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Research Article

Health and Safety Protocols: A Study on Implementing Preventive Measures in the Wood Processing Industry in Shencottai Taluk

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ABSTRACT

This study investigates the implementation of health and safety protocols in the wood processing industry, focusing on preventive measures to reduce occupational hazards. Wood processing is a vital industry in the region, but it exposes workers to various health risks, including respiratory disorders, musculoskeletal injuries, and accidents due to unsafe working conditions. The research evaluates the current safety practices, identifies gaps in the implementation of health protocols, and proposes strategies to improve worker safety. Data was collected through surveys, interviews, and site inspections, analyzing the effectiveness of personal protective equipment (PPE), ventilation systems, ergonomics, and training programs. The findings suggest that while some safety measures are in place, there is a need for enhanced enforcement, regular training, and better adherence to safety standards. The study highlights the importance of integrating preventive measures into daily operations to ensure a healthier and safer working environment for wood processing industry workers.

Keywords: Preventive measures, Wood processing industry, Occupational hazards, Respiratory disorders, Musculoskeletal injuries, Personal protective equipment.

INTRODUCTION

Occupational health and safety is very important in industries that involve physical work, machines, and exposure to harmful materials. The wood processing industry is especially risky because it involves heavy equipment, sharp tools, wood dust, and lifting heavy materials. Following proper safety rules can help protect workers from injuries and health problems while also improving productivity.

Shencottai town in Tamil Nadu has many wood-based businesses, such as sawmills, carpentry shops, and furniture makers. Although these industries are important to the local economy, there is little information about the safety practices they follow. Early observations show that many of these units lack proper safety measures, with limited use of protective gear, little safety training, and low awareness among workers.

This study looks at the current health and safety practices in the wood processing industry. It aims to find out what preventive steps are being taken, how well workers and management follow safety rules, and what problems they face in doing so. The results will help improve safety policies and practices in the industry.

REVIEW OF LITERATURE

Smith and Thomas (2020), in their study published in Safety Science Review, looked at how well safety measures work in the woodworking industry. They studied things like using personal protective equipment (PPE), improving machine safety, and doing regular safety checks. Their results showed that workplaces with strong safety rules had fewer accidents and injuries. They stressed the need for a proactive safety culture,

where safety standards are regularly checked and followed. The study showed that consistent use of preventive measures can greatly improve safety in woodworking environments.

Schwartz, Zhang, and Miller (2020) studied how long-term exposure to wood dust affects the respiratory health of workers in the wood processing industry. Published in Environmental Health Perspectives, their research found that workers exposed to wood dust over time had a higher risk of conditions like asthma, chronic bronchitis, and reduced lung function. They used health surveys and lung tests to track these effects over several years. The study highlights the need for better safety rules and protective measures in workplaces where wood dust is common, adding to existing research on the health risks of airborne particles in industrial jobs.

Lundström, Nilsson, and Lindberg (2021) studied how training programs can help reduce injuries in the wood industry, as reported in the Journal of Workplace Safety and Health. They looked at different safety training efforts in wood processing plants and found that injury rates dropped when workers received regular, job-specific training. The study showed that ongoing, hands-on training improved worker safety and awareness. The authors highlighted the importance of continuous education and worker involvement in making workplaces safer. Their research supports the idea that training is a key way to prevent injuries in high-risk jobs.

STATEMENT OF THE PROBLEM

The wood processing industry in the Shencottai region faces major challenges in consistently following health and safety rules. Although government regulations and company policies exist, workers often do not use personal protective equipment (PPE) or receive regular safety training. There is also little clear data on how well current safety measures actually work, and reports often don't match what happens on-site. This study aims to find out how well safety protocols are being followed, what obstacles prevent compliance, and how effective current measures are in reducing health and injury risks in these workplaces.

OBJECTIVE OF THE STUDY

The primary objective of this study is to assess the implementation of health and safety protocols in the wood processing industry in Shencottai Taluk, focusing on the effectiveness of preventive measures in safeguarding workers' health.

