



ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE
SCHOOL OF PUBLIC HEALTH

ASSESSING THE RELATIONSHIP BETWEEN SAFETY CULTURE
BEHAVIORAL SAFETY AND OCCUPATIONAL INJURY IN
SAWMILL INDUSTRY IN MALKA NONO SUB-CITY, SHAGGER
CITY, OROMIA REGION, ETHIOPIA.

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LIST OF AGRONOMIES AND ABBREVIATIONS

AOR	Adjusted Odd Ratio
EHS	Environmental Health and Safety
ERC	Ethical Review Committee
FAO	Food and Agriculture Organization
ILO	International Labor Organization
MLS	Ministry of Labor and Skills
MoLSA	Ministry of Labor and Social Affairs
BoLSA	Bureau of Labor and Social Affairs
NAICS	North American Industry Classification System
NOC	National Occupational Classification
OSH-MS	Occupational Safety and Health Management System
SPSS	Statistical Package for Social Science
USD	United States Dollar
ETB	Ethiopia Birr
PLS-SEM	Partial list square structural Equation modeling
ANOVA	Analysis of variance
CI	Confidence interval
K.S.A.	Kingdom of Saudi Arabia
MoLS	Minister of Labor and skills
NOSACQ	Nordic Safety Climate Questionnaire
OSH	Occupational health and Safety
U.K	United Kingdom
U.S.A.	United States of America
SC	Safety culture
SP	Safety Performance

ABSTRACT

Background: - Occupational injuries remain a major yet underreported public health burden in low and middle income countries, particularly in high-risk sectors like sawmilling where regulatory oversight is limited. While organizational and behavioral factors are critical to workplace safety, they remain insufficiently studied in Ethiopia's industrial settings.

Objective: - This study examine the relationship between safety culture, behavioral safety, and the occurrence of occupational injuries among workers in sawmill industries in the Tatek Industrial Zone, Malka Nono Sub-city, Shagger City, Oromia Regional State, Ethiopia, during 2023–2024.

Methods:- A cross-sectional study was conducted among 418 workers from four sawmills. Participants were selected through simple random sampling with proportional allocation to ensure representative participation from each sawmill. Safety culture was measured using the validated Nordic Occupational Safety Climate Questionnaire (NOSACQ-50), which covers seven dimensions. Behavioral safety and self-reported injury experience over the past 12 months were assessed using structured questionnaires. Binary logistic regression was employed to examine associations between safety culture, behavioral safety, and injury outcomes.

Result: - The prevalence of self-reported occupational injuries in the past 12 months was 58 workers (14%). Poor safety culture scores in several NOSACQ-50 dimensions, particularly management safety empowerment and safety communication, learning and trust in co-worker were significantly associated with increased odds of injury [AOR = 2.15, 95% (CI: 0.98–4.70)] and [AOR= 3.99, 95% (CI=1.84-8.64)] respectively. Workers with low levels of safety compliance were also more likely to report injuries [AOR = 5.32, 95% (CI: 2.57–11.02)].

Conclusion: -Deficiencies in safety culture and behavioral safety significantly contribute to occupational injury risk among sawmill workers. Interventions targeting both organizational safety cluture and worker safety behavior are recommended to enhance workplace safety.

Keywords: safety culture, occupational injury, behavioral safety, sawmill industry

1. INTRODUCTION

1.1. Background

The concept of safety culture emerged in the aftermath of large-scale industrial disasters, particularly the nuclear accidents at Three Mile Island in 1979 and Chornobyl in 1986, which underscored the need for deeper organizational commitment to safety (1). Safety culture refers to the collective attitudes, beliefs, values, and behaviors that prioritize safety in workplace (2). A main component of a strong safety culture includes Leadership commitment, open communication, Priority on Safety, accountability, continuous improvement, risk awareness, Empowerment, Learning from incidents, and a functional feedback loop (3).

Behavioral safety, which encompasses employees' absorbable actions and adherence to safety protocols, was a direct expression of an organization's safety culture. Together, they influence the occurrence of occupational injuries, which were key indicators of how effectively safety protocols were implemented and adhered to within every sector (4). This concept applies broadly across sectors, particularly relevant to the sawmill industry, where lumber and wood product manufacturing involves substantial inherent risks, warranting greater emphasis on injury prevention and workplace safety. It encompasses aspects such as job responsibilities, work environment, interpersonal relations, compensation, and advancement opportunities (5).

Globally, the sawmill industry plays a vital role in the timber supply chain. According to the Food and Agriculture Organization (FAO), over 1.6 billion cubic meters of wood were harvested in 2012, with sawmills producing more than 400 million cubic meters of lumber and over 300 million cubic meters of wood-based panels (6). However, these productivity levels come with substantial human costs. The International labour organization (ILO) estimated over 2 million work-related deaths and 270 million occupational injuries annually, with the majority occurring in low and middle-income countries (7). In 2006, the forestry industry recorded the highest occupational fatality rate at 92.4 deaths per 100,000 workers, which rose to 116 per 100,000 workers by 2008. This disproportionate burden underscores the urgent need for systematic safety improvements in high-risk sectors such as sawmilling (8). The majority of the preceding research was undertaken in the broader forest and wood industry sectors, it may not have published research about the sawmill sector in Ethiopia. Furthermore, no relevant studies reveal the relationship between safety culture behavioral safety and occupational injury within sawmill

industries. So far, OSH-MS has made efforts to reduce mortality and accidents in sawmills. It is now time to investigate a new philosophy to examine the significance of safety culture in workplaces (9). Building a safety culture is a better strategy to combat risky behaviors and unsafe environments, which are the leading causes of fatalities and accidents in sawmills and other sectors. It is increasingly important for the sawmill sector to focus on establishing and sustaining a safety culture as well as lowering costs and creating a safe work environment. That is why this study aimed to identify the factors that influence safety culture and evaluate the relationship between safety cultures, behavioral safety and sawmill occupational injury.

