

**A Study to assess the effectiveness of planned teaching programme on knowledge regarding ergonomics among industrial workers.**

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**ABSTRACT**

Study was conducted by using one group pre-test and post-test design. 50 samples were selected by using non- probability convenient sampling technique. We done research tool for 15 experts for validity. All are experts from community health nursing. The experts were selected based on their clinical expertise, experience and interest in the problem being studied. They were requested to give suggestion about the tool. The reliability co-efficient for assessment test-retest method was used the term were coded and the reliability calculated as 0.8 and hence tool was found reliable. Pilot study was conducted by taking 10 samples as per the criteria. The result showed that there is increase in the knowledge about ergonomics and prevent the ill effects. There was no problem with the feasibility of the study. Hence no corrections were done to the methodology and data collection tool. There were two sections for the research study section 1 consists of demographic variable and Section 2 consist of structured questionnaire. Study result shows there is significant increase in the knowledge of industrial workers in selected areas regarding ergonomics. Researcher concluded that the planned teaching programme was effective to increase the knowledge of industrial workers in selected areas regarding ergonomics.

**Keywords:** Planned teaching Programme, Ergonomics.

**Introduction**

Ergonomics is the scientific study of human work conditions and the interactions between man and machine. Ergonomics is the term taken from the Greek word ‘ergon’ means work and ‘nomos’ meaning natural laws. The aim of ergonomics is to make work more comfortable and improve health and productivity.

- Designing the user interface to make it more compatible with the task and the user.
- Changing the work environment to make it safe and more appropriate for the task.

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- Changing the way work is organized to accommodate peoples psychological and social needs.1

Ergonomics entropy is disorder in system functioning that occurs owing to a lack of compatibility in some or all of the interactions involving the human operator. This incompatibility can occur for a variety of reasons.

- Inefficiency: when worker produces sub-optimal output.
- Accidents, injuries and errors: due to badly designed interfaces and excess stress either mental or physical.
- Fatigue: in badly designed jobs people tired unnecessarily.
- Low morale and apathy.

In ergonomics, absenteeism, injury, poor quality, and unacceptably high levels of human error are seen as system problems rather than ‘people’ problems, and their solution is seen to lie in designing a better

System of work rather than is better ‘man management’ or incentives, by ‘motivating’ workers or by introducing safety slogans.2

A basic work system, Even in a simple system consisting of one person , one machine, and an environment , six directional interactions are possible and four of this involve the person . Each of the components of a particular work system may interact directly or indirectly with others.3

### **Materials and Methods**

#### **RESEARCH APPROACH**

The present study was aimed to evaluate the effectiveness planned teaching program on knowledge regarding ergonomics among industrial workers at selected industries.

Quantitative research approach.

#### **RESEARCH DESIGN**

The overall plan for collecting and analyzing data include specifications for enhancing the internal and external validity of the study. (Polit and Hungler, 1999)

The selecting of research design is the most important step as it provides the framework for study. The research design helps the research in selection of the subjects, manipulation of independent variables, control ,observations to be made and type of statistical analysis to be used interpret the data .

Quasi-experimental: One group pre-test post test design was used for the study.

#### **SETTING OF THE STUDY**

The Setting is defined as the physical location condition in which data collection takes place in the study. (Polit and Hungler)

The study was conducted in selected fabrication industries of sangli Miraj Kupwad Corporation area.

## **RELIABILITY AND PILOT STUDY**

### **Reliability-**

**Setting-** M.Tech engineering

**Sample size-**10

$r=0.8$  hence it is found more than 0.7 so tool is reliable.

### **Pilot study**

**Setting-**Raviraj engineering & fabrimacs

**Sample Size:** - 10

## **FINAL STUDY –**

**Setting-**Rubber plast industries.

**Sample Size:** - 50

## **POPULATION**

The industrial worker

## **SAMPLE SIZE**

50 Samples, i.e. workers from selected industries.

## **SAMPLING TECHNIQUE**

Non probability convenient sampling technique

## **INCLUSION CRITERIA**

1. Those who are willing to participate.
2. Those who are having more than 1 year of experience.

## **Results and Discussion**

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**TABLE NO 1**  
**FREQUENCY AND PERCENTAGE DISTRIBUTION OF**  
**DEMOGRAPHIC VARIABLES**

N= 50

<b>Age ( in years)</b>	<b>Count</b>	<b>Percentage</b>
20-30	31	62
31-40	10	20
41-50	8	16
51-60	1	2
<b>Education</b>		
Diploma	7	14
Graduate	6	12
Higher Secondary	10	20
ITI	9	18
Secondary	18	36
<b>Experience</b>		
< 2 year	18	36
2 year -5 year	7	14
6 year -10 year	8	16
> 10 year	17	34
<b>Knowledge Regarding Ergonomics</b>		
No	22	44
Yes	28	56
<b>Source of Information</b>		
newspaper	10	20
Radio	9	18
television	9	18

**TABLE NO.1** Shows that maximum sample 62 % belongs to the group 20-30 yr. 36% sample belong to secondary group of education. 36% samples belong to < 2 year experience. 56% samples belong to knowledge regarding ergonomics. 20% samples belongs to group source of information is newspaper.

