A Study to Assess the Effectiveness of Video Assisted Module on Knowledge Regarding Preventive Practice of Lung Cancer among Welders of Selected Welding Shops at Bijapur

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Abstract:-

➢ *Background:* **Occupation is the main source of income in any family to lead their life or to meet the needs of the family. The welding is a human activity is widely practiced in many areas. The welders are exposed to certain welding smoke which can be extremely toxic. It can be lead to a greater risk of health impairment**

➢ *Aim of the study:* **To find out the effectiveness of video assisted module on preventive practice of lung cancer among welders.**

➢ *Methods:* **A pre experimental one group pre test post-test research design was used, structured knowledge questionnaire are used to collect the data regarding preventive practice of lung cancer, Descriptive and Inferential statistics are used to analyze the data.**

➢ *Results:* **In pre test majority i.e. 31(62%) of the subjects had moderately adequately knowledge scores where as 17(34%) had inadequate knowledge scores and 02 (04%) of the subjects had adequate knowledge scores respectively. In post test Majority i.e. 35(70%) of the subjects had moderately adequate knowledge scores, where as 13(26%) subjects had adequate knowledge score and 02(04%) of the subjects had inadequate knowledge scores respectively.**

➢ *Conclusion:* **video assisted teaching programme enhances the knowledge of welders and helps in prevention of lung cancer.**

Keywords:- Video Assisted module, welding workers, Preventive practice, Lung cancer, Effectiveness.

I. INTRODUCTION

Occupation is the main source of income in any family to lead their life or to meet the needs of the family. There are many industries that are providing occupation to number of peoples and also there are many diseases, which can affect the worker during processing of the product[1]. The welding is a human activity is widely practiced in many areas of manufacturing, installation, repair, and maintains through many infrastructures. The process of building and maintaining a nation is often dependent on the basic function of welding[1].

The welders are exposed to certain welding smoke such as chromium, nickel, arsenic, asbestos, manganese, silica, beryllium, cadmium, nitrogen oxides, phosgene, fluorine compounds, carbon monoxide, cobalt, copper, lead, selenium, and zinc, which can be extremely toxic. It can be lead to a greater risk of health impairment of the welders which mainly causes short term effect like metal fever, irritate the eyes, nose, chest, respiratory tract and pneumonitis, and also long term effect shows that welders at increased risk of lung cancer[2].

Worldwide ten millions of workers are exposed to iron fumes. Most are exposed by inhaling welding fumes whose main component is iron. Exposure to iron fumes is also extensive in steel mills and iron/steel foundries. Epidemiological studies have suggested an elevated risk of lung cancer among mild steel welders, stainless steel welders, and metal welders[3].

The welders have a 30-40 % excess risk of developing lung cancer compared to the general population. The causative agent (Prime suspects) most welded materials, mild steel and the less common but increasingly used stainless steel, the electric arc welding process and metal welders described recently on incidental exposures to know carcinogens. The principle suspected agents that may contribute to the experience of lung cancer in welders include welding fumes and it`s iron, chromium or nickel components, asbestos dust, and social class health effect [4].

Screening techniques are designed to find cancer at early stage, so that the most treatment options are available increasing survival rates and avoiding highly invasive procedure; advocates of screening recommend that certain high risk groups be screened. Possible lung cancer screening test include analysis of sputum, cells fiber optic examination of bronchial passage and low dose spiral CT scans[5].

The control measures are the most effective way to reduce exposures is to eliminate the offending substance or process. 1) Ventilation is the most common way of controlling exposure to fumes, and gases there are two types of ventilation –dilution ventilation and local exhaust ventilation[6]. 2) Using water suppression to control dust emission. 3) Segregating hazardous process so that workers not directly involved are not affected. 4) Administrative measures- like providing sufficient safety and health training, instructions and information to the workers, appropriate supervision, good personal hygiene and good housekeeping.   5) Respiratory equipment for protection against dusts, vapors or gases 6) Medical surveillance[7].

