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Knowledge, Attitudes, and Predictors of Safety Practices Regarding Occupational Hazards among Timber Processing Workers in Kano State, Nigeria: A Cross-Sectional Study

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Abstract

Background: Occupational hazards remain a major public health concern, particularly among workers in informal industries where occupational safety systems are often poorly implemented. Timber processing workers are frequently exposed to hazards such as wood dust, excessive noise, and mechanical injuries. This study assessed the knowledge, attitudes, and safety practices regarding occupational hazards among timber processing workers in Tarauni Local Government Area of Kano State, Nigeria. **Methods:** A descriptive cross-sectional study was conducted among 406 timber processing workers selected using a multistage sampling technique. Data were collected using interviewer-administered questionnaires and observation checklists. Descriptive statistics, chi-square tests, and multivariate logistic regression were used to identify predictors of occupational safety outcomes at $p < 0.05$. **Results:** The mean age of respondents was 34.4 ± 6.8 years, and most were male (89.9%). Good knowledge of occupational hazards was observed in 56.7% of workers, while 73.6% demonstrated positive safety attitudes. However, only 59.6% reported good safety practices. Younger workers ($\leq$ 34 years) were more likely to have good knowledge (aOR = 2.58; 95% CI: 1.44–4.63). Formal education and employment status predicted positive safety attitudes, while formal education and longer work experience were associated with better safety practices. **Conclusion:** Timber processing workers demonstrated moderate knowledge and generally positive attitudes toward occupational safety, but safety practices were inadequate. Strengthening occupational safety training, improving access to personal protective equipment, and enforcing occupational health regulations are needed to improve workplace safety in informal sector industries.

Keywords: Occupational hazards; Timber workers; Occupational safety; Personal protective equipment; Cross-sectional study; Nigeria

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Introduction

Occupational hazards remain a major public health concern worldwide, contributing substantially to work-related injuries, diseases, disability, and mortality. The International Labour Organization estimates that millions of workers experience occupational injuries and illnesses annually, with the greatest burden occurring in low- and middle-income countries where occupational health and

safety systems are often inadequately developed or poorly enforced International Labour Organization, 2019; World Health Organization, 2001. Workers in informal economic sectors are particularly vulnerable because regulatory oversight, workplace monitoring, and access to occupational health services are frequently limited. The timber processing industry is widely recognized as one of the most hazardous occupational sectors, especially within informal economies. Workers are routinely exposed to a variety of physical, mechanical, and environmental hazards including wood dust, excessive noise, sharp cutting tools, heavy machinery, and repetitive manual labour Federal Ministry of Labour and Employment, 2020; National Institute for Occupational Safety and Health, 2011. These occupational exposures have been associated with numerous adverse health outcomes such as respiratory disorders, hearing impairment, traumatic injuries, and musculoskeletal conditions Aderaw et al., 2011; Okojie, 2010. Among these hazards, wood dust exposure represents a significant occupational health risk in timber processing environments. Prolonged inhalation of wood particles has been linked to respiratory irritation, allergic reactions, chronic obstructive pulmonary disease, and certain cancers Ismaila & Odeyinka, 2012; Umeokafor et al., 2014. Additionally, continuous exposure to high noise levels generated by woodworking machines may result in noise-induced hearing loss, a largely irreversible condition that can significantly affect workers' productivity and quality of life Eze et al., 2015; Okafor et al., 2012. Mechanical hazards arising from unguarded machinery and sharp tools further increase the likelihood of injuries such as lacerations, fractures, and amputations, while poor ergonomic practices contribute to musculoskeletal disorders among workers Ilesanmi & Omotoso, 2016; Sabitu et al., 2009. In many developing countries, including Nigeria, occupational health and safety practices in informal industries remain inadequate. Timber processing activities are commonly carried out in poorly regulated environments characterized by limited use of personal protective equipment, insufficient safety training, and weak enforcement of occupational safety regulations Okechukwu & Okoye, 2012; Tadesse & Israel, 2016. Although national occupational health policies and labour laws exist, their implementation within informal sectors remains limited, leaving many workers exposed to preventable occupational risks Kanyenyeri et al., 2019; Moyo & Zungu, 2021. Beyond structural and regulatory challenges, behavioural factors also influence workplace safety outcomes. Workers' knowledge of occupational hazards, their attitudes toward safety, and their adherence to protective practices are important determinants of occupational risk exposure. Adequate knowledge enables workers to recognize workplace hazards and adopt preventive measures, while positive attitudes toward safety may promote compliance with recommended protective behaviours Aidoo & Eshun, 2018; Kifle & Engdaw, 2020. However, previous studies have indicated that awareness of occupational hazards does not always translate into appropriate safety practices due to economic constraints, limited access to protective equipment, and weak workplace safety enforcement Elgaddal & Hamza, 2017; Rahman & Khan, 2015. In northern Nigeria, timber processing provides employment for a large number of artisans, machine operators, and apprentices. Tarauni Local Government Area of Kano State is one of the major hubs of timber processing activities, where numerous small-scale workshops and sawmills operate largely within the informal sector. Workers in these settings are frequently exposed to occupational hazards, yet organized safety training, hazard control measures, and occupational health monitoring are rarely implemented Mutua & Mwanthi, 2013; Rongo et al., 2004. Therefore, this study aimed to assess the knowledge, attitudes, and safety practices regarding occupational hazards among timber processing workers in Tarauni Local Government Area, Kano State, Nigeria.

