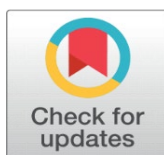
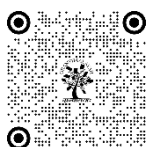


A STUDY ON HEALTH ISSUES FACED BY EMPLOYEES OF FIREWORK INDUSTRIES IN VIRUDHUNAGAR DISTRICT

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ABSTRACT

Health related problems has become a common phenomenon in the firework industries. Whatever, preventive measures the employees took, it did not help them much in protection. In these fireworks industries, employee's health is rehabilitated into wealth to protect their family. Fireworks employees face many health issues like Respiratory problems, Skin Problems, Muscle strain problems, Heart problems and Ortho problems. The main aim of this paper is to analyse the health issues faced by the fireworks employees in Virudhunagar District. This paper consist of both primary and secondary data. Primary data is collected from 200 employees from Sivakasi and Sattur working in fireworks industries by using convenient sampling methods. Statistical tools like, percentage analysis, weighted average method and kruskal wallis test are used to analyse the collected data. The study found that there is a significant relationship between the socioeconomic profile (age and gender) and the health issues of employees in fireworks industries, and most importantly there is a significant relationship between the year of experience and health issues of employees in fireworks industries.

Keywords: Fireworks Workers, Health Issues and Virudhunagar District

1. INTRODUCTION

Fireworks employees can face many health issues due to their exposure to toxic chemicals in the manufacturing process. Fireworks create smoke which contains tiny particles that is very bad to our health. Gases that damages our lungs extremely, like sulphur dioxide, carbon dioxide, and carbon monoxide, are released when fireworks burst. Other dangerous elements including cadmium, manganese, and aluminium that gets released into the atmosphere from the smoke. While arsenic, cadmium, lead, and thallium were common in the inversion smog, fireworks released large concentrations of barium and copper. Long-term exposure to these chemicals can lead to a number of health issues, from cardiovascular disease to asthma. The firecracker industry employs about three lakh people, many of whom operate unlicensed, in grey facilities where they get exposed to chemical dangers and the potential for harmful health impacts.

Virudhunagar District consists of three revenue divisions and ten taluks. It is located at southern region of Tamil Nadu. As far as the Sivakasi and sattur Taluks in Virudhunagar district is concerned, crackers manufacturing is one of the major unorganized industries. This fireworks industry adds income to the Indian economy. The standard of living of these employees' family depends on the earning from their firework job.

2. REVIEW OF LITERATURE

Ashifa KM (2022) in her research on “Hazards and Well-Being of Employees in Firework Industries” has identified the safety measures that are now utilized in the fireworks sector. The study found that majority of people who work in the fireworks sector in Sivakasi are primarily the residents from rural areas. They are working with chemicals, which poses a threat to both their health and their own. It is concluded that the Employees should be aware of dangers present in the workplace, take steps to alleviate stress, take frequent breaks while they are working, and always wear a protective gear that is appropriate for the work being done in the sector.

Thiruppathi S, Jeyakumaran M (2021) in their research on “A study on workers’ attitude towards the safety, health & welfare measures in pyrotechnics industry at Sivakasi”, have identify the health problems among workers in the fireworks industry. The study found from the majority of the respondent that they have no safety materials so they feel that they need more safety materials like gloves, face mask while working near machines and chemicals in the firework factory.

Ramya P, Rubhy S (2019) in their article on “Industrial Safety and Well-Being of Fireworks

Employees in Sivakasi” have identified the safety measures in the fireworks industry. Since many fire disasters occur in the fireworks sector, now it is the time to look on the safety equipment and workers' health, The survey was carried out in Vijayarangapuram, which is close to Sivakasi. By doing this, the researcher collected 30 samples from the 250 employees in total. The safety and well-being of the employees are the primary focus of this investigation. Most of the respondents stated that they require additional safety precautions, such as face masks and gloves.

