Another essential part of the programme is the provision of functional literacy classes for child and adult labourers in the carpet weaving industry. Occupational health as an entry point proved to be a successful approach in this segment of the informal sector, where child labor plays an important role.

40 A comparative study conducted in 2007 by Lakshmi Prasanna on cotton mill workers with an objective to develop health education module with 100 samples and results shows that 4% had high 36% average and 60% had low knowledge regarding health problems and its prevention. In the conclusion researcher recommended that the same study can be replicated on large sample, same study can be done at other setting and generalize the findings.

41 Mahmoud TM. S. Hosnia. Abd El – Maged et al conducted a study on occupational health hazards among assuit spinning factory workers Egypt in 2006. 550 workers were participated in study, findings revealed that workers were expose to various hazards like cough, dyspnoea; ear diseases; hearing loss; chronic bronchitis and various minor and major accidents, the findings also reveals that there was shortage of health services to workers to nursing services in the factory were not present. There was shortage of safety equipment mask only was provided for the exposed workers. Training and health education programs about occupational health hazards and prevention are not available.

42 Zewdie Aderaw, et al conducted a study to determinants of occupational injury: a case control study among textile factory workers in Amhara regional state Ethiopia. Study was done from October 7 to 27, 2009. Total of 456 study participants (152 cases and 304 controls) were included in the study. health and safety training, sleeping disturbance, and job stress were significant predictors of occupation injury. Lack of training, sleeping disturbance, and job stress increased the risk of occupational injury. So, providing basic health and safety training with special emphasis on younger and

male workers, reducing stressors, and providing sleep health education were recommended.

CONCLUSION

All the above studies help the investigator to understand the efforts made by various researchers into studying different aspects of various health hazards faced by the employees involved in cotton mills. Review of literature has enabled the investigator in establishing the need for the study, constructing the tool and selecting the research design. This chapter has included the review of literature and focused on four issues related to respiratory problems among cotton mill workers.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is a way to solve the research problem systematically. Methodology provides a systematic course of action for the researcher to progress towards the end of the study. The methodology for the study defines the way pertinent information will be gathered, in order to answer the research question or to analyze the research problem. This includes a detailed discussion on the selection of subjects participating in the study (who), observation of variable (what), meas00ures of time (when), setting (where), description of tool, content validity, and reliability of the tool, pilot study and the description of the data collection procedure and technique as well as plan for analyzing the data after they have been collected in a form that facilitates analysis.

In order to achieve the stated objectives and test the hypothesis, the following research design, and methods were used. It includes research approach, research design, population study, setting sample and sampling technique, inclusion criteria and exclusion criteria, data collection method, development of tool, description of the tool and plan for data analysis.

RESEARCH APPROACH

“The research approach refers to the investigator’s overall plan for obtaining answers to the research questions and for testing the research hypothesis.”

The present study aims at finding out the effect of planned teaching on knowledge and practices regarding prevention and control of respiratory problems among cotton mill workers for which researcher selected evaluative approach in this study.

Evaluative approach is the utilization of scientific research method and procedure to evaluate the effectiveness of nursing intervention, practice, policy or treatment. The researcher has chosen this approach because there is a good deal of evidence that planned teaching is an effective method of bringing about change in behaviour of people in the community. Abdullah and Levine define evaluative research as a programme, method or procedure tested to assess its quality,

applicability, feasibility, desirability, or worth in terms of some meaningful criteria measure.

According to Polit and Hunger, the traditional strategies for the conduction of evaluative research consist of 4 broad phases

1. Determining the objectives of the programme.
2. Developing means of measuring the attainment of those objectives
3. Collecting the data
4. Interpreting the data to see the achievement of the objective.

RESEARCH DESIGN

“The research design is the overall plan for addressing a research question, and testing the hypothesis. The research design spells out the strategies that the researcher adopts to information that is accurate, objective and interpretable.”

In this study the research design used is one group pre-test post-test. A one group pre- test and post test and post-test design is where a single group is observed at two points of time, before and after treatment.

In this study, the effect of independent variables that is planned teaching on prevention and control of respiratory problems was studied by evaluating, analyzing, and comparing pre test and post test knowledge and practices scores in a single group of cotton mill workers.

One group pre test and post test design can be represented as

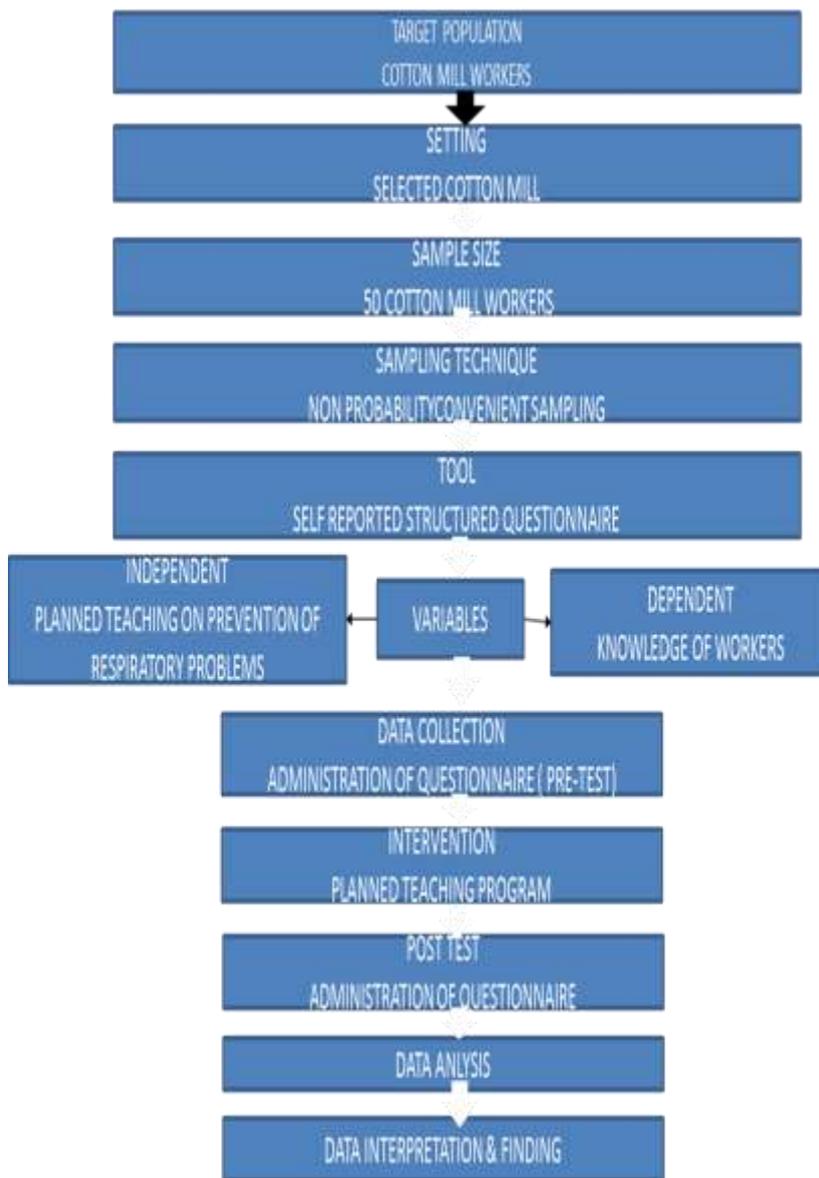
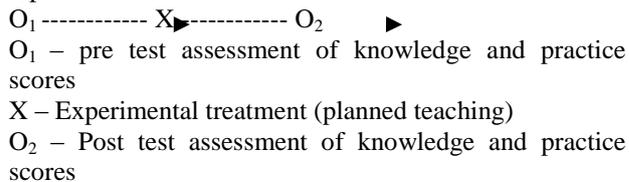


Figure 2: Schematic representation of research design.