**SECTION 2: To assessment of effectiveness of planned teaching programme.**

**TABLE NO 2**  
**Frequency and percentage of pre-test & post-test level of knowledge score**

N=50

<b>Level of Knowledge</b>	<b>Pre-Test</b>	<b>Post-Test</b>
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		Frequency	Percentage	frequency	Percentage
Poor	0-5	26	52.00	0	0
Average	6-10	24	48.00	20	40
Good	11-15	0	0.00	30	60

Table no.2 shows 26 (52%) had poor knowledge,24(48%) had average knowledge and none of them had good knowledge in pre-test.

In post-test none of them had poor knowledge,20(40%) workers had average knowledge and 30(60%) workers had good knowledge.

It was concluded from the above result that the planned teaching programme increased knowledge of workers in the post test.

### **SECTION 3: Comparison of pre-test and post-test knowledge score on knowledge of ergonomics.**

**TABLE NO 3**

**Comparison of pre-test and post-test knowledge score on knowledge of ergonomics.**

N=50

	Average	S.D.	t value	p value	Significance
Pre Test	5.30	1.40	18.72	0	Significant
Post Test	10.64	1.22			

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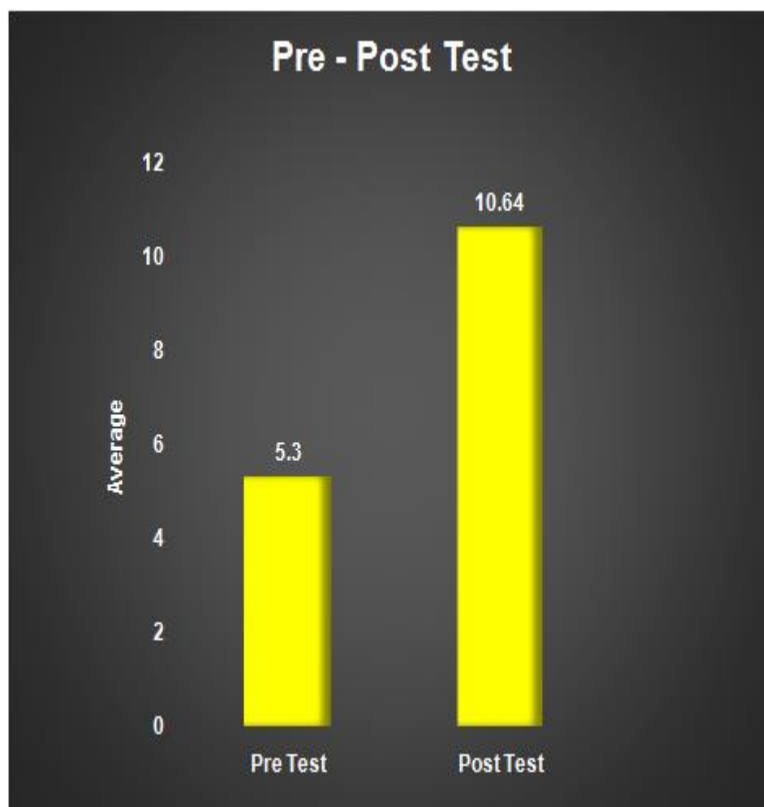


Table 3 shows that the average score of post-test knowledge 10.64 was found to be significantly higher than average score of pre-test knowledge 5.30.

The statistics value of the t value (table value) was 18.72655 and ‘p’ value 0 shows that there is significant difference in the average knowledge score, at 5% level of significance.

Hence,  $H_0$  is rejected as there is significant increase in the post-test knowledge score.

**SECTION 4: Association of pre-test level of knowledge score with demographic variables.**

**TABLE NO 4**

**Association of pre-test level of knowledge score with demographic variables.**

N=50

Sr. no.	Variables	Chi square value	p value	Significance	Conclusion
Age in years	20-30	2.13	0.54	not significant t at $p < .05$	No Association Between age And Pre test score
	31-40				
	41-50				
	51-60				
Education	Secondary	3.02	0.5544	no significant	NoAssociation

	Higher Secondary		84	at p < .05	Between age And Pre-test score
	Graduate				
	ITI				
	Diploma				
Experience	< 2 year				No Association Between age And Pre test score
	2 year -5 year				
	6 year -10 year		0.8012	not significant	
	> 10 year	1.01	52	t at p < .05	
Knowledge Regarding Ergonomics					No Association Between age And Pre test score
	YES	0.19	0.6629	no significant at p < .05	
	NO		17		

There was statistical significant association of knowledge scores with previous knowledge as calculated chi square value was more than the table value at 0.05 level of significance. Whereas, there was no statistically significant association of workers knowledge scores on ergonomics with other demographic variables such as age, education, experiences and knowledge regarding ergonomics.

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