1.2. Statement of the problem

Sawmill workers were exposed to multiple occupational hazards, including sharp planks, fine wood dust, excessive noise, inadequate lighting, forklift injuries, poor ergonomics, fires, and sheet piles. These risks are often exacerbated by systematic shortcomings such as poor training, lack of personal protective equipment (PPE) and limited regulatory oversight (10). In low-income countries, the absence of formalized occupational safety frameworks in sawmill operations significantly contributes to the elevated burden of work-related injuries.

According to the International Labour Organization (ILO), over two million workers die annually from work-related accidents and diseases, though this is likely an understatement. Additionally, ILO estimates indicate that 270 million workplace accidents occur each year, including at least 335,000 fatalities (11). Data from the National Safety Council in 2010 reveals that employers in the United States spend around \$1 billion per week on direct staff salaries for those affected by workplace injuries. Furthermore, approximately \$142 billion is lost annually in production due to accidents and injuries at work, which significantly impacts the U.S. economy (12). In developing nations such as Ethiopia, research on occupational health in sawmills sector remains limited. Studies in Ethiopia, Ghana and Zimbabwe confirm that workers in these industries face a higher risk of injury (13,14,15). Occupational injuries are influenced by factors such as equipment contact, work-related stress, job dissatisfaction, and insufficient workspace (16, 17).

In the Oromia region, particularly Malka Nono Sub-city, sawmill industries are enteral to construction and economic development. However safety practices remain substandard. Reports show that inadequate safety orientation, inconsistent PPE usage and a general absence of a

proactive safety culture. Without structured interventions, these conditions contribute to high injury rates and economic losses (18). These deficiencies contribute to alarmingly high rates of workplace injuries, reduced operational efficiency, and preventable economic losses. A review of occupational safety and health services in Ethiopia identified significant gaps and needs, underscoring the necessity for improved safety practices (19)

Moreover, there is a significant gap in literature connecting safety culture and behavioral safety with occupational injury in this context. Most research neglects the psychosocial and organizational dynamics influencing safety outcomes. The absence of localized, empirical data prevents policymakers and safety managers from crafting context-specific solutions. This study aims to address this knowledge gap by exploring the link between organizational safety culture and individual safety behavior and injury outcomes in Oromia's sawmill sector.

1.3. Rationale, and Significance

1.3.1. Rationale

Sawmill industries are inherently hazardous due to their operations, which include handling and processing logs, wood dust exposure, and operating heavy machinery. These conditions present persistent safety risks, often exacerbated by systematic weaknesses such as poor safety training and weak enforcement mechanisms. Building a safety culture comprising shared safety values, leadership engagement and employee empowerment can significantly mitigate these risks (20). Despite recognition of safety culture's importance, little research has examined its impact in Ethiopia's sawmill industry. In the absence of empirical evidence, interventions often fail to address root causes of workplace injuries. This research seeks to fill this void by examining the relationship between safety culture, behavioral safety, and occupational injury, using data from Oromia's sawmills. The study is driven by the need to generate local knowledge to support the design of practical safety measures tailored to the Ethiopian industrial setting.

Understanding the behavioral dimensions, how individual worker actions and attitudes influence safety, is also a critical. Workers who perceive management commitment to safety and who feel empowered are more likely to engage in safe behaviors. Conversely, a lack of accountability and weak communication channels increase the likelihood of unsafe practices. This study explores these dynamics with the intent of recommending improvements based on observed relationships.

Furthermore, a strong safety culture facilitates organizational learning by fostering openness, continuous improvement, and responsiveness to emerging risks. This study seeks to explore how sawmill industries can transition from reactive to proactive safety management through the integration of a learning-oriented safety culture. The findings are intended to generate evidence-based insights that inform industry stakeholders, policymakers, and regulatory bodies in strengthening workplace safety initiatives.

1.4. Significance of the study

The significance of this study lies in its potential to contribute to various aspects of the sawmill industry in the Oromia Region, Ethiopia, and beyond. The study is expected to have several implications and benefits, including:- Improved Workplace Safety, Enhanced Employee Well-being, Reduced Economic Costs, Sustainable Industry Development, Guidance for Policy and Regulation, Contribution to Academic Knowledge, Community and Social Impact and Benchmark for Industry Best Practices.

- **Workplace Safety:** Enhanced understanding of safety culture and behavioral safety will support targeted interventions that reduce workplace injuries.
- **Employee Well-being:** Improved safety practices can promote job satisfaction and employee retention.
- **Economic Impact:** Reducing workplace injuries minimizes medical costs, compensation claims, and productivity losses.
- **Policy Guidance:** Empirical evidence will aid policymakers and regulators in formulating sector-specific occupational health and safety standards.
- **Academic Contribution:** The research expands the scholarly literature on occupational safety in developing contexts, specifically within Ethiopia's sawmill sector.
- **Community Development:** Safer workplaces support household stability and community health, especially in areas where sawmill jobs are primary income sources.
- **Benchmarking:** The study can serve as a model for safety assessment and improvement strategies applicable to similar high-risk industries. By exploring the interconnected roles of safety culture and behavioral safety in reducing occupational injuries, the study aims to offer practical insights for stakeholders seeking to improve industrial safety outcomes in Ethiopia and similar contexts.