Variables of The Study

According to polit and hungler, a variable is an attribute of a person or object that varies, that is which takes on different values.

The independent variable

The independent variable is the variable that believed to cause or influence the dependent variable.

The independent variable in this study is the planned teaching programme.

The dependent variable

The outcome variable of interest, the variable that is hypothesized to depend on or caused by another variable is the dependent variable.

The dependent variable in this study is the change in knowledge and practice as evidenced by changes in score.

Setting of The Study

The investigator selected a SAHAKAR KAPAD SUT GIRANI JAISINGPUR.

After acquiring permission from concerned authorities study was conducted. This mill has workers in two shifts each shift having 100- 150 workers. Morning shift starts at 8 o'clock in the morning, evening shift 4 o'clock to night 12 o'clock.

Identification Of Target and Accessible Population

Target population

According to Polit and hunger population means the entire set of individuals or objects having some common characteristics.

According to Basavanhappa B T population refers to a category of person, object or measurements having an observable characteristic in common.

In this study the target population consisted of all the cotton mill workers in an urban area of Jaisingpur and who meet the inclusion and exclusion criteria.

Accessible population

It refers to the aggregate cases which confirm to the designated criteria and that is available to the researcher. In this study the accessible population consisted of the cotton mill workers who were available at the time of study.

Sample

"A sample consists of a subset of the entities that make up the population." In this study that sample consisted of all the cotton mill workers who fulfilled the selection criteria.

Sampling Technique

In this study the investigator has used non probability convenient sampling technique by considering criteria for selection.(Inclusion and exclusion)

Non probability convenient sampling is the selection of population or sampling units from a population using non random procedure.

Sample size

In this study the sample selected included were cotton mill workers.

Total 50 samples were selected using the criteria for sample selection .

Inclusion Criteria

1. Workers available in the cotton mill.
2. Workers age group of 25 to 45 years.
3. Workers who are willing to participate.
4. Workers who can read & write Marathi or Hindi.

Exclusion Criteria

1. Workers who are not expose to cotton dust.
2. Workers of other factories.
3. Workers who are already undergone in such a program.

Tools and Techniques

Tool

The tool used for the study includes self reported structured questionnaire for knowledge and practices.

Tool Preparation

Tool is a device that a researcher uses to collect data. Based on the objectives of the study the tool was designed.

In this study tool used were structured questionnaire for measuring knowledge and practices.

Tool 1

Structured questionnaire for measuring the knowledge and practices regarding prevention and control of respiratory problems among cotton mill workers was developed on the basis of literature reviews, opinion of experts and personal experience of the researcher.

It included

PART ONE- This consist of 5 questions on workers demographic data for obtaining information on various aspects.

PART TWO- This consist of 29 questions on knowledge of workers regarding respiratory problems and prevention & control of respiratory problems.

PART THREE- This consist of 6 questions on practices among cotton mill workers for the prevention and control of respiratory problems.

There were total 34 questions prepared out of which 29 questions on knowledge and 6 questions on practices. Each question carried 1 mark each. The total score was 34, the respondents were asked to select the most appropriate answer. So the response scored 1 and wrong response 0.

Planned teaching – in this study researcher developed a planned teaching programme on the basis of literature reviews, observation made during incidental approach and opinion of experts. The teaching plan included definition of definition of respiratory problems, common respiratory problems among cotton mill workers, anatomy of respiratory system, causes, signs & symptoms of byssinosis, asthma, & bronchitis, preventive and control measures of respiratory problems.

Feasibility of The Study

The cotton mill workers were selected in terms of

- Geographical proximity and ethical clearance
- Economy in terms of time
- Administration approval
- Cooperation and availability of subjects

Validity of Tool

According to Polit and Hungler validity is the degree to which an instrument measures what it is intended to measure.

Content validity is the degree to which the items in an instrument adequately represent the universe of content, for the concept being measured. After the tool was prepared it was sent to one expert in statistics, two experts in prevention & social medicine, seven experts in nursing for content validity. The experts validated the tool and gave their individual corrections, then the tool was modified according to the suggestions and recommendations of experts and tool was finalized.

Reliability

“Reliability is the degree of consistency or dependability with which an instrument measures the attribute it is designed to measure.”

The reliability of the self reported questionnaire was obtained by the test retest method. 10 samples were analysed using.

Formula:-

$$r = \frac{\sum xy - \sum x \cdot \sum y}{\sqrt{[\sum x^2 - (\sum x)^2][\sum y^2 - (\sum y)^2]}}$$

where,

r = person's coefficient

x = difference of each sample group from mean of X

y = difference of each sample group from mean of Y

r = 0.824. this showed that tool is highly reliable.

PILOT STUDY

Pilot study was conducted from 25th Aug to 30th Aug in order to ensure the feasibility of the tool, research methodology and practicability of the research study the questionnaire was administered to the cotton mill workers. Before pilot study the permission was obtained from manager of Sahakar Sut Girani Jaisingpur. After explaining the purpose of the study to the workers verbal and written consent was obtained from 5 worker. Questionnaire for pre test was administered after which the investigator gave a planned teaching on respiratory problems and their preventive and control measures among cotton mill workers.

The post test was given after seven days with the same questionnaire. The data was analysed and 't' test was used to find out significance of difference between the mean scores.

DATA COLLECTON

Data gathering process

The period of data collection commenced from 2nd September to 20th October the investigator obtained information from 50 samples during this period. Prior to data collection formal permission was obtained from the manager of SAHAKAR SUT GIRANI, JAISINGPUR. The data collection plan was ready in hand. The investigator gone through the attendance registers of morning and evening shift workers and personally approached them. The investigator introduced self to the workers and developed rapport with them. Explanation was given and written consent was taken. The questionnaires were administered and instructions were given how to fill them. The investigator provided clarification where doubt were present. The score obtained was calculated and considered as pre test score and the same day the planned teaching as given. On the fifth day post test was given with the same questionnaire and the score obtained was considered as the post test score. The process was continued till the research required sample

PLAN FOR DATA ANALYSIS

The investigator planned to analyze the data in terms of the objectives of the study using descriptive and inferential statistics the plan for data analysis as follows:

DATA ANALYSIS

1. Demographic data will be analyzed in terms of frequency percentage.
2. Analysis of knowledge score will be done using paired 't' test
3. Analysis of practice score will be done using paired 't' test
4. Association of knowledge & practice of workers with selected demographic data will be done using 't' test.