In India the prevalence of lung cancer for males was 11,511, and the 5 year prevalence was 27,477 recording approximately 3% of global prevalence, and 55% of total prevalence in south central Asia. For India, the age- adjusted incidence of lung cancer (10.8 per 100,000 men, 47,010 incident cases) is the first relative to that of all other types of cancer in men. The lung cancer is leading cancer among men in terms of incidence rates in 6 out of the 12 population based cancer registries (PBCRs) in India. Incidence is highest in Kolkata, a metropolitan city in the west Bengal and lowest in Barshi, a rural registry in Maharashtra[8].

II.   STATEMENT OF PROBLEM

"A study to assess the effectiveness of video assisted module on knowledge regarding preventive practice of lung cancer among welders of selected welding shops at Bijapur".

III.   OBJECTIVES

- To determine the level of pre-test knowledge regarding prevention of lung cancer among welders as measured by structured interview schedule.
- To find out the effectiveness of video assisted module regarding lung cancer among welders in terms of gain in knowledge scores.
- To find out the association between pre test knowledge scores with selected demographic variables.

IV.   HYPOTHESIS

The fallowing hypotheses will be tested at 0.05 level of significance.

- H₁: There will be significant difference between pre-test and post test knowledge score regarding preventive practice of lung cancer among welders.
- H₂: There will be significant association between pre test knowledge scores with selected demographic variables.

V.   MATERIALS AND METHODS

- *Source of Data*: This study the data will be collected from welders of welding shops in bijapur.
- *Research design*: Pre experimental one group pre-test-post test design was adopted for the study.
- *Setting of the study*: The present study was conducted on welders of selected welding shop`s, Which most of the welding shop`s are situated in industrial area at Bijapur.
- *Population:* The population for this present study was welders of selected welding shops at Bijapur.
- *Sample:* In this study, Welders, who fulfill the sampling criteria was selected as sample.
- *Sampling method:* In this study purposive sampling technique was used
- *Sample size:* The sample size for the present study was 50.
- *Sampling Criteria:* Samples were selected with the following predetermined set of criteria.

- *Inclusion Criteria*
- • *Subjects*
- ✓ Welders those who are working at selected welding shops.
- ✓ Welders in the age group of 18 to 60 years.
- ✓ Welders who are willing to participate at the time of study.
- ✓ Welders who are able to understand kannada.

- *Exclusion Criteria:*
- • *Subjects*:
- ✓ Welders those who are not present at the time of data collection.
- ✓ Welders who are already suffering with lung cancer.
- ✓ Welders less than 18 years of age.

- *Method of Data Collection:*
    Data collection is the gathering of information needed address a research problem.
- Prior formal information was obtained from the welding shops of Bijapur.
- Information consent was obtained from the subjects after explaining the purpose of the study.
- Structured knowledge questionnaire was used for the preventive practice of lung cancer among welders in welding shops at selected welding shops bijapur.
- Demographic data was used to collect information of welders on preventive practice of lung cancer.
- Video assisted module was prepared to enhance the knowledge of preventive practice of lung cancer

VI. RESULT

➤ *SECTION A*

Description of demographic variables of subjects.

SI No.	Demographic variables	Staff nurses	
		Frequency	Percentage
1	Age group (years)		
	18-20	14	28
	21-25	17	34
	26-30	14	28
	Above 31	05	10
2	Religion		
	Hindu	34	68
	Muslim	14	28
	Christian	02	04
	Others	00	00
3	Educational status		
	Non formal education	22	44
	Primary	28	56
	Secondary	00	00
	Graduate	00	00
4	Occupation		
	Gas welders	16	34
	Steel welders	21	42
	ARC welders	09	18
	Metal welders	04	08
5	Income/months		
	Less than 5000	29	58
	5001-7000	21	42
	7001-9000	00	00
	Above 9001	00	00
6	Work (hrs/day)		
	Less than 1	02	04
	2-3	15	30
	4-5	14	28
	6 and above	09	18
7	Habit		
	Smoking / Tobacco chewing	32	64
	Alcoholic	16	32
	No bad habits	02	04
8	Experience		
	1-2	12	24
	2-3	22	44
	3-4	13	26
	4 and above	03	06
9	Work place		
	Indore	30	60
	Outdoor	20	40
10	Mode of ventilation		
	Door	22	44
	Window	23	46
	Exhaust fan	05	10
	Vacuum extractor	00	00
11	Earlier information regarding lung cancer		
	Yes	20	40
	No	30	60
12	Source of information		
	Mass media	08	16
	Health personal	18	36
	Family members	10	20
	Friends	14	28

Table 1:- Distribution of the subjects according to socio-demographic variables.(N=50)

➤*SECTION B*

Assessment of knowledge regarding Preventive practice of lung cancer.

