

“ASSESS THE PREVALANCE OF OCCUPATION HEALTH HAZARDS DUE TO EXPOSURE TO ULTRA VIOLET RADIATION AMONG ARC WELDERS, AT VADODRA”

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ABSTRACT

Background of the study:

There are varieties of hazards in the occupational environment to which workers may be exposed and which may cause various disease. Welding is common indispensable procedure in engineering works and is associated with varied health hazards apart from injuries. In this study, prevalence among arc welders. Observational research design was used, data was collected from 100 arc welders in Vadodara Gujarat. A self-structured questionnaire was used to assess occupational health hazard among arc welders. The researcher obtains written consent from the concerned authority before the study. Result of study shows that mild and moderate prevalence of occupational health hazard among arc welders.

OBJECTIVES

- To study the assess Prevalence of health hazards among arc welder's due to exposure to Ultraviolet radiation.
- To Find the association between the Occupational Health Hazards and the selected Socio-demographic Variables of the Arc Welders.

MATERIAL AND METHOD: In this research study an evaluative research approach with observational design is used. The sampling techniques was non probability convenience sampling is used to collect the 100 sample of welders and data collection done by administering the self-structured questionnaire. Data was analyzed by using descriptive and inferential statistics such as standard deviation, chi Squared test.

RESULT

With regards, A total of 100 welders participated. Among 74 (74%) welders had mild and 26 (26%) welders had moderate prevalence of occupational health hazard observed. Working hours per day of welders ($\chi^2=10.145$, $df=3$) and taking medication in past 24 hours ($\chi^2=5.808$, $df=1$) shows significant value.

Conclusion

The findings of this study the arc welders had mild to moderate occupational health hazard. Main occupation health hazard is working hours per day and taking medication per day, welders may overcome health hazard to are provided with many types of protection and give training to welders how to use protection when working.

KEY WORD: Prevalence of Health Hazards, Ultraviolet Radiation, Arc Welders.

INTRODUCTION-

Humans are spending most of the time at workplace. Well-being and efficiency of employ in any organization get influenced in Welding is common dynamic method in manufacturing works and is associated with lot of health hazards. Welding is a profession associated with marvellous physical and biochemical threats. In malice of the danger complex, usage of Personal Protective Gears (PPGs) among welders in developed countries has been reported to be less, due to their incomplete consciousness of occupational hazards. Although present time have highly effective antibiotics but every year 40-50 welder suffer from Many types of health issue fourteen -fifteen welders life admitted in hospital each year. Although approximately Nine workers every year grow breathing difficulty and asthma so seriously. Many welder's complaint of coughing and respiratory like throat irritation after first week of starting welding jobs frequently long-lasting properties.

Materials and Methods

A Quantitative Non experimental research approach was used for this study. The design of the study was Descriptive research design. Study conducted in welding shops in Vadodara . The sample were welders. The sample were selected by using non-probability convenient sampling technique. Total number of samples were 100. The tool used for data collection were divided in 2 section A&B.

Section-A This section contains 2 sub section I and II sub section II consist of the demographic variables of the welders. Sub section II will consist medically review

Section-B Self-Structured checklist for assessment of prevalence of occupational health hazards among welders

In this study the reliability is determined by administering the tool among 10 arc welders. The reliability of tool established by using split half method Spearman Brown Prophecy formula and Karl Pearson reliability test. The reliability of the tool was $r = 0.7$ which indicates that the tool was reliable for the research study.

STATISTICS

- Descriptive statistics is used for to assess the mean, frequency and percentage
- Inferential statistics like chi-square test used to find the association

RESULTS

SECTION-A DESCRIPTION OF SAMPLE ACCORDING TO THEIR DEMOGRAPHIC DATA

Table-2: Frequency and percentages distribution of sample according to their demographic characteristic

N=100

S.R NO	VARIABLES	CHARACTERISTICS	FREQUENCY	PERCENTAGE
1	Body mass index	<18.6	0	0%
		18.5 – 24.9	100	100%
		>25	0	5%
2	Marital status	Married	82	82%
		Un married	18	18%
		Widower	0	0%
		Divorcee	0	0%
3	Area of working	Rural	0	0%
		Urban	100	100%
4	Working experience	0-5 Year	12	12%
		6-10 year	23	23%
		11-15 year	18	18%
		More than 15 year	47	47%
5	Working hours per day	0-4 hour	5	5%
		5-8 hour	74	74%