SUMMARY

This chapter discuss about research methodology used for the study. It includes research approach, research design, identification of target and accessible population, sampling technique, sample, sampling criteria, tool preparation, and feasibility of the study, reliability, and validity of the tool, pilot study, data collection process and plan for data analysis.

CHAPTER IV**Data Analysis And Interpretation Of Data**

“You can have data without information, but you cannot have information without data.”

- **Daniel Keys Moran**

Analysis is defined as “the categorizing, organizing, manipulation and summarizing of the data in order to reduce it to an intelligible and interpretable form, so that the research problem can be studied and tested, including the relation between the variables.

Analysis of data is a process of inspecting, cleaning, transforming, and modelling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making.

This chapter presents analysis, interpretation and discussion of data collected to assess the effect of planned teaching programme on knowledge and practices regarding prevention and control of respiratory problems among cotton mill workers. The data analysis was carried out based on based on the objectives and hypothesis set by the investigator. The data collected were organized, tabulated, analyzed, and interpreted by statistical tables and graphs.

Description of samples (cotton mill workers) according to their demographic data

Table 1: Distribution of the samples according to age n= 50.

Demographic Variables	Frequency	Percentage
Age(years)		
20-25 Years	17	34%
26-30 years	16	32%
31-35 Years	8	16%
Above 35 Years	9	18%

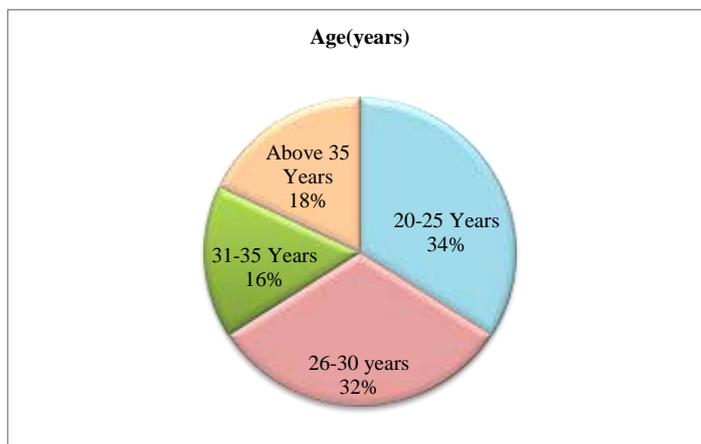


Figure 3: Showing distribution of samples according to age.

OBJECTIVES OF THE STUDY

1. To assess the knowledge and practices regarding prevention& control of respiratory problems among cotton mill workers in a selected area.
2. To determine the effectiveness of planned teaching on knowledge and practices regarding prevention & control respiratory problems among cotton mill workers in a selected urban area.
3. To identify the association between knowledge and practices with selected baseline variables such as age, gender, education, working experience, and section of working.

ORGANIZATION OF STUDY FINDINGS-

The analyzed data have been and presented under the following sections

SECTION I - Description of samples (cotton mill workers) according to their demographic data

SECTION II - Analysis of data related to knowledge and practices regarding prevention& control of respiratory problems among cotton mill workers in a selected urban area

SECTION III - Analysis of data related to effectiveness of planned teaching on knowledge and practices regarding prevention & control respiratory problems among cotton mill workers in a selected urban area.

SECTION IV - Analysis of data related to association of knowledge and practices with selected baseline variables.

SECTION I- This section deals with the demographic data related to age, gender, educational status, working experience, section of working.

Table 1 and figure 3: Represents that 17 (34%) samples belonged to age group of 20-25 years, 16(32%) samples were from age group 26-30 years, and remaining 8(16%)

and 9(18%) were 31-35 years and above 35 years respectively. Thus the majority of the samples were from the young age group.

Table 2: Distribution of samples according to gender n=50.

Demographic Variables	Frequency	Percentage
Gender		
Male	24	48%
Female	26	52%

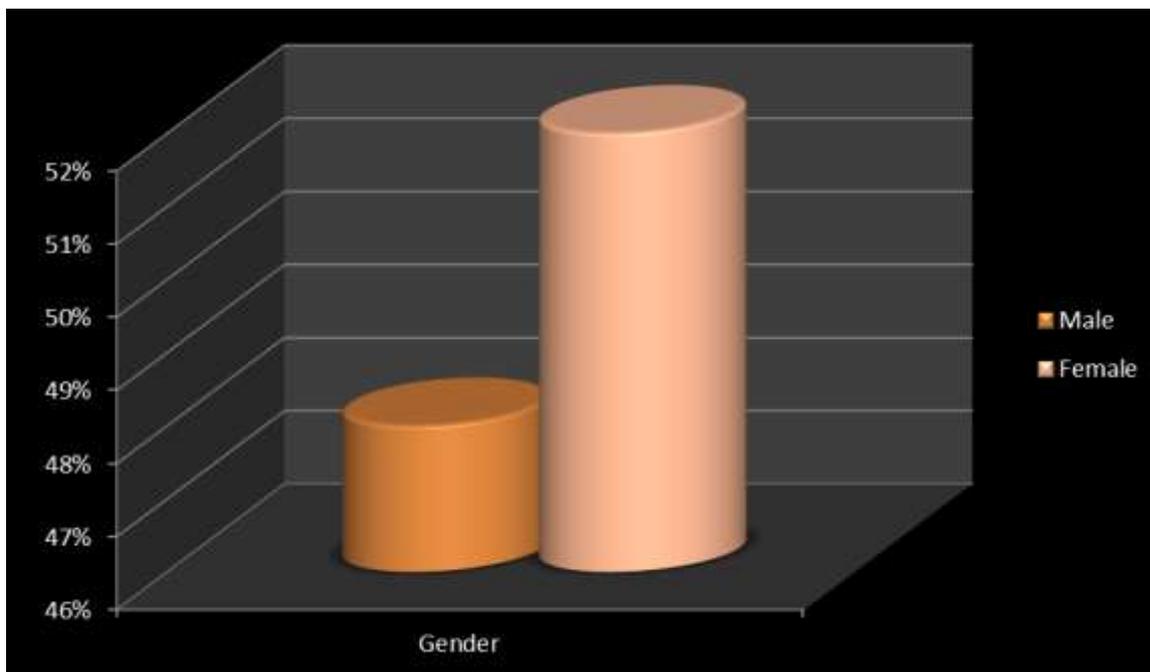


Figure 4: Distributions of samples according to gender.

Table 2 and figure 4: shows that the majority of the samples were females 26 (52%) and 24 (48%) of them were males

Table no. 3: Distribution of samples according to educational status n=50.