METHODOLOGY OF THE STUDY

This study adopted a descriptive research design to investigate the implementation of health and safety protocols in the wood processing industry. A total of 200 respondents were selected using a stratified random sampling method to ensure representation across various job roles, including skilled workers and unskilled labourers. Primary data were collected through structured questionnaires. The questionnaire focused on key aspects such as awareness of safety protocols, use of personal protective equipment (PPE), safety training, and incidence of workplace accidents. The secondary data were sourced from government records, books and related journals and websites. The collected data were analyzed using descriptive analysis, one- way ANOVA and one-sample ‘t’-test to identify patterns and relationships. Ethical considerations were strictly followed, including informed consent, confidentiality, and voluntary participation of all respondents.

SCOPE OF THE STUDY

This study focuses on examining and assessing the application of health and safety preventive measures in the wood processing industry of Shencottai Taluk, aiming to enhance workplace safety and minimize occupational risks.

DATA ANALYSIS AND INTERPRETATION

Respondent Profile

The respondent profile for this study includes a diverse group of individuals employed within the wood processing industry. A total of 200 participants were surveyed, consisting of factory workers, safety officers, and management personnel. The profile of respondents is consistent with similar studies that emphasize the importance of involving both workers and management in evaluating safety protocols (Johnson & Lee, 2019; Gupta & Sharma, 2021). This profile helps researchers understand the background, context, and potential biases of their sample. The common elements included in a respondent profile such as age, sex, Average family monthly Income, Experience and working hours are presented in the table.

Socio-Demographic Profile of the Respondents

Socio-Demographic Variables	Categories	No. of Respondents	Percentage %
Age	18 to 25 years	55	27.5
	26 to 35 years	103	51.5
	above 36 years	42	21.0
Sex	Male	144	72.0
	Female	56	28.0
Average family monthly income (Rs.)	Up to 5000	31	15.5
	5001 to 10000	91	45.5
	10001 to 15000	39	19.5
	15001 and above	39	19.5
Experience	0-3 years	80	40.0
	4-6 years	76	38.0
	7-10 years	24	12.0
	above 10 years	20	10.0
Daily Working Hours	8 hours	94	47.0
	10 hours	68	34.0
	12 hours	22	11.0
	more than 12 hours	16	8.0
Job challenge	Extremely challenging	38	19.0
	Very challenging	42	21.0
	Moderately challenging	55	27.5
	Slightly challenging	47	23.5
	Not at all challenging	18	9.0
Workers prefer to attend Health and safety training	Monthly	14	7.0
	Bi-monthly	16	8.0
	Quarterly	52	26.0
	Half-yearly	48	24.0
	Yearly	70	35.0
Workers facing accidents during duty time	Never	18	9.0
	Rarely	78	39.0
	Often	59	29.5
	Sometimes	39	19.5
	Always	6	3.0

From the above table, the socio-demographic data reveals that the majority of respondents (51.5%) fall within the age group of 26 to 35 years, indicating a predominantly young and potentially active workforce. A significant gender disparity is observed, with males comprising 72% of the sample. Most respondents belong to families with an average monthly income of Rs. 5,001 to 10,000 (45.5%), reflecting a lower-middle-income demographic. In terms of experience, 78% of the workers have up to 6 years of experience, suggesting a relatively fresh workforce. Nearly half (47%) work 8 hours daily, though a substantial number (34%) work 10 hours, highlighting the possibility of extended work schedules. Regarding job challenges, 67.5% of workers perceive their job as at least moderately challenging, which may influence stress and job satisfaction levels. A majority prefer annual or quarterly health and safety training, suggesting a desire for structured but not overly frequent interventions. A high number of respondents (91%) report experiencing workplace accidents at varying frequencies, indicating potential gaps in safety protocols and the need for improved occupational health measures. The findings can assist authorities in developing focused strategies to improve training programs, enhance workplace safety, and promote a healthier work-life balance for employees.