		9-12 hour	19	19%
		More than 12 hours	2	2%
6	Types of welding machine use	Gas metal arc welding	1	1%
		Gas tungsten arc welding	3	3%
		Plasma arc welding	89	89%
		Shielded metal	6	6%
		Sub merged arc welding	1	1%
7	Types of safety measure use	Ear plug or ear muff	1	1%
		Welding helmet	49	49%
		Safety goggle	48	48%
		Other	2	2%
		More than one	0	0%
8	put protection when working	Always	75	75%
		Some time	24	24%

		Never	1	1%
9	Satisfied with your occupation	Yes	100	100%
		No	0	0%
10	Currently suffer from any chronic disease	Yes	5	5%
		No	95	95%
11	Any heredity condition	High blood pressure	3	3%
		Diabetes	2	2%
		Haemophilia	0	0%
		Thalassemia	0	0%
		No	95	95%
12	Are you habited to	Drug	0	0%
		Alcohol	27	27%
		Smoking	18	18%
		Tobacco	38	38%
		Other	1	1%
		None	16	16%
13	How often get health check up	Once in 4 months	0	0%
		Once in a 8 months	0	0%
		Once in year	10	10%
		Only when needed	82	82%

		Never get it done	8	8%
		Other	0	0%
14	Taking medication in 24 hours	1	2	2%
		2	0	0%
		3	0	0%
		4	0	0%
		5	0	0%
		None	98	98%
15	Using artificial pace maker	Yes	0	0%
		No	100	100%

Mean value of age is 37.29

The body mass index value is constant among 100 participation. 100 [100%] arc welders have 18.5-24.9 body mass index value

the distribution of arc welders according to their Marital status.it was observed that among 100 participants 82 [82%] welders are married and 18 [18%] welders are unmarried

Area of working in arc welders is constant 100 [100%] arc welders work in urban area in my sample distribution of welders work experience as a arc welders according to their working experience .it was observed 100 participants in that 12 [12%] welders have 0-5 years' experience, 23 [23%] welders have 6-10 years' experience and 18 [18%] welders have 11-15 years working experience remaining 47 [47%] welders have more than 15-year experience as an arc welder

It was observed 100 participation in that 5 [5%] welder doing work 0-4 hours per day,74 [74%] welder doing work 5-8 hours per day and 19 [19%] welder doing work 9-12 hours per day remaining 2 [2%] welders doing work more than 12 hours

it was observed 100 participation in that 1 [1%] welders are use gas metal arc welding machine,3 [3%] welders use gas tungsten arc welding machine,89 [89%] welders use plasma arc welding machine and 5 [5%] welders used shielded metal welding machine remaining 1 [1%] welder use sub merged arc welding machine

it was observed 100 participation in that 1 [1%] welder use ear plug or ear muff ,49 [49%] welders use welding helmet during welding process and 48 [48%] welder use safety goggle during welding process remaining 2 [2%] welder use other safety measure during welding process

it was observed 100 participation in that 75 [75%] welders always put protection during welding process, and 24 [24%] welders use some time protection remaining 1 [1%] welder never use protection during welding process

distribution of welders according to satisfaction of welders toward their occupation or job. it was observed 100 participation in that found 100 [100%] welders satisfied with their welding job or occupation no one welder found unsatisfied with their occupation

it was observed 100 participation.it was observed 5[5%] welders suffered from chronic disease and remaining 95 [95%] currently have no any chronic disease.

it was observed in 100 participation. it found 3 [3%] welders have high blood pressure and 2 [2%] have diabetes remaining 95 [95%] welders have no any heredity condition

it was observed in 100 participations 27 [27%] welders habited to alcohol, 18 [18%] welders habited to smoking and 38 [38%] welders habited to tabaco,1 [1%] welder habited to other and 16 [16%] welder has no any bad habit

it was observed in 100 participation 10 [10%] welders getting health check up every year,82 [82%] welders getting health check-up only when needs remaining 8 [8%] welders never get health check up

it was observed in 100 participations. 2 [2%] welders taking 1 medication in past 24 hours and remaining 98 [98%] welders not taking any types of medication

No one any welders use artificial pace maker

S.R NO .	Variables	Mild occupational hazard	Moderate occupational Hazard	Total	X ²	df	Level of significance
1	Marital status s score						

	Frequency	Percent	Valid Percent	Cumulative Percent
Mild	74	74.0	74.0	74.0
Valid Moderate	26	26.0	26.0	100.0
Total	100	100.0	100.0	

**SECTION-B
ASSESS THE PREVALENCE OF OCCUPATIONAL HEALTH HAZARD AMONG ARC WELDERS**

TABLE-3: Assess the Prevalence of Occupational Health Hazards Among Arc Welders

N=100

Above table shows prevalence of occupational health hazard among arc welders show mild prevalence of disease in welders is 74% and 26% moderate disease prevalence among arc welders none of them were having severe prevalence of occupational hazard among arc welders