Categories	Score	Percentage	Frequency	Percentage
Adequate knowledge score	22-30	75-40%	02	04%
Moderate adequate knowledge score	15-22	50-75%	31	62%
Inadequate knowledge score	<15	<50%	17	34%

Table 2:- The Distribution of respondents according to the level of pre test knowledge scores (N=50)

The above table shows the distribution of subjects according pre-test knowledge scores. Majority i.e. 31(62%) of the subjects had moderately adequately knowledge scores where as 17(34%) and 02 (04%) of the subjects had inadequate knowledge scores and adequate knowledge scores respectively.
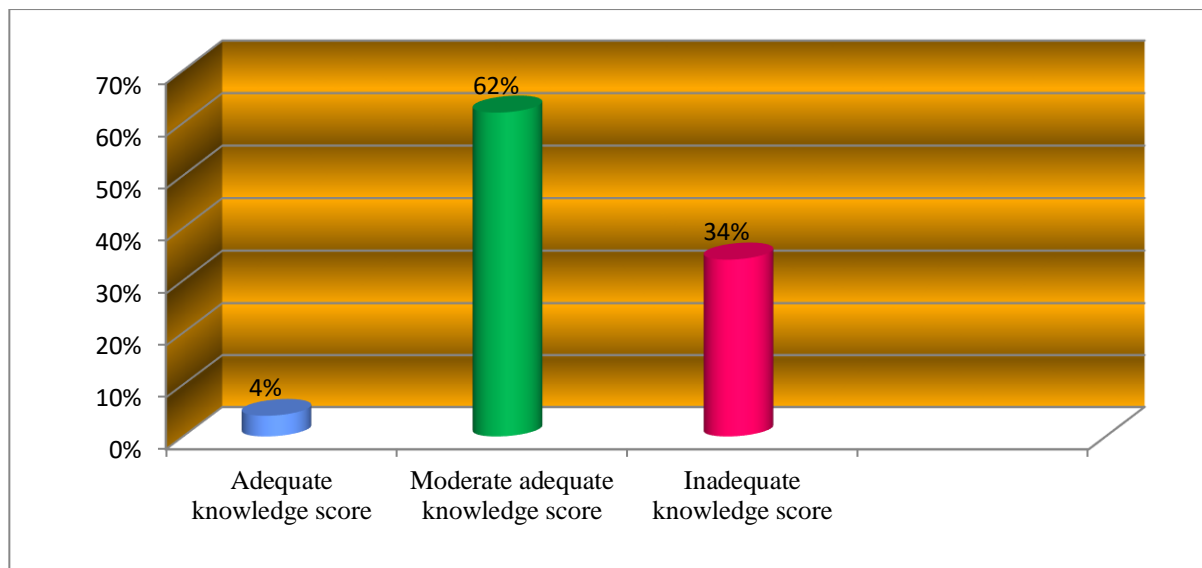
Fig 1:- Distribution of respondents according to pre-test level of Knowledge.

SL. No	Area of knowledge	No of items	Range		Pre-test Knowledge Score		
			Min	Max	Mean	SD	Mean%
1.	Anatomy and physiology of lung	2	0	2	1.58	0.56	79
2.	Meaning of lung cancer	1	0	1	0.5	0.82	50
3.	Causes of lung cancer	4	0	4	1.84	0.89	46
4.	Warning signs and clinical manifestations	3	0	3	1.84	0.88	61
5.	Assessment and diagnostic findings	2	0	2	1.04	0.74	52
6.	Management of lung cancer	3	0	3	1.18	0.86	39
7.	Prevention of lung cancer	15	0	15	7.16	1.84	48

Table 3:- Pre test knowledge scores on different aspects of lung cancer (N=50)