Saravana Kumar R.C (2016), in his study on “Health Problems of Women Labourers in Fireworks Industries – A Cross Sectional Study” has examined the health problems of women labourers working in fireworks industries. Primary data were collected from 300 respondents working in fireworks industries by using systematic random sampling methods. The study concluded that, joint pain and skin problems are the predominant problems among women workers in fire-works industries in the study area. It suggested that the health issues in the research area can be decreased by improving working circumstances and giving women employees who operate in chemical mixing fields lights.

2.1. STATEMENT OF THE PROBLEM

Manufacturing of firework crackers involves chemicals, which may get absorbed into the body that affects the health of employees. Sivakasi and Sattur are known for both men and women rural employees in fireworks industries. Most of the employees in firework industries are illiterate and from poor economic background. The health is very important to the firework employees. Hence, the researcher has taken the present study on health issues of fireworks industries employee’s in Virudhunagar District.

2.2. OBJECTIVES OF THE STUDY

- 1) To analyse the socioeconomic profile of employees in firework industries.
- 2) To examine the health issues faced by employees in firework industries.
- 3) To offer suitable measures for the health issues.

2.3. HYPOTHESIS OF THE STUDY

Ho1: There is no significant relationship between socioeconomic profile (age and gender) and health issues of employees in fireworks industries.

Ho2: There is no significant relationship between year of experience and health issues of employees in fireworks industries.

3. RESEARCH METHODOLOGY

The study is conducted with 200 fireworks employees in Virudhunagar district especially in Sivakasi and Satur. Descriptive research design is used for the study. By using convenient sampling method, researcher conducted survey and gathered information on health issues in fireworks employees. Interview Schedule as the tool used for collecting primary data. Statistical tools like, percentage analysis, weighted average method and kruskal wallis test are used to analyse the collected data.

3.1. ANALYSIS AND INTERPRETATION

1) Socio-Economic profile of employee

Fireworks employee's Socio-Economic profile is displayed in Table-1

Table-1
Socio-Economic Profile

S.No	Variables	Parameters	Frequency	Percentage (%)
1.	Gender	Male	138	69.0
		Female	62	31.0
		Total	200	100
2.	Age	Below 25	09	4.5
		26-35	35	17.5
		36-45	48	24.0
		46-55	59	29.5
		Above 55	49	24.5
		Total	200	100
3.	Educational qualification	Illiterate	35	17.5
		Primary level	76	38.0
		High school	81	40.5
		Undergraduate	08	04.0
		Total	200	100
4.	Monthly Income	Up to 10000	74	37.0
		10001-15000	66	33.0
		15001-20000	54	27.0
		20001-25000	04	02.0
		Above 25000	02	01.0
		Total	200	100
5.	Marital Status	Married	190	95.0
		Unmarried	10	05.0
		Total	200	100
6.	Year of Experience	Below 3 Years	18	09.0
		3 - 5 Years	29	14.5
		5 -10 Years	67	33.5

		Above 10 Years	86	43.0
		Total	200	100

Sources: Primary Data

The above table-1 shows that majority of the selected employees are Male (69 per cent). Majority of the employees are in the Age group of 46-55 (29.5per cent). Most of the respondents got education at high school level (49.5per cent). Majority of the respondent's monthly income fall under Rs. 10,000 (74 per cent). Majority of the respondents are married (95 per cent) and majority of the selected employee have more than 10 years (43 per cent) of experience in this field.

2) Health issues of fireworks employees

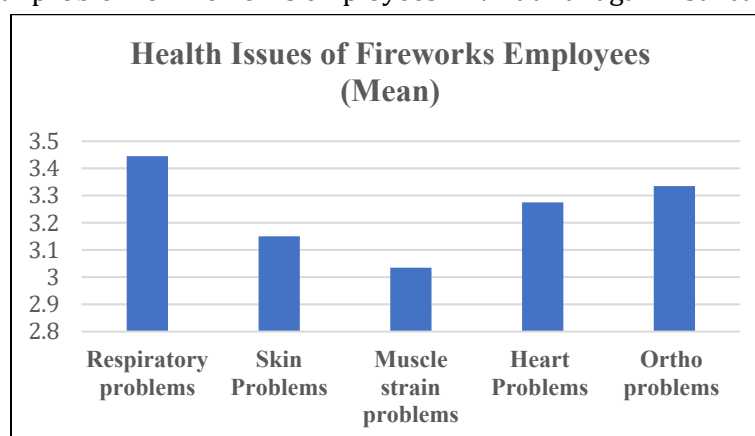
Fireworks employee's opinion on health issues is displayed in table-2