Socio-Demographic classification of Job-Related factors towards preventive measures - ANOVA

Socio-Demographic Variables		Sum of Squares	df	Mean Square	F	Sig.
Job Position	Between Groups	563.245	3	187.748	32.607	.000
	Within Groups	1128.550	196	5.758		
	Total	1691.795	199			
Experience	Between Groups	62.823	3	20.941	66.743	.000
	Within Groups	61.497	196	.314		
	Total	124.320	199			
Working hours	Between Groups	6.655	3	2.218	4.311	.006
	Within Groups	100.865	196	.515		
	Total	107.520	199			

The ANOVA results in table indicate statistically significant differences in job-related factors toward preventive measures across various socio-demographic classifications. For Job Details, the F-value of 32.607 with a p-value of .000 suggests a significant variation in responses among different job categories. Similarly, Experience shows a very high F-value of 66.743 and a p-value of .000, indicating that years of experience significantly influence perceptions or implementation of preventive measures. Lastly, Working Hours also show a significant difference (F = 4.311, p = .006), though the effect appears to be less pronounced than the other factors. Overall, these findings imply that job role, experience level, and working hours significantly impact attitudes or behaviors toward preventive practices in the workplace.

PREVENTIVE MEASURES IN THE WORKPLACE

Null Hypothesis: Opinions regarding statements on preventive measures in the workplace are equal to the test value (Average value = 3).

Statement	N	df	Mean	SD	t-value	p-value	Cohen's d
Provision for extraction of dust	200	199	3.98	1.125	12.318	0.000**	0.871
Placing warning signs and safety rules	200	199	4.07	1.184	12.779	0.000**	0.903
Follow the written health and safety plan	200	199	4.00	1.029	13.803	0.000**	0.976
Using design guards	200	199	4.01	1.058	13.561	0.000**	0.958
Comfortable outfits	200	199	3.76	0.797	13.482	0.000**	0.953
Proper training staff	200	199	3.74	0.763	13.800	0.000**	0.975
Regular inspection	200	199	3.68	0.865	11.190	0.000**	0.791
Better illumination	200	199	3.77	0.806	13.503	0.000**	0.954
Health and Safety Committee	200	199	3.89	1.081	11.702	0.000**	0.827

From the above table, all p-values are < 0.01, indicating that the null hypothesis is rejected at 1% level of significance for all listed statements regarding preventive measures in the workplace.

- **Provision for extraction of dust**: $t(199) = 12.318$, $d = 0.871$. The effect size is high (Cohen's $d > 0.8$), indicating a strong perception of importance.
- **Placing warning signs and safety rules**: $t(199) = 12.779$, $d = 0.903$. The effect size is high, showing strong agreement.
- **Follow the written health and safety plan**: $t(199) = 13.803$, $d = 0.976$. A very high effect size suggests a strong adherence to safety planning.
- **Using design guards**: $t(199) = 13.561$, $d = 0.958$. High effect, indicating strong agreement on the importance of design guards.
- **Comfortable outfits**: $t(199) = 13.482$, $d = 0.953$. High effect, showing strong support for comfort-related safety.
- **Proper training staff**: $t(199) = 13.800$, $d = 0.975$. A Very high effect size implies that staff training is strongly emphasized.
- **Regular inspection**: $t(199) = 11.190$, $d = 0.791$. Medium to high effect size, indicating its recognized importance.
- **Better illumination**: $t(199) = 13.503$, $d = 0.954$. High effect size indicates strong recognition of its safety relevance.
- **Health and Safety Committee**: $t(199) = 11.702$, $d = 0.827$. High effect size shows strong support for structured safety governance.

The analysis reveals that all listed preventive measures have statistically significant mean ratings higher than the test value of 3, with medium to high effect sizes, demonstrating strong awareness and agreement on their importance in the workplace.