The majority i.e. (79% 1.58± 0.56) had adequate knowledge score in area of anatomy and physiology, where as in the areas of meaning of lung cancer, warning signs, clinical manifestation and assessment diagnostic findings (50%, 0.5± 0.82), (61%, 1.84±o.84), (52%,1.04±0.50) had adequate knowledge score where as in the areas of causes of lung cancer, management and prevention of lung cancer (46%,1.84±0.89), (39%.1.18±0.86), (48%, 7.16± 1.84) had inadequate knowledge scores respectively.
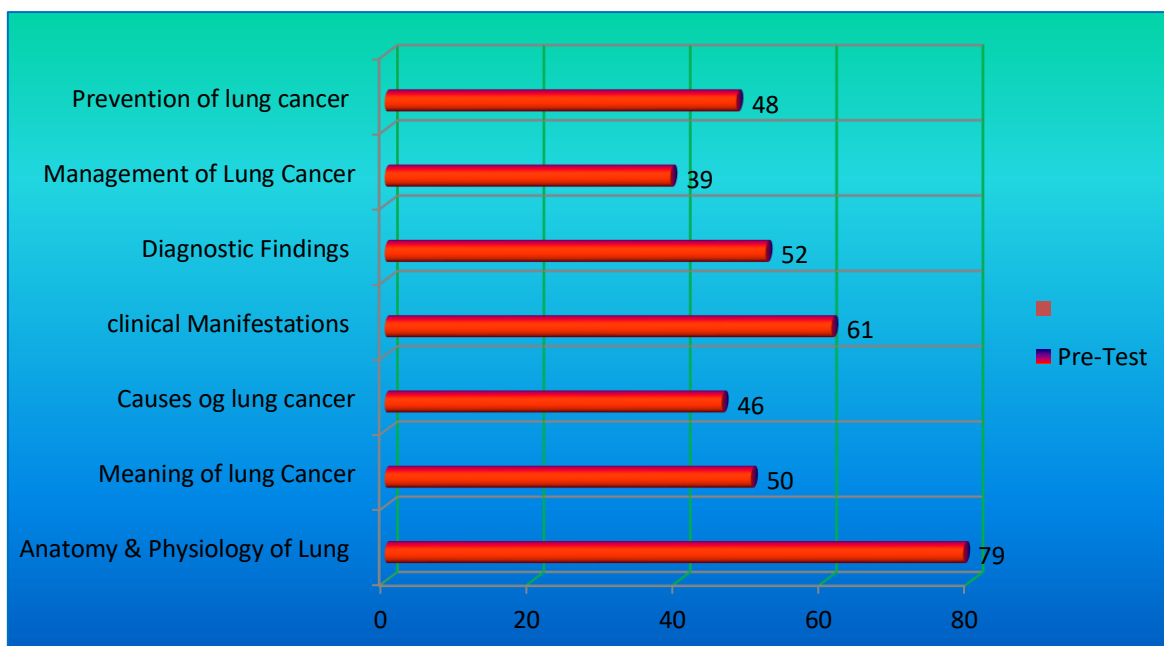
Fig 2:- Pre test knowledge score on different aspects of lung cancer.

SECTION C

Assessment of Post-test knowledge scores of respondents regarding Preventive practice of lung cancer.

Distribution of respondents according to post-test knowledge

Categories	Score	Percentage	Frequency	Percentage
Adequate knowledge score	22-30	75-100%	13	26%
Moderate adequate knowledge score	15-22	50-75%	35	70%
Inadequate knowledge score	<15	<50	02	04%

Table 4:- Distribution of respondents according to the level of post test Knowledge scores (N=50)