2. LITERATURE REVIEW

2.1. Safety culture, behavioral safety and Occupational injury in sawmill industry

The field of occupational health and safety (OHS) is concerned with creating, promoting, and maintaining a work environment, policies, and programs that guarantee employees' mental, physical, and emotional well-being as well as keeping the workplace generally free of real or potential risks that could cause harm to workers (21). Safety is mainly about the reality of being free from danger or risk involving safety precautions or safety measures from certain work orders (22). Co-operation between management and workers and/or their representatives within the undertaking shall be an essential element of organizational and other measures taken in pursuance of Articles 16 to 19 of Convention 155 to protect workers' health from accident and Injuries which causes fatalities and disabilities(23). The terms "safety climate" and "safety culture" are sometimes used interchangeably(24). No universally accepted definition of safety climate and safety culture exists(25). Safety culture is a reflection of management and employee attitudes, values, and priorities that influence the creation, execution, performance, supervision, and enforcement of occupational health and safety(26). Safety climate is the state of safety culture as of right now, accounting for similar individual perceptions inside the company. As such, it refers to the perceived level of safety at a particular area at a particular moment, is situation-specific, can be a little irregular, and can change depending on the circumstances or the surrounding environment(27). However, there isn't a general agreement on the definitions of safety culture and climate. A useful framework, which draws from Cooper's (2000) work, sees safety culture as the result of three interconnected factors:(1)"Safety climate" or psychological aspects refers to both individual and collective attitudes, perceptions, and values. (2) Aspects of Behavior (actions and behaviors relevant to safety) and (3) Situational Aspects: (policies, procedures, management systems, and organizational structures). As a result, the Safety Culture concentrates on the situational and behavioral facets of an organization's safety culture(28).

According to the Health and Safety at Work VSR, 1.8 million working persons were impacted by a work-related illness in 2023. Among these people were: 875,000 workers reported feeling anxious, depressed, or stressed at work, 473,000 persons suffered from MSD, 2,268 deaths from mesothelioma caused by past asbestos exposures (2021) and 135 employees died as a result of

workplace accidents. The Labour Force Survey states that 561,000 employed individuals had workplace injuries. 60,645 workplace injuries were documented under RIDDOR. A total of 35.2 million working days were lost due to workplace sickness and accidents. The existing working conditions are expected to cause diseases and injuries that will cost £20.7 billion (2021–2022) (29). A study conducted in Ankara, Turkey, found that whereas 48% of occupational accident occurrences were attributed to unsafe work settings, 52% of participants believed that risky worker practices were the primary cause of occupational accidents (29). Occupational accidents and fatalities high burden in most developing countries because of multiple factors. However, studies in Guyana show a decline in occupational accidents and fatalities (2521-2202) and (14-4) respectively over the period 2000-2004(30).

The Canadian National Occupational Classification (NOC) system uses the North American Classification System (NAICS) to categorize the wood industry and the lumber manufacturing sector (31) . The industry is divided into three groups: 1. Sawmills and Wood Preservation, 2.Veneer, Plywood, and Engineered Wood Product manufacturing, and 3. Other Wood Products. The Sawmill and Wood Preservation group includes sub-groups such as sawmills, shingle and shake mills, and wood preservation mills. For the purposes of this study, we only considered sawmill operations that involve manufacturing lumber, timbers, logs, and other wood-related products (32).

Sawmilling operations are associated with various hazards that are commonly identified. These hazards can be related to machinery and equipment, substances, and work practices. It is important to take necessary precautions to ensure the safety of workers and mitigate the risks of accidents or injuries(33). Sawmill studies conducted in Nigeria on Pre- and Post-Intervention Awareness Assessments showed a higher knowledge of physical hazards (2.52, 2.88 and 2.94 out of 3 for Sapele, Warri, and Udu), as well as a very high positive awareness level (1.51, 1.82, and 1.89 out of 2 for these three). In addition, a very significant increase in the workers' attitudes regarding occupational dangers was found (2.41, 3.18, and 3.35 out of 4 for Sapele, Warri, and Udu, respectively). Their safety procedures showed a significant improvement (2.44, 3.12, and 3.31 out of 4) and increases in occupational safety-related skills (2.60, 3.37, and 3.40 out of 4 for Sapele, Warri, and Udu) were also seen (34). In another study, workers at the Sawmill in Benin City, Nigeria, were shown to be aware of 92.7% of the risks related to their professions,

including noise (96.7%), dust (100%), and molds and fungi (16.4%) (35). A serious injury rate more than 2.5 times higher than in general manufacturing sawmilling is still a high-risk industry. The most common source of injuries nowadays is machinery accidents, and one of the ongoing issues is the lock-out methods used to stop automated manufacturing lines.

2.2. Safety Culture in Industrial Settings

Leadership plays a pivotal role in shaping and sustaining a positive safety culture within organizations (36). Leaders who emphasize safety communication, actively engage employees, and promote continuous improvement are instrumental in fostering a robust safety environment. Research underscores that proactive leadership and open communication significantly enhance safety culture in industrial settings (37). However, industries such as construction, agriculture, and forestry, including the sawmill sector, continue to face challenges due to the absence of standardized metrics for assessing safety culture (38). To address this gap, the Nordic Safety Climate Questionnaire (NOSACQ-50) was developed by Nordic occupational safety researchers. Grounded in organizational and safety climate theory, psychological frameworks, and empirical evidence from international studies, NOSACQ-50 provides a validated tool for evaluating safety climate. It categorizes safety culture across seven key dimensions: management safety priority and ability, management safety empowerment, management safety justice, workers' safety commitment, workers' safety priority and risk non-acceptance, safety communication and trust among co-workers, and workers' trust in the efficacy of safety systems (39).