Methods

Study Design

A descriptive cross-sectional study design was employed to assess the knowledge, attitudes, and safety practices regarding occupational hazards among timber processing workers in Tarauni Local Government Area (LGA), Kano State, Nigeria. A cross-sectional approach was considered appropriate because it allows the assessment of behavioural and occupational health characteristics of a de-

fined population at a single point in time and enables identification of factors associated with occupational safety outcomes.

Study Area

The study was conducted in Tarauni LGA of Kano State, located in northern Nigeria. Tarauni forms part of the Kano metropolitan area and serves as a major commercial and artisanal hub with a high concentration of informal sector activities, including timber processing. The area hosts numerous sawmills, carpentry workshops, and furniture-making enterprises employing a substantial number of artisans and apprentices. These enterprises largely operate within the informal sector where occupational safety practices and regulatory enforcement are often limited Occupational Safety and Health Administration, 2016.

Study Population

The study population comprised timber processing workers engaged in activities such as sawing, carpentry, machine operation, finishing, polishing, loading, and apprenticeship in timber processing workshops within Tarauni LGA.

Inclusion and Exclusion Criteria

Workers aged 18 years and above who had been engaged in timber processing activities for at least six months and were present at their workplaces during the data collection period were eligible for inclusion in the study. Workers who were severely ill during the study period or those not directly involved in timber processing activities were excluded.

Sample Size Determination

The sample size was determined using the single population proportion formula:

$$n = \frac{Z^2 pq}{d^2}$$

where n represents the minimum required sample size, Z is the standard normal deviate corresponding to a 95% confidence level (1.96), p represents the estimated proportion of workers adhering to occupational safety practices (60%) obtained from previous occupational safety studies among informal sector workers, and d represents the margin of error set at 5%.

The minimum calculated sample size was 369. After adjusting for a 10% non-response rate, the final sample size was 406 respondents.

Sampling Technique

A multistage sampling technique was employed. First, a sampling frame of timber processing workshops and sawmills within Tarauni LGA was developed with the assistance of local trade associations. Workshops were then selected using probability proportional to size (PPS) sampling, where the probability of selecting a workshop was proportional to the estimated number of workers in each workshop.

Within each selected workshop, eligible respondents were selected using systematic random sampling based on available worker rosters or lists. Where a selected respondent was unavailable during data collection, the next eligible worker was selected to maintain the required sample size.