Demographic Variables	Frequency	Percentage
Education		
Primary	19	38%
Secondary	26	52%
More than secondary	5	10%

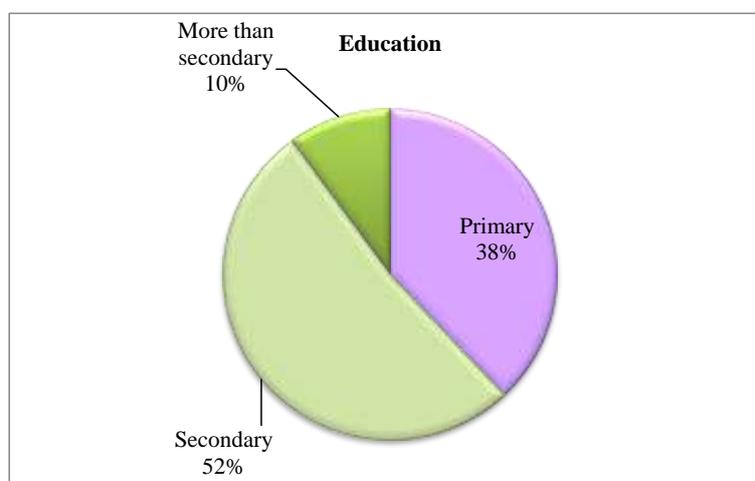


Figure 5: Distributions of samples according to educational status.

Table 3 and figure 5: Indicates all 50 (100%) samples were literate, out of which maximum 26 (52%) were educated till secondary. 19(38%) of them had completed

their primary education, and 5(10%) samples had completed their secondary education.

Table 4: Distribution of samples according to working experience n=50.

Demographic Variables	Frequency	Percentage
Working experience		
Less than 1 Year	3	6%
1 to 2 Years	9	18%
2 to 3 Years	17	34%
More than 3 Years	21	42%

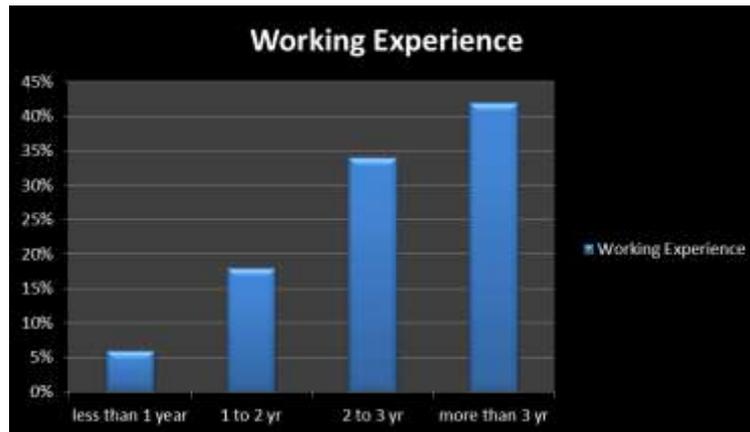


Figure 6: Distributions of samples according to working experience.

Table 4 and figure 6: shows that 21(42%) majority of sample had more than 3 years of working experience, 17(34%) of them had 2 to 3 years of working experience,

9(18%) of them had 1 to 2 years of experience and 3 (6%) of them had less than one year of experience.

Table 5: Distribution of samples according to section of working n=50.

Demographic Variables	Frequency	Percentage
Section of Working		
Carding	9	18%
Spinning/ weaving	16	32%
Blow room	10	20%
Winding & Warping	15	30%

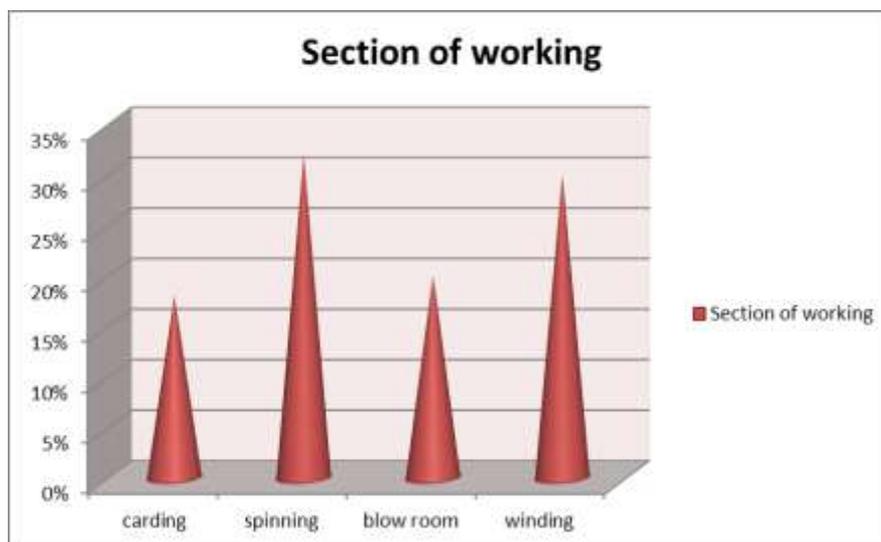


Figure 7: Distributions of samples according to section of working.

Table 5 and figure 7: Indicates that 9(18%) samples were working in carding section, 16(32%) were working in spinning/weaving section, 10(20%) of them were working in blow room and 15(30%) of them were working in winding and warping.

SECTION II

Analysis of data related to knowledge and practices regarding prevention & control of respiratory problems among cotton mill workers in a selected area

[A] Knowledge Item Analysis

Table 6.1 Knowledge about anatomy of respiratory system.

Que No.	Anatomy of Respiratory System	Pre-test		Post-test	
		Freq	%	Freq	%
1	Which is the component of upper respiratory tract?	50	100%	50	100%
2	Which is the component of lower respiratory tract ?	26	52%	38	76%
3	What are the components of respiratory system?	15	30%	32	64%

Table 6.2: Knowledge regarding causes of respiratory problems.

Que No.	Causes	Pretest		Posttest	
		Freq	%	Freq	%
4	What is the cause of Asthma?	46	92%	48	96%
5	What does excessive secretion of mucus in the airway leads to?	12	24%	32	64%
6	Occupational respiratory diseases is	29	58%	46	92%
7	What is the causative factor of Byssinosis?	28	56%	47	94%
8	Which are the environmental factors affecting respiratory health	32	64%	50	100%
9	Which is the common disease found in cotton mill workers	14	28%	43	86%
10	What is the main reason for respiratory disease in cotton mill workers	21	42%	45	90%
11	Which addiction causes worsening of respiratory problems	27	54%	25	50%

Table 6.3: Knowledge regarding sign & symptoms.

Que. No.	Sign and Symptoms	Pretest		Posttest	
		Freq	%	Freq	%
12	What is the meaning of Respiratory problems?	39	78%	49	98%
13	What are the symptoms of Asthma?	44	88%	49	98%
14	What disease due to cotton dust known in known as?	14	28%	37	74%
15	What is the symptom of bronchitis?	19	38%	24	48%
16	What are the symptoms of Byssinosis? EXCEPT	14	28%	22	44%
17	Commonly on which day chest tightness is seen in Byssinosis?	21	42%	42	84%

Table 6.4: Knowledge regarding prevention & control of respiratory problems.