2.2.1. Management safety priority and ability

Management's role has to go beyond organizing and providing safety policies and working instructions. In a developing economy, leadership is essential to establishing and maintaining a strong safety culture. The major duty for promoting cultural change and maintaining a strong safety culture once it is formed rests with leadership(40). Transactional leaders have to monitor and reinforce workers' safety practices, participate in safety initiatives, participate in workplace safety activities, ensure regulatory compliance, and provide resources for a thorough safety program(41). Transformational leaders' safety habits include:-being supportive of safety initiatives, encouraging employee involvement in safety projects, emphasizing safety over productivity, adopting a decentralized approach, demonstrating a visible and continuous

commitment to safety, Concern for people Encouraging participatory attitudes in middle managers and supervisors and allowing time for safety (42).

2.2.2. Management safety empowerment

Employers use safety management to establish roles and delegate authority to those who need it, to ensure proper safety knowledge, and to communicate about safety throughout the organization(43). Empowerment is a delegation of power, and as such it demonstrates that managers trust workers' ability and judgment, and that managers value workers' contributions. Empowerment would further strengthen social exchanges, and in conditions where safety is highly valued by the organization(44).

2.2.3. Management safety justice

Management procedural and interactional safety justice, or fair treatment and procedures for handling accidents and near-accidents, would have a good impact on employee safety responsibility and safety behavior(39). Workplaces are primarily characterized by accountability and blame; safety is often overly controlled through formal procedures as a self-preservation tactic, leading to an increasingly rigid and prescriptive compliance culture (45).

2.2.4. Workers' safety commitment

The way that employees view their own role in workplace safety in terms of whether they generally: demonstrate a dedication to safety: - actively promote safety and show concern for the safety of other employees. According to a study, people have a stronger sense of commitment to their workgroup than to the organization, which makes the workgroup the most effective place for new members to get to know one another. It has been suggested that norms of risk acceptance undermine active safety efforts and have a detrimental effect on safety priorities (39,46).

2.2.5. Workers' safety priority and risk non-acceptance

Employees' opinions of their own attitudes toward workplace safety are relevant if they normally do not exhibit fearlessness, do not give up in the face of danger or accept taking risks, or prioritize safety before production targets. The study discovered that perceived coworker support for safety acted as a mediating factor between the effect of perceived organizational support for

safety and employee safety voice, or the degree to which workers speak up to try to address unsafe workplace situations (39,47).

2.2.6. Safety communication and trust in co-workers' safety competence

There is evidence that workers' commitment to safety and safety communication are impacted by strong leader-member relationships(48). According to Jeffcott, a strong safety culture requires learning that is, a continual process of knowledge gathering, analysis, and dissemination in a trust-based, expert-valued environment where operators are able to recognize abnormal events and errors and are ready to report them(45).

2.2.7. Workers' trust in the efficacy of safety systems

One of the six most prevalent themes in Flin's research on the safety atmosphere was the workforce's perceptions of the overall standard of workers' credentials, abilities, and knowledge. A number of elements of an organization's safety management systems were found to be key themes, including the importance of safety training, regular safety inspections, and the high standing of the safety officer (49). Employee views of their relationships to workplace safety with regard to whether they generally:- see formal safety mechanisms, such as safety committees, safety rounds, safety officers, and safety representatives, as effective Benefits from early planning, safety training, and well-defined safety goals and objectives(50).

2.3. Occupational Injury

Empirical evidence indicates that a proactive approach to safety and the implementation of comprehensive safety measures are significantly associated with a reduction in occupational injuries within the sawmill industry (57). Given the inherently hazardous nature of sawmill operations; the establishment of rigorous safety protocols is critical for mitigating injury risks. Furthermore, research underscores the efficacy of targeted safety training programs and the integration of advanced safety technologies in effectively decreasing accident rates (58).

2.4. Studies on Safety Culture, Safety Performance, and Job Satisfaction:

Empirical studies by Hofmann demonstrate a clear linkage between safety culture, job satisfaction, and safety performance(57). Their research suggests that organizations fostering a positive safety culture experience not only increased job satisfaction but also a subsequent

improvement in safety outcomes. Moreover, studies by Clarke-, highlight the role of organizational communication and employee involvement as critical components in mediating the impact of safety culture on job satisfaction and safety performance(58). Study results confirm that-, safety culture dimensions such as management commitment, work environment, and involvement of workers collectively and positively impact safety performance and to enhance the entire safety culture, promoting the safety performance among employees is very important(32).

2.5. Research in Developing Countries:

Limited research has specifically examined the interplay between safety culture, safety performance, and job satisfaction in the context of developing countries, including Ethiopia (59). Given the unique socio-economic conditions and industrial practices in these settings, such investigation is essential to inform context-specific interventions. Understanding these dynamics can offer critical insights into how cultural and contextual factors shape the relationships among safety culture, job satisfaction, and safety performance.

Enhancing occupational safety contributes significantly to improved health outcomes and economic development through increased productivity (60). In the sawmill industry, job satisfaction is adversely affected by workplace violence, with 93% of such incidents reportedly occurring among employees (61).

A study on occupational safety and health (OSH) determinants in Nigeria found that while 92.7% of respondents had knowledge and 86.5% demonstrated positive attitudes toward occupational hazards; only 13.5% practiced comprehensive safety measures in sawmill industries (35). Effective promotion of a preventative safety and health culture requires collaborative engagement among governments, employers, workers, and their organizations, including the development of social protection mechanisms and the enforcement of safe working conditions (62).

2.6. Conceptual Framework

The conceptual framework was developed based on a synthesis of empirical literature and theoretical insights related to occupational health, particularly in high-risk sectors like sawmill industries. It illustrates the complex interaction between organizational, behavioral, individual, and socio-demographic factors that collectively influence the risk of occupational injuries.