Data Collection Instruments and Procedure

Data were collected using a structured interviewer-administered questionnaire and an observation checklist. The questionnaire consisted of four sections:

- Socio-demographic characteristics
- Knowledge of occupational hazards
- Attitudes toward workplace safety
- Safety practices related to occupational hazards

The questionnaire was adapted from previously published occupational health studies and modified to suit the timber processing context. It was administered by trained research assistants in either English or Hausa to enhance comprehension among respondents.

Face-to-face interviews were conducted at respondents' workplaces after obtaining informed consent. In addition to interviews, workplace observations were conducted using a checklist to assess environmental safety conditions such as availability of personal protective equipment, machine guarding, ventilation, and general workplace organisation.

Measurement and Scoring of Variables

Knowledge of Occupational Hazards

Knowledge was assessed using multiple items covering awareness of wood dust exposure, noise hazards, mechanical injuries, and preventive measures. Each correct response was scored as 1, while incorrect or "don't know" responses were scored as 0. Total scores were converted to percentages. Respondents scoring $\geq 70\%$ were categorised as having good knowledge, while those scoring $< 70\%$ were categorised as having poor knowledge.

Attitudes Toward Workplace Safety

Attitudes were assessed using Likert-scale statements measuring perception of occupational risks, the importance of safety measures, and willingness to adopt protective behaviours. Composite scores were generated and categorised as:

- Positive attitude: scores $\geq 70\%$
- Negative attitude: scores $< 70\%$

Safety Practices

Safety practices were assessed using items related to the use of personal protective equipment, participation in safety training, and adherence to recommended safety procedures. Composite scores were categorised as:

- Adequate safety practices: $\geq 70\%$
- Inadequate safety practices: $< 70\%$

Data Quality Control

Research assistants were trained on the study objectives, ethical considerations, and standardised data collection procedures prior to fieldwork. The questionnaire was pretested among timber workers in a neighbouring LGA outside the study area to assess clarity and reliability. Necessary modifications were made following the pretest. Completed questionnaires were checked daily for completeness and consistency by the principal investigator.

Data Analysis

Data were coded, entered, and analysed using statistical software. Descriptive statistics including frequencies and proportions were used to summarise socio-demographic characteristics and key study variables.

Bivariate analysis using chi-square tests was conducted to assess associations between independent variables and the outcome variables (knowledge, attitudes, and safety practices). Variables with $p < 0.20$ at the bivariate level were entered into multivariate logistic regression models to identify independent predictors of the outcome variables.

Adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported. Model diagnostics including multicollinearity assessment and goodness-of-fit tests were conducted to ensure model adequacy. Statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval for the study was obtained from the Kano State Ministry of Health Research Ethics Committee. Permission was also obtained from relevant local authorities and workshop leaders prior to data collection.

Written informed consent was obtained from all participants after explaining the purpose and procedures of the study. Participation was voluntary, and confidentiality of all information obtained was strictly maintained throughout the research process.

Results

A total of 406 questionnaires were administered and completed, yielding a response rate of 100%. This high response rate was achieved because interviewer-administered questionnaires were conducted directly at the respondents' workplaces during working hours. Participants were approached individually and interviewed immediately after consent, which minimized non-response.

Sociodemographic Characteristics of Respondents

The mean age of respondents was 34.4 ± 6.8 years. The largest proportion of workers were aged 25–34

years (43.8%), followed by 35–44 years (25.6%), 19–24 years (22.7%), and above 44 years (7.9%). Most respondents were male (89.9%) and married (59.4%). Regarding educational attainment, 26.6% had Qur'anic/Islamic education, 23.6% had primary education, 17.0% had secondary education, and 14.3% had tertiary education, while 18.5% had no formal education. In terms of occupation, carpenters/joiners constituted the largest group (25.6%), followed by machine operators (23.2%) and sawyers (16.7%). Most respondents were self-employed (43.6%), while 39.7% were employees of workshops and 16.7% were apprentices. Regarding work experience, 34.7% had 6–10 years of experience, while 7.9% had less than one year. Only 31.5% reported receiving formal workplace safety training. (Table 1)