**SECTION-C
FIND ASSOCIATION OF DEMOGRAPHIC VARIABLE**

TAB-4: Association Between Demographic Variable and Health Hazards.

	a) Married	60	22	82	.163	1	3.841 NS
	b) Un married	14	04	18			
	c) Widower	00	00	00			
	d) Divorcee	00	00	00			
	Total	74	26	100			
2	Working experience as a arc welders						
	a) 0-5 Year	09	03	12	.707	3	7.815 NS
	b) 6-10 year	18	05	23			
	c) 11-15 year	14	04	18			
	d) More than 15 year	33	14	47			
	Total	74	26	100			
3	Working hours per day						
	a) 0-4 hour	2	3	5	10.14 5	3	7.815 Significant
	b) 5-8 hour	60	14	74			
	c) 9-12 hour	10	09	19			
	d) More than 12 hours	2	00	02			
	Total	74	26	100			
4	Types of welding machine use						
	a) Gas metal arc welding	0	1	1	4.566	4	9.488 NS
	b) Gas tungsten arc welding	3	0	3			
	c) Plasma arc welding	65	24	89			
	d) Shielded metal	5	1	6			
	e) Sub merged arc welding	1	0	1			
	Total	74	26	100			
5	Types of safety measure use						
	a) Ear plug or ear muff	1	0	1	2.434	3	7.815 NS
	b) Welding helmet	39	10	49			
	c) Safety goggle	33	15	48			
	d) Other	1	1	02			
	Total	74	26	100			
6	How often do you put protection when working						
	a) Always	57	18	75	1.178	1	3.841 NS
	b) Some time	16	8	24			
	c) Never	1	0	1			

	Total	74	26	100			
7	Currently suffer from any Chronic disease						
	a) Yes	2	3	5	3.162	1	3.841 NS
	b) No	72	23	95			
	Total	74	26	100			
8	Any heredity condition						
	a) High blood pressure	2	1	3	4.566	3	9.488 Significant
	b) Diabetes	1	1	2			
	c) Thalassemia	0	0	0			
	d) No	71	24	81			
	Total	74	26	100			
9	Are you habited to						
	a) Alcohol	22	5	27	5.762	4	9.488 NS
	b) Smoking	16	2	18			
	c) Tobacco	24	14	38			
	d) Other	1	0	1			
	e) None	11	5	16			
	Total	74	26	100			
10	Health check up						
	a) Once in 4 months	0	0	0	.870	2	5.991 NS
	b) Once in 8 months	0	0	0			
	c) Once in year	7	3	10			
	d) Only when needed	60	22	82			
	e) Never get it done	7	1	8			
	f) Other	0	0	0			
	Total	74	26	100			
11	Taking medication in 24 hours						
	a) 1	0	2	2	5.808	1	3.841 Significant
	b) 2	0	0	0			
	c) 3	0	0	0			
	d) 4	0	0	0			
	e) 5	0	0	0			
	f) None	74	24	98			
	Total	74	26	100			

✚ Significant at 0.05 level
✚ S=Significant

x² =chi square
NS=Non significant

Above table reveals the association between the Occupational Health Hazards and the selected Socio-demographic Variables of the Arc Welders. Significant variables is working hours per day with χ^2 value 10.145 (3 df=7.815) and taking medication in 24 hours χ^2 value 5.808 (1 df=3.84) for this variable hypothesis accepted .the non-significant demographic variable was , marital status ,area of working, working experience as a arc welders ,which type of machine used by welders, which types of safety measure use, how often put protection , suffer from any chronic disease ,any heredity condition, habited to, how often do you get health check-up, taking medication in past 24 hours , Hence research hypothesis H_2 is failed to accept

NOTE- following demographic data, body mass index, area of working, satisfied with occupation, and using artificial pace maker value is constant that's why we can't do association

CONCLUSION

The analysis has been recognized and presented under various sections like Description of sample according to their demographic data, Assess the prevalence of occupational health hazard among arc welders, association between the occupational health hazard and the selected socio-demographic variables of arc welders .it was found that working hours of arc welders and taking medication in past 24 hours shows significant value so, it indicate association between prevalence of occupational health hazard among arc welders and selected demographic variables

FINANCIAL SUPPORT AND SPONSORSHIP

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ETHICAL CONSIDERATION

A formal ethical approval received from institutional ethical committee. Informed consent was obtain from participants and assured for anonymity.

CONFLICT INTEREST

There is no conflict of interest

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