The framework consists of four major components: **socio-demographic variables**, **individual lifestyle factors**, **safety culture** and **behavioral safety**, all of which converge on the central outcome; **occupational injury**. Socio-demographic characteristics such as age, sex, education, religion, type of work and work experience serve as background determinants that may predispose workers to varying levels of risk awareness and safety behavior. Additionally, **individual lifestyle factors**, such as income level, substance use (e.g., alcohol or khat chewing), and job satisfaction, may directly affect workers' physical and mental capacity to avoid injury.

Safety culture reflects the broader organizational climate regarding safety, including management's safety empowerment, justice, and prioritization, as well as workers' commitment, communication, and trust within the safety system. In parallel, **behavioral safety**; defined by safety compliance and safety participation; is conceptualized as an equally important, direct contributor to injury prevention. As illustrated in the framework, both safety culture and behavioral safety independently and significantly influence the occurrence of occupational injury, highlighting that safe behavior by workers is just as critical as the organizational safety environment.

This framework guides the research by shaping the study's structuring the variable relationships, and informing the data collection and analytical approach. Behavioral safety and safety culture both influence occupational injury. The model provides a comprehensive understanding of injury causes and guides targeted interventions in the sawmill industry.

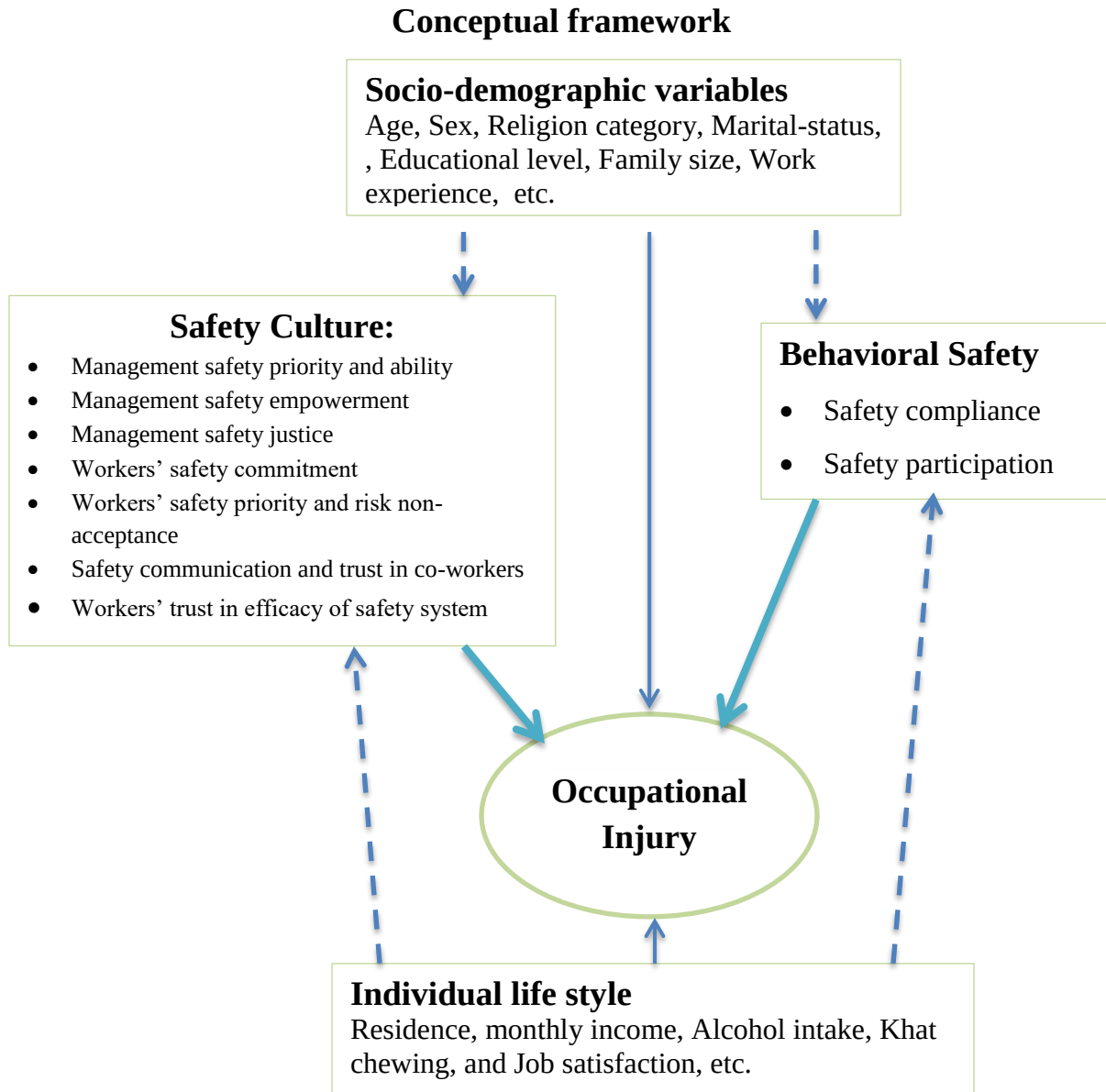


Figure 1: Conceptual framework of safety culture, behavioral safety and occupational injury in sawmill industries, 2024 (source different literature's)

3. OBJECTIVE

3.1. General objective

To determine the relationship between safety culture, behavioral safety, and the occurrence of occupational injuries among workers in sawmill industries in the Tatek Industrial Zone, Malka Nono Sub-city, Shagger City, Oromia Regional State, Ethiopia, during 2023–2024.

3.2. Specific objectives

- To identify the dimensions of safety culture and behavioral safety among sawmill workers.
- To determine the relationship between safety culture dimensions and behavioral safety-related factors with the occurrence of occupational injuries.