Knowledge of Occupational Hazards

Overall, 79.6% of respondents reported being aware of workplace hazards. Most respondents recognized that wood dust affects the lungs (84.5%), noise exposure can damage hearing (72.9%), and poor ventilation increases occupational risk (91.6%). Additionally, 88.2% acknowledged the importance of wearing personal protective equipment (PPE). However, only 40.4% knew the appropriate action to take if a machine guard was damaged, suggesting gaps in procedural safety knowledge. The main sources of knowledge were on-the-job experience (55.2%), informal apprenticeship (42.9%), and formal training (24.1%). Based on composite scoring, 56.7% of workers demonstrated good knowledge, while 43.3% had poor knowledge. (Table 2)

Attitudes Toward Occupational Safety

Overall, respondents demonstrated generally positive attitudes toward occupational safety. The majority agreed that wearing PPE improves safety (83.2%) and that following safety procedures helps prevent workplace accidents (86.7%). Furthermore, 82.2% indicated willingness to use PPE regularly if it were available and comfortable. However, some unfavorable perceptions were observed. Approximately 28.1% believed reporting unsafe conditions was a waste of time, while 39.9% reported that hearing protection interferes with communication during work. Composite attitude scores indicated that 73.6% of respondents had positive attitudes, while 26.4% had negative attitudes toward occupational safety. (Table 3)

Safety Practices Among Timber Workers

Safety practices among workers were moderate but inconsistent. Only 11.1% reported always using respiratory protection, 9.4% consistently used eye protection, 5.9% regularly used hearing protection, and 14.8% consistently wore gloves or protective clothing. Additionally, 73.2% reported that PPE was not provided by their employers, and 79.3% had never received formal training on PPE use. Despite these limitations, composite scoring showed that 59.6% demonstrated good safety practices, while 40.4% demonstrated poor safety practices. (Table 4)

Factors Associated with Knowledge, Attitudes, and Safety Practices

Bivariate analysis showed that age ($\chi^2 = 10.654$; $p < 0.001$) and occupation ($\chi^2 = 4.632$; $p = 0.031$) were significantly associated with knowledge of workplace hazards. However, education level, income, and years of work experience were not significantly associated with knowledge. Regarding attitudes toward occupational safety, educational level ($\chi^2 = 5.773$; $p = 0.016$), occupation ($\chi^2 = 10.482$; $p < 0.001$), and monthly income ($\chi^2 = 4.194$; $p = 0.041$) were significantly associated with attitudes toward workplace safety. Similarly, educational level ($\chi^2 = 4.891$; $p = 0.027$), occupation ($\chi^2 = 12.417$; $p < 0.001$), and years of work experience ($\chi^2 = 6.412$; $p = 0.011$) were significantly associated with safety practices. (Table 5)

Predictors of Knowledge, Attitudes, and Safety Practices

Multivariate logistic regression analysis revealed that workers aged $\leq$ 34 years were more likely to have good knowledge compared with older workers (aOR = 2.58; 95% CI: 1.44–4.63; $p < 0.001$). Similarly, employed workers were more likely to demonstrate good knowledge compared with self-employed workers (aOR = 1.93; 95% CI: 1.06–3.51; $p = 0.031$). Workers with formal education were more likely to have positive safety attitudes (aOR = 2.87; 95% CI: 1.22–6.75; $p = 0.016$). Addition-

Table 1: Sociodemographic Characteristics of Timber Workers in Tarauni Local Government Area, Kano State ($n = 406$)