Que No.	Prevention and Control	Pretest		Posttest	
		Freq	%	Freq	%
18	When should we use personal respiratory protection	11	22%	20	40%
19	When the employer does provide respirators	22	44%	35	70%
20	What helps to prevent respiratory infection	15	30%	20	40%
21	How does cotton dust inhalation can be prevented	34	68%	47	94%
22	What preventive measures can prevent respiratory disease in workers? EXCEPT	14	28%	26	52%
23	How respiratory problems can be kept in control	22	44%	26	52%
24	What control measures can be used to reduce dust pollution? EXCEPT	14	28%	20	40%
25	Breathing exercises and physical activities can helps to prevent	43	86%	45	90%
26	How frequently the respirator should be clean	35	70%	50	100%
27	What should workers do after the work	23	46%	42	84%
28	Why it is very important for workers to do periodical medical examination	25	50%	41	82%

CONCLUSION

The data dealt with the overall pre-test and post test knowledge scores of the subjects. The above mentioned data revealed that cotton mill workers did not have adequate knowledge regarding prevention and control of respiratory problems. The pre test knowledge showed that the subjects need to improve the knowledge. Planned

teaching was given to them. Planned teaching improved the worker's knowledge regarding anatomy of respiratory system, causes, signs and symptoms, and prevention and control of respiratory problems among cotton mill workers followed by post-test.

[B] PRACTICES ITEM ANALYSIS**Table 7: Practices regarding prevention & control of respiratory problems.**

Que No.	Practice	Pretest		Posttest	
		Freq	%	Freq	%
29	For prevention of respiratory infection I will do the following things except	16	32%	38	76%
30	For preventing respiratory infection I will do	25	50%	34	68%
31	I know how to use respirator , it should be	32	64%	46	92%
32	For controlling respiratory infection I will do the following except	21	42%	29	58%
33	For reducing the dust at working place I should use	15	30%	34	68%
34	For the prevention of respiratory infection I will	24	48%	46	92%

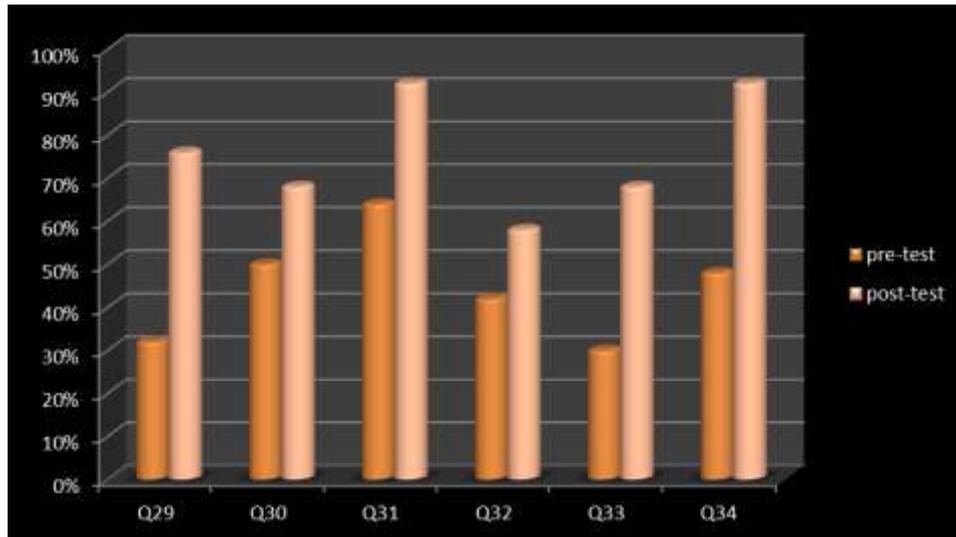
**Figure 8: practices regarding prevention & control of respiratory problem.**

Table no 7 (figure no 8): indicates that the planned Prevention and Control of respiratory problems teaching improved the practices of samples regarding remarkably after planned teaching.

Table 8: Overall knowledge regarding prevention & control of respiratory problems among cotton mill workers n=50.

Knowledge	Pre-test		Post-test	
	Freq	%	Freq	%
Poor (Score 0-9)	4	8%	0	0%
Average (Score 9-19)	42	84%	14	28%
Good (Score 20-28)	4	8%	36	72%

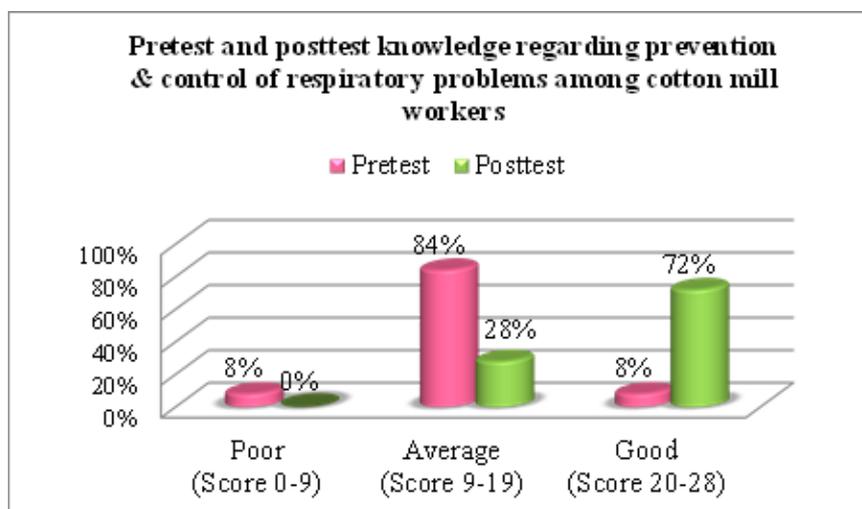
**Figure**

Table no 8 (figure 9): Reveals that in pretest, majority of 84% of the cotton mill workers had average knowledge (score 9-19), 8% of them had poor knowledge (score 0-9) and 8% of them had good knowledge (score 20-28) regarding prevention & control of respiratory problems among cotton mill workers. In posttest, majority of 72% of them had good knowledge (score 20-28) and 28% of them had average knowledge

(score 9-19) regarding prevention & control respiratory problems among cotton mill workers. This indicates that there is remarkable improvement in knowledge of cotton mill workers. Planned teaching program was significantly effective in improving the knowledge of cotton mill workers regarding prevention & control respiratory problems among cotton mill workers.

Table 9: Overall practices regarding prevention & control of respiratory problems among cotton mill workers n=50.