The above table shows the distribution of respondents according to the post test knowledge scores. Majority i e 35(70%) of the subjects had moderately adequate knowledge scores, where as 13(26%) and 02(04%) of the subjects had adequate knowledge score and inadequate knowledge scores respectively.
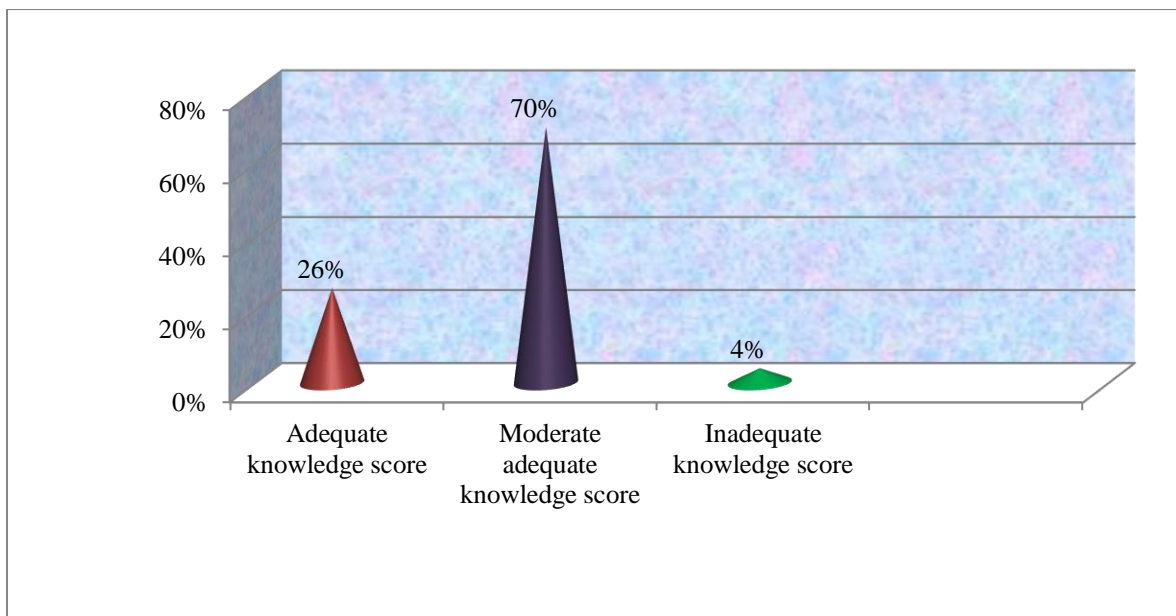
Fig 3:- Distribution of respondents according to post-test knowledge

SL. No	Area of knowledge	No of items	Range		Pre-test Knowledge Score		
			Min	Max	Mean	SD	Mean%
1.	Anatomy and physiology of lung	2	0	2	1.98	1.56	99
2.	Meaning of lung cancer	1	0	1	0.96	0.76	96
3.	Causes of lung cancer	4	0	3	3.16	1.80	79
4.	Warning signs and clinical manifestations	3	0	2	2.48	1.70	83
5.	Assessment and diagnostic findings	2	0	2	1.8	1..08	90
6.	Management of lung cancer	3	0	3	2.78	1.66	93
7.	Prevention of lung cancer	15	0	13	10.66	1.80	71

Table: 5. Post- test knowledge score on different aspects of lung cancer (N=50)