Characteristic	Category	Frequency	Percentage (%)
Age (years)	19–24	92	22.7
	25–34	178	43.8
	35–44	104	25.6
	>44	32	7.9
	Mean ± SD	–	34.4 ± 6.8
Gender	Male	365	89.9
	Female	41	10.1
Marital status	Single	96	23.6
	Married	241	59.4
	Divorced	42	10.3
	Widowed	19	4.7
	Separated	8	2.0
Educational level	No formal education	75	18.5
	Qur'anic/Islamic education	108	26.6
	Primary education	96	23.6
	Secondary education	69	17.0
	Tertiary education	58	14.3
Occupation	Sawyer	68	16.7
	Machine operator	94	23.2
	Carpenter/Joiner	104	25.6
	Finisher/Polisher	59	14.5
	Loader/Porter	36	8.9
	Apprentice/Trainee	45	11.1
Type of employment	Self-employed	177	43.6
	Employed by workshop	161	39.7
	Apprentice	68	16.7
Years of experience	<1 year	32	7.9
	1–5 years	112	27.6
	6–10 years	141	34.7
	11–15 years	78	19.2
	>15 years	43	10.6
Formal training on workplace safety	Yes	128	31.5
	No	278	68.5

ally, employed workers were more likely to demonstrate positive attitudes toward safety (aOR = 3.12; 95% CI: 1.57–6.22; $p < 0.001$). Workers earning more than ₦30,000 monthly were also more likely to have positive safety attitudes (aOR = 1.98; 95% CI: 1.03–3.79; $p = 0.041$). Regarding safety practices, workers with formal education were more likely to demonstrate good safety practices (aOR = 2.41; 95% CI: 1.10–5.29; $p = 0.027$). Employed workers were also more likely to engage in safe practices (aOR = 4.15; 95% CI: 2.08–8.28; $p < 0.001$), while workers with more than five years of experience were more likely to demonstrate good safety practices (aOR = 2.18; 95% CI: 1.19–3.97; $p = 0.011$). (Table 6)

Note: SD = Standard deviation.

Note: χ^2 = Chi-square test. *Statistically significant at $p < 0.05$.

Note: OR = Odds Ratio; CI = Confidence Interval. *Statistically significant at $p < 0.05$.