4. METHODS AND MATERIALS

4.1. Study area

This study investigates the relationship between safety culture, behavioral safety, and the occurrence of occupational injuries among workers in sawmill industries located in the Tatek Industrial Zone, Melka Nono Sub-city, Shaggar City, Oromia Region, Ethiopia. The study area lies approximately 14.2 kilometers northwest of Addis Ababa, at coordinates $9^{\circ}02'14''$ North and $38^{\circ}38'17''$ East. As a key center for timber production, the Oromia Region plays a significant role in Ethiopia's wood-processing sector. The Tatek Industrial Zone was purposefully selected due to its high concentration of sawmill factories, which commonly face challenges such as aging equipment, limited safety infrastructure, and inconsistent safety training.

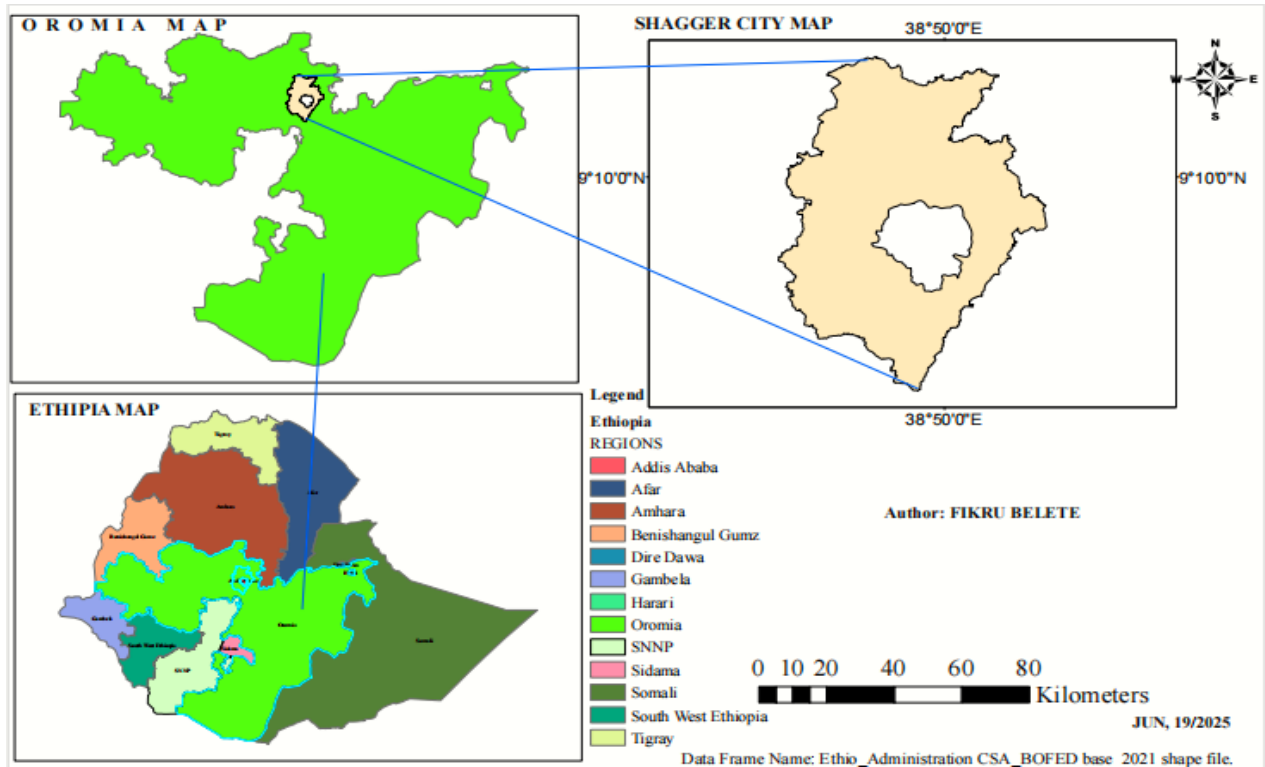
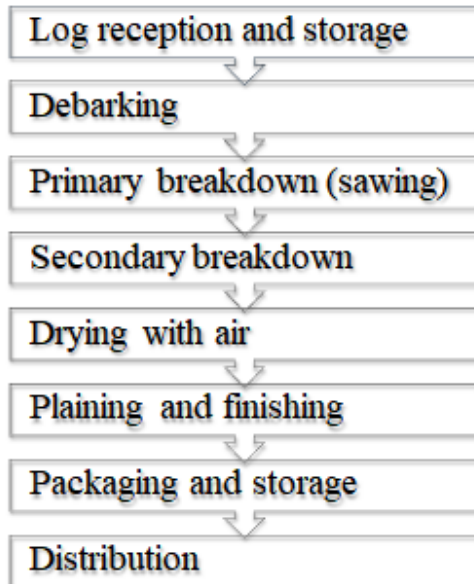


Figure 2: The study area of sawmill workers in Malka Nono sub-city, Shaggar city Oromia' Ethiopia in 2024

Typical Sawmill Workflow (Summary)



4.2. Study design

An institutional-based cross-sectional study was conducted from January 2, 2024 to February 30, 2024, in Sawmill Industries.

4.3. Source population

All workers in the four sawmill industries located at Tatek Industrial Zone in Malka Nono sub-city was considered as the source population.

4.4. Study subject

Workers who were directly involved in the four sawmill industries Tatek Industrial Zone in Malka Nono sub-city were the study subjects.

4.5. Eligibility criteria

4.5.1. Inclusion criteria

All employees who were directly working in production, were permanently employed and had worked at any of the four selected sawmills for at least one year and provided informed consent to participate in the study were included in the study.

4.5.2. Exclusion criteria

Workers who were not involved in production activities, had less than one year of work experience at any of the four sawmills, were employed on temporary basis, were on leave during the data collection period or were seriously ill at that time and unwilling to provide informed consent to the questionnaire were excluded.