The majority i.e. (99%,1.98$\pm$1,56), (96%,0.96$\pm$ 0.76), (79%3.16$\pm$ 1.80), (83%2.48$\pm$ 1,70), (90%,1.8$\pm$ 1.08), (93%,2.78$\pm$ 1.66) Anatomy , meaning , causes, warning signs , diagnostic finding, management had adequate knowledge scores respectively where as only one area i.e. prevention of lung cancer (71%,10.66$\pm$1.80) had moderately adequate of knowledge score.
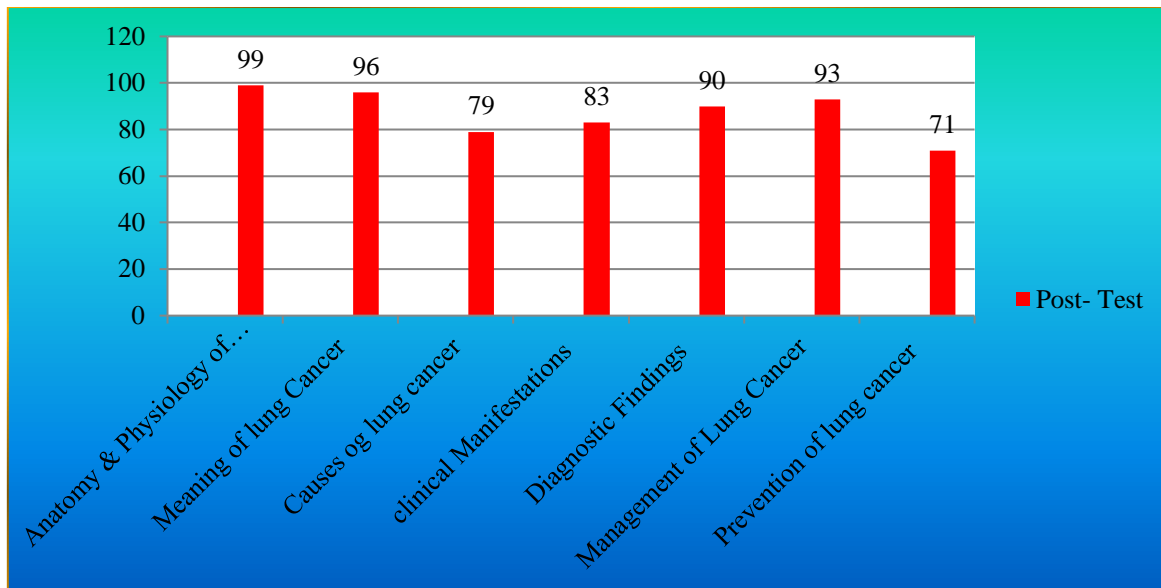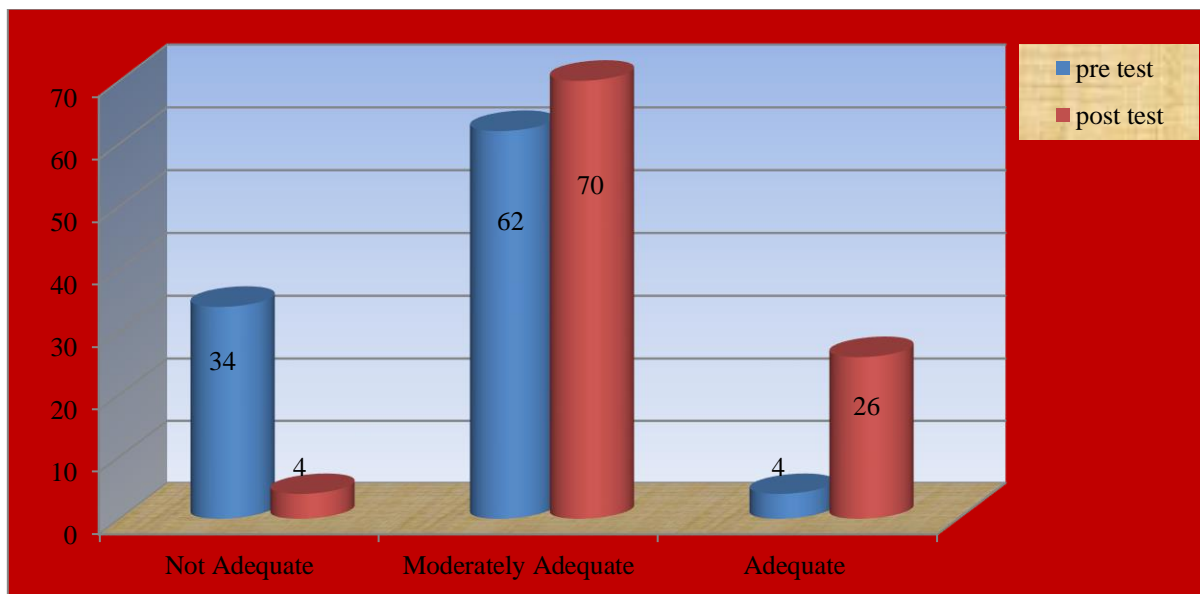
Figure: 4. Post test knowledge score on different aspects of lung cancer

Level of knowledge		Knowledge Score			
		Pre test		Post test	
		f	%	f	%
1)	Not Adequate	17	34	2	04
2)	Moderately Adequate	31	62	35	70
3)	Adequate	02	04	13	26
	Total	50	100	50	100

Table: 6. Category wise comparison of pre and post-test knowledge scores of respondents

Graph: 5. Distribution of welders according to the level of knowledge

The above figure shows the mean % of knowledge score of pre-test and post-test obtained by the welders on prevention of lung cancer. In pre-test knowledge scores, only i.e 2(4%) had adequate knowledge scores and in post-

test i.e. 13(26%) had adequate knowledge scores fallowed by pre-test i.e. 31(62%) and in post-test i.e. 35(70%) had moderately adequate knowledge score where as in pre-test knowledge score i.e. 17(34%) and post-test knowledge score

i.e. 2(4%) had inadequate knowledge score respectively. Hence it shows that video assisted module was effective in enhancement of post test knowledge score higher than the pre-test knowledge score.