Practice	Pretest		Posttest	
	Freq	%	Freq	%
Poor (Score 0-2)	27	54%	0	0%
Average (Score 3-4)	20	40%	24	48%
Good (Score 5-6)	3	6%	26	52%

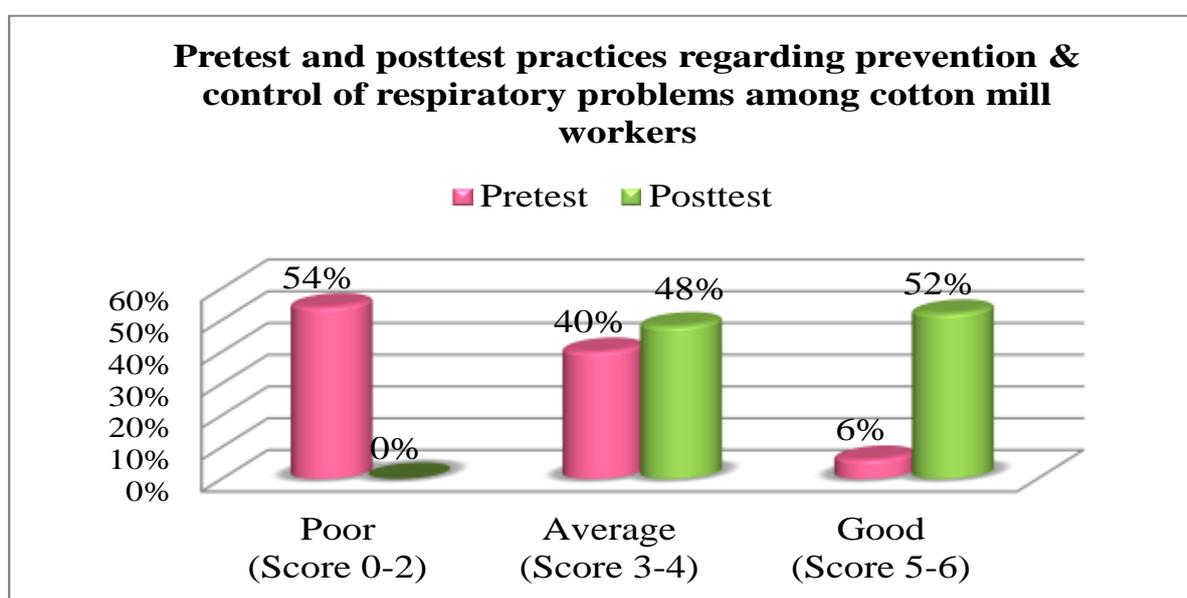


Figure 11

Table no 9 (figure 11): Reveals that in pre-test, majority of 54% of the cotton mill workers had poor practices (score 0-2), 40% of them had average practices (score 3-4) and 6% of them had good practices (score 5-6) regarding prevention & control of respiratory problems among cotton mill workers. In post-test, 52% of them had good practices (score 5-6) and 48% of them had average practices (score 3-4) regarding prevention &

control respiratory problems among cotton mill workers. This indicates that there is remarkable improvement in practices of cotton mill workers after planned teaching. Planned teaching program was significantly effective in improving the practices of cotton mill workers regarding prevention & control respiratory problems among cotton mill workers.

Section III

Analysis of data related to effectiveness of planned teaching on knowledge and practices regarding prevention & control respiratory problems among cotton mill workers in a selected urban area

Table no. 10: Paired t-test for effectiveness of planned teaching on knowledge of cotton mill workers

	Mean	SD	Calculated value 't'	Table value	Df
Pre-test	14.2	3.4			
Post-test	21.0	2.1	16.6	1.67	49

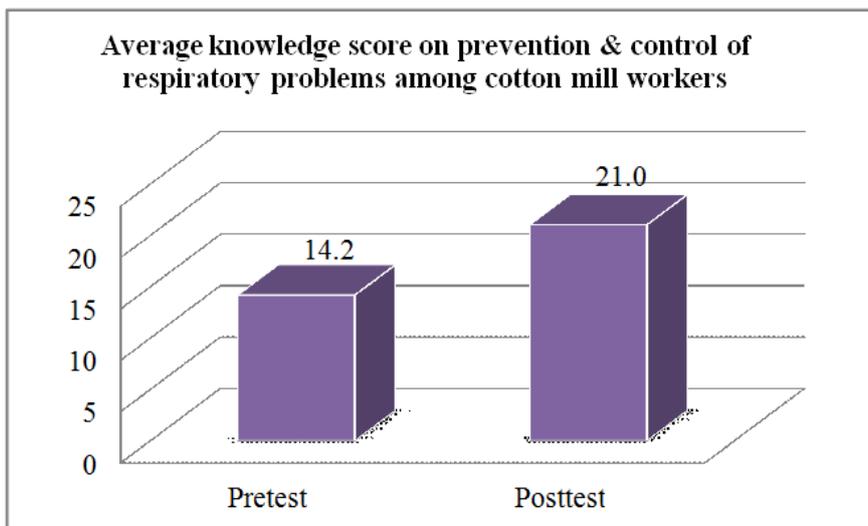


Figure 12:

Table 10 (figure 12): shows that Researcher applied paired t-test for comparison of pre-test and post-test knowledge scores of cotton mill workers. Mean average knowledge score in pre-test was 14.2 while mean average 21 in post-test. Calculated 't'-value for this comparison was 16.6 while table value is 1.67 at 0.05 with 49 degrees of freedom; hence the null hypothesis is

rejected. Knowledge scores of cotton mill workers improved significantly after planned teaching. Planned teaching proved to be significantly effective in improving the knowledge of cotton mill workers regarding prevention and control of respiratory problems among cotton mill worker.

Table 11: Paired t-test for effectiveness of planned teaching on practices of cotton mill workers.

	Mean	SD	Calculated value 't'	Table value	Df
Pretest	2.7	1.2	11.7	1.67	49
Posttest	4.5	1.0			

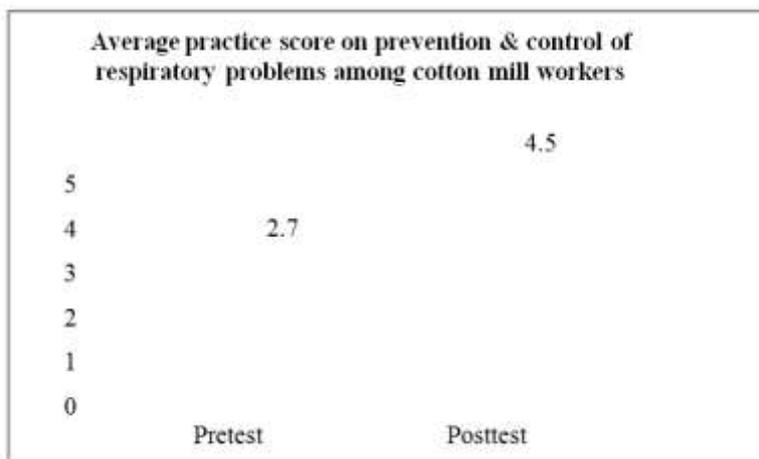


Figure 13

Table no 11 and figure 13: shows that Researcher applied paired t-test for comparison of pre-test and post-test practice scores of cotton mill workers. Mean average practice score in pre-test was 2.7 while 4.5 in post-test. Calculated 't'-value for this comparison was 11.7 and table value is 1.67 at 0.05 with 49 degrees of freedom. Practice scores of cotton mill workers improved significantly after planned teaching. Planned teaching proved to be significantly effective in improving the

practice of cotton mill workers regarding prevention and control of respiratory problems among cotton mill workers.