4.6. Sample size determination

4.6.1. Sample size determination for specific objective one

For the first specific objective, to identify the dimensions of safety culture and behavioral safety among sawmill workers' the single population proportion formula was employed. This approach is suitable for estimating the proportion of a characteristic (e.g., good safety culture) in a single population. Since no prior local study provided an estimate of the prevalence of good safety culture among sawmill workers, a conservative estimate of 50% was used to maximize the sample size. The sample size was calculated to achieve a 95% confidence level and a maximum acceptable margin of error (discrepancy) of 5% between the sample and the underlying population.

The formula used to determine the sample size is presented below.

$$n = \frac{(Z_{\alpha/2})^2 * P(1 - P)}{d^2}$$
$$n = \frac{(1.96)^2 * 0.5 * (1-0.5)}{(0.05)^2} = 384$$

For possible non-responses during the survey, the final sample size was increased by 10% of $n = 384 + 10\%$ which is $= 422$

4.6.2. Sample Size Determination for Specific Objective Two

To determine the relationship between safety culture dimensions and behavioral safety-related factors with the occurrence of occupational injuries a sample size was estimated using the double population proportion formula. This approach is appropriate when comparing two independent proportions across injured and non-injured groups.

The following assumptions were made for the calculation:

- Proportion of occupational injury among the exposed group (P_1) = 0.50
- Proportion of injury among the unexposed group (P_2) = 0.35
- Significance level (α) = 0.05 ($Z_{\alpha/2}$ = 1.96 for two-tailed test)
- Power ($1 - \beta$) = 0.80 (Z_β = 0.84)

The sample size for each group was calculated using the formula:

$$\frac{n (Z_{\alpha/2} + Z_\beta)^2 * [P_1(1 - P_1) + P_2(1 - P_2)]}{(P_1 - P_2)}$$

$$n = (1.96 + 0.84)^2 * [0.5(1 - 0.5) + 0.35(1 - 0.35)] / (0.5 - 0.35)^2$$

$$n = (7.84 * 0.4775) / (0.0225) \approx 167$$

Thus, 167 participants were required per group, giving a total of 334 participants. After adjusting for a 10% non-response rate:

$$N_{\text{final}} = 334 * 0.1 + 334 \approx 368$$

Thus, the final minimum sample size required for this objective was 368 participants. However, as this was smaller than the sample size calculated for the first objective ($n = 422$), the larger sample size was adopted to ensure sufficient statistical power and comprehensive representatives across all study objectives.

4.7. Sampling method

A stratified simple random sampling technique was employed to ensure proportional representation of workers from each of the four sawmill industries operating in the Tatek Industrial Zone, Malka Nono Sub-city, Shaggar City, Oromia Region, Ethiopia.

First, the total number of eligible workers in each sawmill was obtained from official sawmills industry rosters. The overall sample size ($n = 422$) was then proportionally allocated to each sawmill based on the total number of employees in each facility. This ensured that each sawmill contributed participants in proportion to its workforce size, thereby enhancing the representativeness of the sample.

Within each stratum (i.e., individual sawmill), simple random sampling was used to select participants. A computer-generated random number list was applied to the employee rosters to ensure randomness and minimize selection bias. This sampling strategy allowed for fair and

unbiased selection of participants and ensured coverage of diverse job categories, roles, and exposure levels within the four sawmill industries.

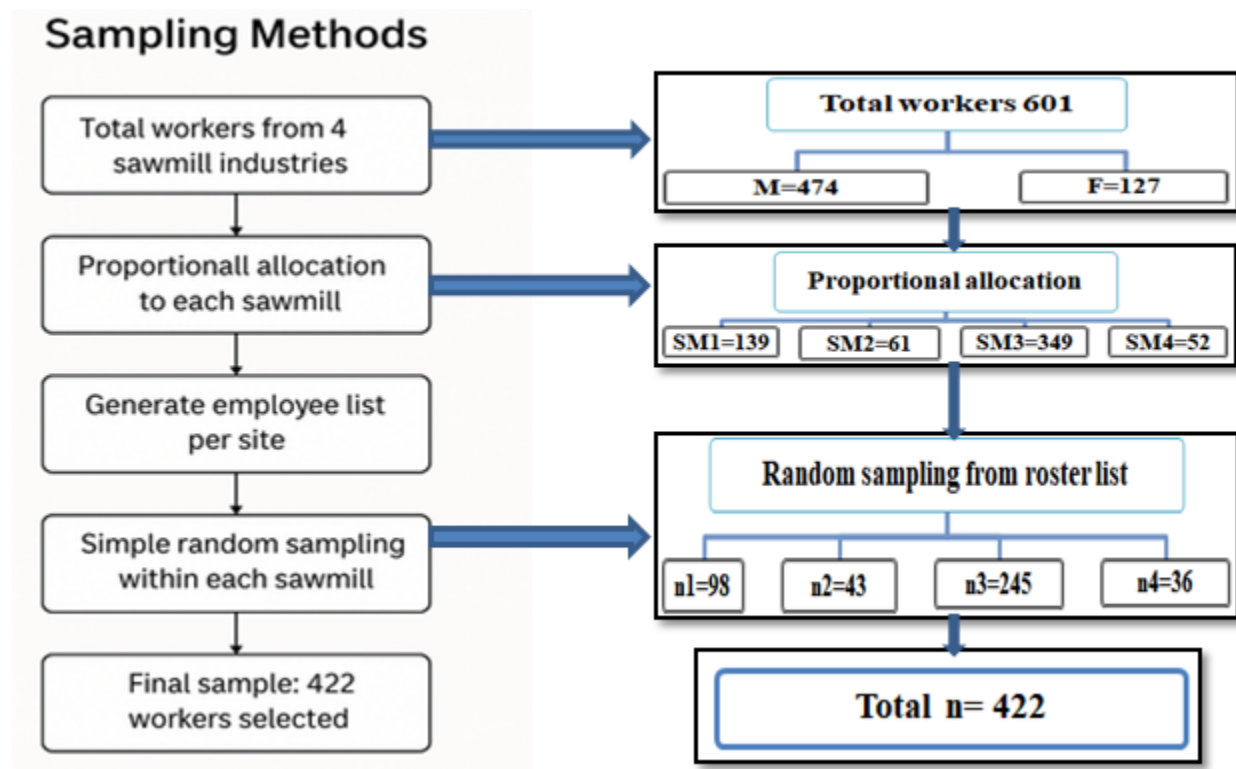


Figure 3: Shows sampling technique among sawmill workers in the four Tatek Industrial Zone.