Determination of overall mean knowledge score before and after VAM

Knowledge	N	Mean	S.D	t value	p-value	Remarks
Overall knowledge score	50	5.78	2.96	14.99	2.011	Significant

Table 7. The Comparison of level of knowledge before and after video assisted module

The above table reveals that Mean post test score of welders is more than the Mean pre test score which is highly significant as p-value = 02.011. So the Video module is effective in enhancing the knowledge of welders. Hence the

research hypothesis was accepted. H_1: There will be significant difference between pre-test and post test knowledge score regarding preventive practice of lung cancer among welders.

Comparison of average knowledge score regarding preventive practice of lung cancer before and after administration of VIM.

Area of knowledge	Pre-test Mean%	Post-test Mean%	Enhancement Mean%
Anatomy and physiology of lung	79	99	20
Meaning of lung cancer	50	96	46
Causes of lung cancer	46	79	33
Warning signs and clinical manifestations	61	83	22
Assessment and diagnostic findings	52	90	38
Management of lung cancer	39	93	54
Prevention of lung cancer	48	71	23

Table 8:- Comparison of average knowledge score percentage on Preventive practice of lung cancer before and after administration of Video assisted module.

The above table reveals that area wise mean knowledge score enhancement observed between pre-test and post test scores i.e. 20% in anatomy and physiology of lung cancer, 46% in a meaning of lung cancer, 33% causes of lung cancer, 22% in warning signs and clinical

manifestations, 38% in assessment and diagnostic findings, 54% in management of lung cancer and 23% in prevention of lung cancer which shows the Video module is effective in enhancing the knowledge of welders.
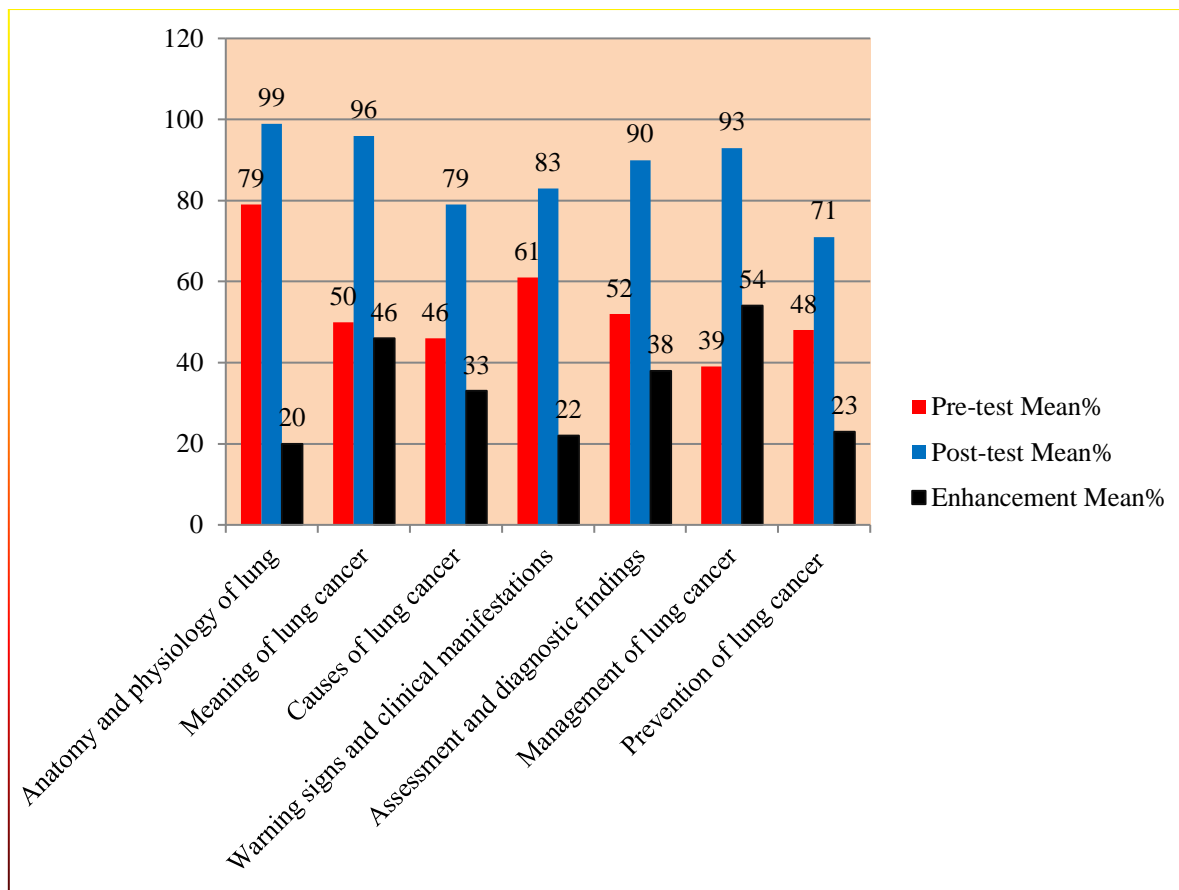
Comparison of average knowledge score percentage regarding preventive practice of lung cancer before and after administration of VIM.