Section IV
Analysis of data related to association of knowledge and practices score with selected baseline variables

This assessment was done by using Fisher's exact test. The summary of Fisher's exact test is tabulated below:

Table 12: Fisher's exact test for association of knowledge with selected baseline variables n= 50

Demographic variable		Knowledge			p-value	Significance at 0.05
		Poor	Average	Good		
Age	20-25 Years	2	13	2	0.964	Not Significant
	26-30 years	1	14	1		
	31-35 Years	0	7	1		
	Above 35 Years	1	8	0		
Gender	Male	1	22	1	0.459	Not Significant
	Female	3	20	3		
Education	Primary	2	17	0	0.400	Not Significant
	Secondary	2	21	3		
	More than secondary	0	4	1		
Working Experience	Less than 1 Year	0	3	0	0.379	Not Significant
	1 to 2 Years	2	7	0		
	2 to 3 Years	2	13	2		
	More than 3 Years	0	19	2		
Section of Working	Carding	1	7	1	0.962	Not Significant
	Spinning/ weaving	1	13	2		
	Blow room	1	9	0		
	Winding & Warping	1	13	1		

Since all the p-values were large (greater than 0.05), there is no evidence against null hypothesis. None of the demographic variable was found to have significant

association with knowledge of cotton mill workers regarding prevention and control of respiratory problems among cotton mill workers.

Table 13: Fisher's exact test for association of practices with selected baseline variables n= 50.

Demographic variable		Practice			p-value	Significance at 0.05
		Poor	Average	Good		
Age	20-25 Years	6	10	1	0.223	Not Significant
	26-30 years	12	4	0		
	31-35 Years	4	3	1		
	Above 35 Years	5	3	1		
Gender	Male	9	13	2	0.064	Not Significant
	Female	18	7	1		
Education	Primary	9	7	3	0.077	Not Significant
	Secondary	17	9	0		
	More than secondary	1	4	0		
Working Experience	Less than 1 Year	1	2	0	0.945	Not Significant
	1 to 2 Years	5	4	0		
	2 to 3 Years	10	6	1		
	More than 3 Years	11	8	2		
Section of Working	Carding	7	2	0	0.721	Not Significant
	Spinning/ weaving	9	6	1		
	Blow room	5	4	1		
	Winding & Warping	6	8	1		

Since all the p-values were large (greater than 0.05), there is no evidence against null hypothesis. None of the demographic variable was found to have significant association with practices of cotton mill workers regarding prevention and control of respiratory problems among cotton mill workers.

SUMMARY

This chapter deals with the data analysis and interpretation. The data was collected through questionnaire from 50 cotton mill workers. This chapter was organized under 4 sections, they are related to

Description of samples (cotton mill workers) according to their personal characteristics, Analysis of data related to knowledge and practices regarding prevention & control of respiratory problems among cotton mill workers in a selected urban area, Analysis of data related to effectiveness of planned teaching on knowledge and practices regarding prevention & control of respiratory problems among cotton mill workers in a selected urban area, Analysis of data related to association of knowledge and practices with selected baseline variables. Findings indicated that planned teaching programme regarding prevention and control of respiratory problems

was effective in increasing the knowledge and practices score of workers.

CHAPTER V

Summary, Findings, Conclusion Implication And Recommendations

This chapter deals with the brief summary of the study and it includes the findings of the study, conclusion, personal experience, and implication of the study on nursing administration, nursing education and nursing research, suggestion for improvement of the study and recommendations for further study.

SUMMARY

Invisible small cotton dust particles enter into the alveoli of the lung through inhalation and accumulate in the lymph causing damage to the alveoli and reducing the capacity of retain oxygen. As the cotton dust accumulates, the cotton mill worker develops a brown lung and suffers from byssinosis. The purpose of this study was to find out whether planned teaching is effective in improving the knowledge and practices of the workers regarding prevention and control of respiratory problems.

STATEMENT OF THE PROBLEM

“Effect of planned teaching on knowledge & practices regarding prevention & control of respiratory problems among cotton mill workers in selected urban area.”

OBJECTIVES

1. To assess the knowledge and practices regarding prevention & control of respiratory problems among cotton mill workers in a selected area.
2. To determine the effectiveness of planned teaching on knowledge and practices regarding prevention & control respiratory problems among cotton mill workers in a selected urban area.
3. To identify the association between knowledge and practices with selected baseline variables such as age, gender, education, working experience, and section of working.

HYPOTHESIS

H1-There is significant change in pre-test and post-test knowledge and practice score after planned teaching

VARIABLES

The independent variable in this study is the planned teaching programme for cotton mill workers regarding prevention and control of respiratory problems.

The dependent variable in this study is the change in knowledge and practices of cotton mill workers.

REVIEW OF LITERATURE

Review of literature furnished the researcher with in depth knowledge of the research topic. A comprehensive review of related literature facilitated the researcher to develop the conceptual framework, tool, research design

and plan for data analysis. Conceptual framework was derived from Imogene King- goal attainment theory.

METHODOLOGY

This study was undertaken to find out the effect of planned teaching on knowledge and practices regarding prevention and control of respiratory problems among cotton mill workers. One group pre-test post-test design was adopted. Research approach used in this study was evaluative approach.

SETTING OF THE STUDY

The study was conducted at SAHAKAR KAPAD SUT GIRANI, JAISINGPUR.

SAMPLING TECHNIQUE

The sampling technique used in this study is non probability convenient sampling technique.

TECHNIQUE AND TOOL

Self reported structured questionnaire consisting of 3 parts

PART I- Demographic data of cotton mill workers which includes age, gender, education, working experience and section of working.

PART II- Structured questionnaire used to assess knowledge of subject regarding

- Anatomy of respiratory system
- Causes
- Sign and symptoms
- Prevention and control

PART III- structured questionnaire used to assess practices of cotton mill workers.

VALIDITY

To evaluate content validity the tool was given to expert of medical and nursing field. Their suggestions were considered and modifications were made accordingly.

RELIABILITY

In this study reliability of structured questionnaire were tested on 10 samples.

Reliability of the tool was tested using Pearson correlation coefficient formula

$$r = \frac{\sum xy - \sum x \cdot \sum y}{\sqrt{[\sum x^2 - (\sum x)^2]} \sqrt{[\sum y^2 - (\sum y)^2]}}$$

The value obtained was $r = 0.82$ which is good indicator of reliability. Hence the tool was found to be reliable.

PILOT STUDY

Pilot study conducted on 5 cotton mill workers from a different cotton mill to assess the effectiveness of planned teaching programme by conducting pre test and post test. The pilot study helped the investigator to improve the tool and it provided better insight and clarity

regarding different aspects of study. The data regarding the knowledge and practices of the workers was analysed by using paired 't' test. It was found to be significant, feasible and convenient.

DATA GATHERING PROCESS

The data gathering was done in three parts

PART I- collection of the demographic data of the cotton mill workers

PART II- collection of data on knowledge of cotton mill workers regarding prevention and control of respiratory problem

PART III- collection of data on practices regarding prevention and control of respiratory problems.