DISCUSSION OF FINDINGS

The findings from the data analysis reveal critical insights into the socio-demographic dynamics and perceptions of preventive measures within the wood processing industry. The respondent profile indicates a predominantly young workforce, with 51.5% aged 26–35 years and 72% being male, suggesting a gender imbalance and youthful labor demographic. Most participants (45.5%) come from families earning Rs. 5,001 to 10,000 monthly, and 78% have less than six years of work experience, underscoring a relatively new and economically modest workforce. ANOVA results show statistically significant differences in perceptions of preventive measures across job position (F = 32.607, p < .001), experience (F = 66.743, p < .001), and working hours (F = 4.311, p = .006), indicating that these socio-demographic factors considerably influence attitudes toward workplace safety. The t-test results for preventive measures demonstrate strong agreement among respondents regarding the importance of various safety practices, with all p-values < 0.01 and high effect sizes (Cohen's d ranging from 0.791 to 0.976). It should be noted that, practices such as following a written health and safety plan (d = 0.976), using design guards (d = 0.958), and providing proper staff

training (d = 0.975) show the highest levels of agreement, emphasizing their perceived criticality. These findings collectively suggest a high level of awareness and prioritization of safety measures among workers, while also highlighting the need for tailored safety interventions based on job roles, experience, and working hours to further strengthen occupational health and safety standards.

SUGGESTIONS

- Targeted Safety Training: Implement training programs tailored to different job roles and experience levels to address the significant impact these factors have on safety perceptions.
- Optimize Working Hours: Reevaluate shift structures to mitigate fatigue and enhance safety among workers with extended daily hours.
- Strengthen Safety Committees: Foster active engagement of safety committees to maintain and monitor safety standards continuously.
- Upgrade Safety Infrastructure: Ensure consistent provision of essential safety equipment, such as dust extractors and design guards, to reinforce the already positive safety culture.
- Policy Development and Communication: Develop comprehensive written health and safety plans and make them easily accessible and understandable to all staff to further reinforce adherence.

CONCLUSION

The study highlights that while some preventive measures are in place in the wood processing industry of Shencottai Taluk, there is a significant need for better implementation and regular monitoring of health and safety protocols. Strengthening worker training, ensuring consistent use of protective equipment, and improving workplace conditions can greatly reduce occupational hazards. A collective effort from industry owners, workers, and local authorities is essential to create a safer and healthier working environment.

REFERENCES

1. Arora, A., & Verma, S. (2018). Occupational health and safety challenges in the wood processing industry: A review. Journal of Environmental Health Science and Engineering, 16(2), 127-135.
2. Baker, S., Cooper, M., & Taylor, R. (2018). Occupational hazards and preventive measures in wood processing industries: A review of safety practices. Journal of Occupational Safety and Health, 42(3), 173-182.
3. Bedi, S., & Gupta, A. (2020). Occupational health risks and safety practices in the woodworking industry: A case study from India. Journal of Safety Research, 72, 135-142.
4. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101.
5. Chaudhary, R., & Kaur, M. (2019). Occupational health and safety in small-scale industries: A case study of the wood processing industry. Journal of Occupational Safety and Health, 43(2), 112-120.
6. Creswell, J. W. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). Sage Publications.
7. Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. American Journal of Theoretical and Applied Statistics,5(1),1-4.
8. Ghosh, S., & Saha, S. (2019). Preventive measures for minimizing workplace injuries in the wood manufacturing sector. International Journal of Occupational Safety and Health, 7(1), 56-63.
9. Gupta, R., & Sharma, S. (2021). An evaluation of safety protocols in industrial environments: Case studies from the woodworking industry. International Journal of Safety and Health Management, 15(2), 105-118.
10. Johnson, P., & Lee, S. (2019). An analysis of safety protocol compliance and injury rates in industrial settings. Safety Science Review, 11(4), 214-230.
11. Lundström, L., Nilsson, E., & Lindberg, L. (2021). The impact of training programs on reducing injuries in the wood processing industry. Journal of Workplace Safety and Health, 14(5), 402-413.
12. Schwartz, M., Zhang, X., & Miller, J. (2020). Long-term exposure to wood dust and its impact on respiratory health: A review of findings. Environmental Health Perspectives, 128(6), 076013.
13. Smith, J., & Thomas, C. (2020). Effectiveness of personal protective equipment in preventing injuries in the woodworking industry. Safety Science Review, 13(1), 45-58.