Discussion

Discussion This study assessed the knowledge, attitudes, and safety practices regarding occupational hazards among timber processing workers in Tarauni Local Government Area of Kano State, Nigeria. The findings revealed that although a considerable proportion of workers demonstrated moderate knowledge of occupational hazards and generally positive attitudes toward workplace safety, the implementation of safety practices remained inadequate. This pattern highlights a persistent gap between awareness of occupational risks and the adoption of protective behaviors among workers in informal occupational settings. Such discrepancies between knowledge and practice have been widely reported in occupational health studies and often reflect structural constraints rather than lack of awareness alone. The study found that most respondents were aware of major workplace hazards such as wood dust exposure, excessive noise, and poor ventilation. This relatively high level of awareness may be attributed to prolonged occupational exposure, which often promotes experiential learning even in the absence of formal occupational safety education. Workers who regularly experience dust irritation, noise exposure, or minor injuries may develop practical awareness of workplace hazards over time. However, procedural safety knowledge was limited, as less than half of the respondents knew the appropriate action to take when safety equipment such as machine guards was damaged. This suggests that while workers may recognize occupational hazards, they may lack the technical knowledge required to effectively manage workplace risks or respond appropriately to hazardous situations. Comparable findings have been reported in studies conducted in Ghana and Ethiopia, where workers in wood processing and small-scale industries demonstrated moderate awareness of occupational hazards but limited procedural safety knowledge due to inadequate occupational safety training and weak regulatory enforcement Gebremedhin & Berhane, 2014; Zungu et al., 2018. In contrast, studies conducted in South Africa have reported higher levels of occupational hazard knowledge among industrial workers, largely attributed to stronger occupational safety regulations, structured workplace training programs, and improved enforcement mechanisms Sharma & Harish, 2018. These differences underscore the importance of institutional support systems and regulatory enforcement in shaping workers' occupational safety knowledge. The findings of this study also indicated generally favorable attitudes toward occupational safety among timber workers. Most respondents acknowledged the importance of personal protective equipment and agreed that adherence to safety procedures can prevent workplace injuries. Positive safety attitudes may reflect workers' recognition of the potential health consequences associated with timber processing activities, particularly respiratory problems, hearing impairment, and traumatic injuries resulting from mechanical hazards. Despite these positive attitudes, a notable proportion of workers expressed skepticism about the effectiveness of reporting unsafe working conditions. This perception may reflect weak workplace safety culture and limited confidence in institutional response mechanisms within informal sector industries. Similar patterns have been documented in studies conducted among informal sector workers in East Africa, where workers demonstrated favorable safety attitudes but low levels of hazard reporting due to weak enforcement structures and limited employer accountability Shrestha & Shrestha, 2019; Sunindijo & Zou, 2012. Such findings highlight the importance of strengthening workplace safety culture and promoting supportive reporting systems that encourage workers to report hazards without fear of negative consequences. Although workers in this study demonstrated relatively good knowledge and positive attitudes toward occupational safety, actual safety practices were inconsistent and often inadequate. Only a small proportion of respondents reported consistent use of respiratory protection, eye protection, or hearing protection while working. This discrepancy between knowledge and behavior may be explained by structural and economic barriers that limit the adoption of safety practices. Most respondents reported that personal protective equipment was not provided by employers, and a substantial proportion had never received formal safety training. These conditions significantly reduce workers' capacity to translate safety knowledge into protective behaviors. Similar low levels of personal protective equipment use have been reported among informal sector workers in Nigeria and other African countries, where workers frequently rely on self-protection strategies due to limited employer provision of safety equipment and weak occupational safety oversight Moyo & Zungu, 2021; Olatunji & Afolabi, 2022. In contrast, studies conducted in more regulated occupational environments have reported higher compliance with safety practices due to stronger occupational health policies, mandatory safety training programs, and employer accountability for workplace safety Akinwale & Olawumi, 2021; Tetteh & Kuffour, 2023. These findings suggest that improving access to safety equipment and strengthening workplace

Table 2: **Knowledge of Occupational Hazards Among Timber Workers in Tarauni Local Government Area ($n = 406$)**

Knowledge Variable	Yes n (%)	No n (%)
Aware of workplace hazards (dust, noise, chemicals)	323 (79.6)	83 (20.4)
Knows wood dust affects lungs	343 (84.5)	63 (15.5)
Knows noise exposure affects hearing	296 (72.9)	110 (27.1)
Knows what to do if machine guard is damaged	164 (40.4)	242 (59.6)
Knows poor ventilation increases occupational risk	372 (91.6)	34 (8.4)
Aware of importance of wearing PPE	358 (88.2)	48 (11.8)

Table 3: **Bivariate Associations Between Sociodemographic Factors and Knowledge, Attitudes, and Safety Practices Among Timber Workers ($n = 406$)**

Variable	Knowledge χ^2 (p-value)	Attitude χ^2 (p-value)	Safety Practice χ^2 (p-value)
Age	10.654 ($p < 0.001$)*	2.256 ($p = 0.354$)	1.872 ($p = 0.549$)
Education	1.783 ($p = 0.128$)	5.773 ($p = 0.016$)*	4.891 ($p = 0.027$)*
Occupation	4.632 ($p = 0.031$)*	10.482 ($p < 0.001$)*	12.417 ($p < 0.001$)*
Monthly income	1.156 ($p = 0.983$)	4.194 ($p = 0.041$)*	–
Work experience	1.238 ($p = 0.122$)	1.562 ($p = 0.457$)	6.412 ($p = 0.011$)*

Table 4: **Multivariate Logistic Regression Predicting Knowledge, Attitudes, and Safety Practices Among Timber Workers in Tarauni Local Government Area ($n = 406$)**