FINDINGS OF THE STUDY

SECTION I - Description of samples (cotton mill workers) according to their demographic data

1. The majority of the samples were from the young age group. 17(34%) samples belonged to age group of 20-25 years, 16(32%) samples were from age group 26-30 years, and remaining 8(16%) and 9(18%) were 31-35 years and above 35 years respectively.
2. majority of the samples were females 26 (52%) and 24 (48%) of them were males
3. all 50 (100%) samples were literate, out of which maximum 26 (52%) were educated till secondary. 19(38%) of them had completed their primary education, and 5(10%) samples had completed their secondary education
4. 21(42%) majority of samples had more than 3 years of working experience, 17(34%) of them had 2 to 3 years of working experience, 9(18%) of them had 1 to 2 years of experience and 3 (6%) of them had less than one year of experience.
5. 9(18%) samples were working in carding section, 16(32%) were working in spinning/weaving section, 10(20%) of them were working in blow room and 15(30%) of them were working in winding and warping.

SECTION II - Analysis of data related to knowledge and practices regarding prevention & control of respiratory problems among cotton mill workers in a selected area

1. Overall pre test and post test knowledge and practices of cotton mill workers have scored highest post test score than pre test score regarding prevention & control of respiratory problems. Planned teaching program was significantly effective in improving the knowledge & practices of cotton mill workers.

SECTION III- Analysis of data related to effectiveness of planned teaching on knowledge and practices regarding prevention & control respiratory problems among cotton mill workers in a selected urban area.

1. This clearly states that worker's knowledge score in pre-test was (14.2) while (21) in post-test. Based on 't'-value (16.6) is greater than table value (1.67) at 0.05 with

49 degrees of freedom. Corresponding p-value was small (less than 0.05) hence the null hypothesis is rejected. Knowledge scores of cotton mill workers improved significantly after planned teaching. Planned teaching proved to be significantly effective in improving the knowledge of cotton mill workers regarding prevention and control of respiratory problems among cotton mill worker.

2. Practice score in pre-test was (2.7) while (4.5) in post-test. Calculated 't'-value for this comparison was (11.7) and table value is (1.67) at 0.05 with 49 degrees of freedom. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. Practices scores of cotton mill workers improved significantly after planned teaching. Planned teaching proved to be significantly effective in improving the practices of cotton mill workers regarding prevention and control of respiratory problems among cotton mill workers.

SECTION IV- Analysis of data related to association of knowledge and practices score with selected baseline variable.

1. This assessment was done by using Fisher's exact tes. The result indicates that p-values were large (greater than 0.05), there is no evidence against null hypothesis. None of the demographic variable was found to have significant association with knowledge & practices of cotton mill workers regarding prevention and control of respiratory problems among cotton mill workers.

CONCLUSION

The study brought the following conclusion

- There is remarkable improvement in knowledge & practices of cotton mill workers in the post test regarding prevention & control of respiratory problems
- Planned teaching was found to be effective for improving the knowledge and practices among cotton mill workers.
- There was no significant association between pre-test knowledge level and the demographic variables.
- It was enriching experience for the researcher that has helped to increase the ability to deal with cotton mill workers.

IMPLICATIONS OF THE STUDY

The present study emphasizes the need of imparting the knowledge and awareness of workers regarding respiratory problems and its prevention & control. This type of study will help the occupational health nurse to understand the significance and provide effective knowledge based comprehensive care to workers in the workplace and thereby contributing in reducing mortality and morbidity rates in workers related to occupational health hazards. Planned teaching is the effective way to communicate with the society. The implication of the study can be discussed under four broad areas; Nursing Education, Nursing Practice, Nursing Administration, Nursing Research.

A] NURSING EDUCATION

- Introduction of new technology in modern industry exposed the crucial need for imparting knowledge of nurses on occupational hazards through seminar, conference and workshop from time to time so they are able to educate the worker.
- In curricular planning, new trends in the industrial (occupational) and ergonomic is to be included and practical exposure need to be strengthened while planning clinical rotation.
- To conduct surveys and studies to identify effect of work and environment on health and safety.
- To study mental and psychological aspects of the workers.
- The faculty members can motivate the students for assessment of clients learning needs, developed and implement teaching strategies and revise the plan necessary as well as document teaching.

B] NURSING PRACTICE

- Comprehensive health education and information on occupational health hygiene and ergonomic in relation to work should be made available for all workers of each department by the occupational health nurse
- Health education on respiratory problems is practical strategy to reduce the prevalence rate. Health promotion is one of the major function of a nurse.
- Effective supervision on first aid centres in all industrial units and arrangement of all required materials as per Factory act.
- In case of industrial accidents she has to keep up-to-date information of the health conditions of workers and maintain the record.
- In dealing with the physical environment nurse must be able to investigate the cause of industrial disease and should carry out periodic close observation of workers exposed to occupational hazards.

C] NURSING ADMINISTRATION

- Regular health related in-service education programme can be conducted to improve the knowledge of the cotton mill workers to ensure better health status regarding occupational health problems.
- The administrator needs to be aware of occupational health programme including planning, implementation, and evaluation of the service provided to workers.
- Nursing administrator should maintain annual performance record of occupational health nurse with a view to recommend performance award.
- Nurse administrator should take initiative in organizing in service education programme and motivate the workers.

D] NURSING RESEARCH

- The nurse researcher should challenge to perform scientific work and take part in application and

evaluation of effectiveness of planned teaching about prevention and control of respiratory problems.

- The findings of the study should be implemented in the hospital and community setting. Findings will provide the baseline data about knowledge and practices regarding respiratory problems among cotton mill workers
- The study provides awareness for further studies among cotton mill workers. There is a need for extensive research in this area so that strategies for educating workers on prevention and control of respiratory problems.

LIMITATION

1. The study was limited to assess the effectiveness of planned teaching only on cotton mill workers.
2. Findings can not be generalized because of small size.
3. The time span of the study was short
4. The study was limited to the workers employed in the cotton mill.
5. The study was limited to only 50 workers which limits the generalization that can be made

RECOMMENDATIONS

1. A similar study can be conducted with large sample size.
2. Study may be repeated periodically to update the knowledge and practices of workers
3. Same study can be conducted on workers from various industries.
4. A further study may be conducted with experimental approach.
5. A comparative study can be conducted between planned teaching and other teaching methods such as video assisted strategy.

SUGGESTIONS

- Safety officer should be motivated to take interest in preparing teaching strategies suitable for workers
- Awareness campaign can be conducted on a regular basis with more emphasis on different aspects of use of safety measures.
- Periodical health education should be given to workers regarding prevention and control of various industrial health problems.
- Periodical education should be provided by the experts to new employees who are very young and they join on compensation grounds regarding the proper use of safety gears available to them by the authorities.

PERSONAL EXPERIENCE

The researcher had a very enlightening experience during the study. Due to the timely suggestions and expert opinion of the guide, the researcher was able to move in right direction throughout the study. Although initially the researcher was very apprehensive regarding how to conduct the study, constant encouragement and direction

from the guide gave the researcher direction and motivation. The study involved me to understand the contribution of cotton mill workers towards healthy life. I was able to see myself the facilities provided to workers and to discuss the problems faced by them. The study benefitted the researcher to gain knowledge about phases of research process and develop various skills such as analyzing the interpretation skills. The researcher had a good firsthand experience of doing a research independently. The researcher had an excellent cooperation from the authorities and the participants during the data collection period. At the end of research, the whole effort gave a sense of satisfaction and accomplishment to the researcher.

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