Association between knowledge with the selected demographic variables

Sl. No	Demographic variables	D.F	CHI-SQUARE	P-VALUE	RESULT
1)	Age	3	3.247	0.355	NS
2)	Religion	2	6.258	0.04	S
3)	Educational status	1	3.498	0.061	NS
4)	Occupation	1	3.498	0.06	NS
5)	Income	1	0.469	0.493	NS
6)	Working hours/day	3	4.480	0.214	NS
7)	Habits	3	2.999	0.392	NS
8)	Experience in work shop	3	5.744	0.125	NS
9)	Working place	1	0.123	0.726	NS
10)	Mode of ventilation	2	0.616	0.735	NS
11)	Earlier information	1	0.876	0.349	NS
12)	Source of information	3	2.047	0.563	NS

Table 9:- Association between pre test knowledge scores with selected demographic variables (N=50)
NS = not significant　　　　S=significant

Table Reveals the association between knowledge scores with selected demographic variables where as only one demographic variable, i.e. religion, is highly significant at 0.05 level fallowed by other demographic variables like age, gender, educational status, occupation, income, working hours, experience in work, working place, mode of ventilation, source of information working hour were not significant at 5% level of significance.

H$_2$: There will be significant association between pretest knowledge scores with selected demographic variables.

VII. DISCUSSION

➤ *Major findings of the study*

In pre test majority i.e. 31(62%) of the subjects had moderately adequately knowledge scores where as 17(34%) had inadequate knowledge scores and 02 (04%) of the subjects had adequate knowledge scores respectively. In post test Majority i.e. 35(70%) of the subjects had moderately adequate knowledge scores, where as 13(26%) subjects had adequate knowledge score and 02(04%) of the subjects had inadequate knowledge scores respectively. The study concludes that video assisted teaching programme enhances the knowledge of welders and helps in prevention of lung cancer.

VIII. RECOMMENDATIONS

- Keeping in view the findings of the present study the following recommendations were made.
- A similar study can be conducted on a large sample may help to draw more definite conclusions and make generalization.
- A similar study can be undertaken with pre-test, post-test design with control group.
- A similar study can be conducted by descriptive often serves to generate hypothesis for future research.
- A similar study can be conducted among general population.
- A study can be conducted using various methods of teaching to determine the most effective method of teaching example – structured teaching programme, demonstration, simulation etc.

IX. CONCLUSION

Majority of welders had moderate adequate knowledge towards prevention of lung cancer. There is time alarm to educate the welders through video assisted mass health education programme, seminar, workshop on preventive aspect and healthy life style. This may help to reduce the morbidity and mortality rate of lung cancer among welders.

ACKNOWLEDGEMENT

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