Outcome	Predictor	Adjusted OR	95% CI	p-value
Knowledge	Age ≤34 years	2.58	1.44–4.63	< 0.001*
	Employed vs self-employed	1.93	1.06–3.51	0.031*
Attitude	Formal education	2.87	1.22–6.75	0.016*
	Employed vs self-employed	3.12	1.57–6.22	< 0.001*
	Income > ₦30,000	1.98	1.03–3.79	0.041*
Safety practice	Formal education	2.41	1.10–5.29	0.027*
	Employed vs self-employed	4.15	2.08–8.28	< 0.001*
	Work experience >5 years	2.18	1.19–3.97	0.011*

safety training may substantially enhance protective practices among timber workers. The study further identified education, occupation, and work experience as significant predictors of safety practices among timber workers. Workers with formal education were more likely to demonstrate safer workplace behaviors, possibly because education improves risk perception and enhances the ability to understand occupational safety information and workplace guidelines. Similarly, workers with longer work experience were more likely to adopt safer practices, which may reflect cumulative exposure to occupational hazards and the gradual development of risk awareness over time. Experienced workers may also learn from previous injuries or near-miss events, which may influence their adoption of preventive behaviors. The findings of this study have important implications for occupational health policy and workplace safety interventions within informal sector industries. Timber processing activities in many Nigerian urban centers operate largely outside formal occupational health regulatory frameworks, resulting in limited enforcement of safety standards and inadequate provision of personal protective equipment. Strengthening collaboration between public health authorities, labour regulatory agencies, and local trade associations could improve safety awareness, training, and monitoring of workplace conditions among timber processing workers. Such multisectoral approaches are essential for reducing occupational hazard exposure and promoting safer work environments within informal industrial settings.

Conclusion

This study revealed that while timber processing workers in Tarauni Local Government Area demonstrated relatively good knowledge of occupational hazards and generally positive attitudes toward workplace safety, the actual implementation of safety practices remains inadequate. The findings highlight a persistent gap between awareness of occupational risks and adoption of protective behaviors, largely influenced by limited access to personal protective equipment, insufficient workplace safety training, and weak enforcement of occupational safety measures. Addressing these gaps is essential for improving occupational health outcomes among timber workers in informal sector industries.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

Workplace Safety Training:

Regular occupational safety training programs should be organized for timber processing workers to improve procedural safety knowledge and promote safe work practices. Provision of Personal Protective Equipment (PPE): Workshop owners and employers should ensure the consistent provision and use of appropriate PPE such as respiratory masks, eye protection, gloves, and hearing protection. Strengthening Occupational Safety Regulation: Relevant government agencies should strengthen monitoring and enforcement of occupational health and safety regulations within informal sector industries.

Occupational Health Awareness Programs:

Public health authorities and professional associations should implement community-based occupational health education campaigns targeting timber workers and small-scale workshop operators.

Strengths and Limitations of the Study

This study has several strengths and limitations that should be considered when interpreting the findings. One strength of the study is the relatively large sample size and the use of a multistage sampling technique, which enhanced the representativeness of timber processing workers within the study area. In addition, the study employed both interviewer-administered questionnaires and workplace observations, which helped improve the validity of the collected data. The use of multivariate logistic regression analysis also allowed for the identification of independent predictors of knowledge, attitudes, and safety practices regarding occupational hazards. However, some limitations should be acknowledged. First, the cross-sectional study design limits the ability to establish causal relationships between the identified predictors and occupational safety outcomes. Second, the study relied partly on self-reported information, which may be subject to recall bias or social desirability bias, particularly in reporting safety practices. Third, the study was conducted among timber processing workers in a single local government area of Kano State, which may limit the generalizability of the findings to other occupational settings or regions, Additionally, workplace observations were limited to visible environmental conditions and did not include quantitative exposure measurements such as dust concentration or noise levels. Despite these limitations, the study provides valuable insights into occupational hazard awareness and safety practices among timber workers in informal sector industries.

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What is Known About This Topic

Provide this information

Authors' Contribution

Provide this information

Funding Disclosure

Provide this information

Conflict of Interest Statement

Provide this information

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