Table-2
Health Issues of Fireworks Employees

S. No	Problems	SA	A	N. O	DA	SDA	Mean	Rank
1.	Respiratory problems	65 (325)	48 (192)	27 (81)	31 (62)	29 (29)	3.445	I
2.	Skin Problems	43 (215)	55 (220)	30 (90)	33 (66)	39 (39)	3.15	IV
3.	Muscle strain problems	41 (205)	44 (176)	35 (105)	41 (82)	39 (39)	3.035	V
4.	Heart Problems	60 (300)	41 (164)	33 (99)	26 (52)	40 (40)	3.275	III
5.	Ortho problems	56 (280)	47 (188)	33 (99)	36 (72)	28 (28)	3.335	II

Sources: Primary Data

The above table-2 shows that Respiratory problems is the major health issue of fireworks employees and ortho problem is the next major health problem of fireworks employees in Virudhunagar District.



3) Relationship between socio economic profile (age and gender) and health issues of employees in fireworks industries

To find the relationship between socio economic profile (age and gender) and health issues of employees in fireworks industries, U Test and Kruskal Wallis test has been applied and the result is displayed in table-3.

Table-3
Socio Economic Profile (Age and Gender), Year of Experience and Health Issues

Problems	Gender			Age			Year of Experience		
	U Value	Sig.	Result	H Value	Sig.	Result	H Value	Sig.	Result
Respiratory problems	11.324	0.001	Sig.	13.543	0.000	Sig.	15.631	0.000	Sig.
Skin Problems	12.345	0.000	Sig.	10.408	0.002	Sig.	14.678	0.000	Sig.
Muscle strain problems	10.365	0.003	Sig.	13.643	0.000	Sig.	6.118	0.146	Not Sig.
Heart Problems	11.684	0.001	Sig.	8.467	0.084	Not Sig.	12.356	0.000	Sig.
Ortho problems	12.361	0.000	Sig.	12.698	0.000	Sig.	10.182	0.002	Sig.
Overall Result	Significant			Significant			Significant		

Source: Computed from Primary Data

Table 3 shows the level of significance in each factors. As per the overall result, the null hypothesis is rejected. Hence there is a significant relationship between the socioeconomic profile (age and gender) and health issues of employees in fireworks industries, and there is a significant relationship between the year of experience and health issues of employees in fireworks industries.

4. FINDINGS OF THE STUDY

- Majority of the selected employees are Male.
- Majority of the employees are in the Age group of 46-55.
- Most of the respondents got education at high school level.
- Most of the respondent's monthly income fall under Rs. 10,000.
- Majority of the respondents are married.
- Majority of the selected employee have more than 10 years of experience in this field.
- Respiratory problems is the major health issue of fireworks employees and ortho problem is the next major health problem of fireworks employees in Virudhunagar District.
- There is a significant relationship between the socioeconomic profile (age and gender), year of experience and health issues of employees in fireworks industries.

5. SUGGESTIONS

- The fireworks industries should ensure adequate ventilation in work areas, provide respirators or masks when necessary, and limit exposure to firework smoke during production and setup.
- They must conduct periodic health tests to monitor for potential damage and eye exams to identify any pre-existing eye conditions.
- They must provide appropriate protective clothing like gloves, long sleeves, and pants to prevent skin irritation from chemicals and debris. And also inform employees about potential chemical hazards and proper handling procedures.
- Encourage regular eye exams to identify any pre-existing eye conditions.

6. CONCLUSION

This paper concludes that, Respiratory and ortho problems are the predominant problems among employees in fireworks industries in the Virudhunagar District. It could be suggested that fireworks industries should make an improvement in the working condition and provide gloves to the employees those who are working in chemical mixing area. It may be helpful to reduce the health issues of employees in fireworks industries in the Virudhunagar District.

CONFLICT OF INTERESTS

None.

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