4.8. Data Collection

4.8.1. Study variables

Dependent variable;

- Occurrence of Occupational Injury (**binary/yes=1 or no=0**)

Independent variables;

- **Safety Culture:** Safety culture refers to the shared values, beliefs, and practices regarding workplace safety within the organization. It encompasses dimensions such as management commitment to safety, safety communication, training and competence, worker involvement, supervisory support, reporting systems and openness.

- **Behavioral safety:** Behavioral safety focuses on individual safety-related actions demonstrated by workers. It includes two key dimensions: safety compliance and safety participation.
- **Socio-demographic factors:-** Age, sex, Marital status, Level of education, monthly Income, religion, Employment status, Type of work, work experience, number of family members, family members to support and Residence.
- **Individual's lifestyle:** Smoking, Alcohol consumption, Sleep disorder, Khat chewing, Job satisfaction.

4.8.2. Data collection procedure and tools

Recruitment of Data Collection Personnel: Eight qualified field staff were recruited, comprising four Occupational Safety and Health (OSH) officers, two BSc-level public health professionals as data collectors, and two postgraduate-level supervisors. Selection was based on relevant academic backgrounds and experience in occupational health and public health research.

Training of Field Staff: All personnel received a two-day intensive training focused on the study's objectives, ethical considerations, digital data collection procedures, and the use of the Open Data Kit (ODK). The training also addressed proper interviewing techniques and strategies for ensuring consistency and managing field challenges.

Digital Data Collection: Data were collected using the Open Data Kit (ODK) system on mobile devices. This platform minimized manual entry errors and supported real-time validation checks for completeness, logical consistency, and outliers. Data were securely transmitted to a central server, ensuring both data integrity and confidentiality.

Pretesting: A pretest involving 5% of the total sample size was conducted in a comparable setting to assess the clarity, flow, and cultural relevance of the questionnaire. Feedback from the pretest informed minor revisions to enhance questionnaire reliability and usability.

Data Collection Instrument: A structured questionnaire was used, consisting of three main sections aligned with the study objectives:

4.8.3. Socio-demographic and Lifestyle Characteristics:

This section collected data on participants' age, sex, marital status, educational attainment, income, job position, work experience, and employment type. It also assessed lifestyle factors such as alcohol consumption, khat chewing, job satisfaction, and accident reporting behaviors, which are recognized predictors of workplace safety outcomes (63, 64).

4.8.4. Safety Culture Assessment (NOSACQ-50):

The Nordic Safety Climate Questionnaire (NOSACQ-50) was used to measure organizational safety culture across seven dimensions:

- Management safety priority and ability
- Management safety empowerment
- Management safety justice
- Workers' safety commitment
- Workers' safety priority and risk non-acceptance
- Safety communication, learning, and trust in co-workers
- Workers' trust in the efficacy of safety systems

The tool comprises 50 items rated on a four-point Likert scale. Of these, 29 are positively coded, and 21 are reverse-coded. Mean scores were computed for each dimension. Scores ≥ 2.5 were categorized as a "good" safety culture, while scores < 2.5 were interpreted as "poor" (39). NOSACQ-50 has been widely validated in forestry and manufacturing sectors (42). The tool was translated into Afan Oromo, followed by back-translation into English to verify consistency. The Amharic version, being already standardized and appropriate, was used without modification.

4.8.5. Behavioral Safety Assessment:

This section included items adapted from Griffin and Neal's model to assess behavioral safety constructs, specifically safety compliance and safety participation, using a four-point Likert scale (1 = strongly disagree to 4 = strongly agree) (65). These constructs reflect individual adherence to safety procedures and active engagement in promoting safety at the workplace.

4.9. Operational definition

4.9.1. Dependent Variable

- ✓ **Occupational Injury:** Refers to any physical harm or bodily damage sustained by a worker during the course of their job, as self-reported within the 12 months preceding the survey. In this study, the presence and severity of reported injuries were further validated through official medical examination records from recognized health facilities to enhance the accuracy and credibility of the outcome measure. **Measurement:** Self-reported or documented workplace injuries (coded as a binary variable, 1 = injured, 0 = not injured).

4.9.2. Independent Variables

The independent variables were drawn from three sections of the questionnaire and include the following:

1. **Socio-demographic and Occupational Factors:** Such as Age, Sex, Educational status, Marital status, Monthly income, Type of employment (e.g. permanent, contractual), Job position, Work experience, and Previous work experience.
2. **Lifestyle and Psychosocial Factors:** Such as Alcohol consumption (Yes/No), Smoking (Yes/No), Khat chewing (Yes/No), Job satisfaction (rated categorically) and Accident reporting behavior (Yes/No).

These variables were included due to their potential influence on workplace safety behaviors and injury risk.

3. **Organizational and Behavioral Factors:**

- **Safety Culture** refers to the shared values, beliefs, and practices related to safety in the workplace. In this study, it is measured using the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50), which assesses perceptions across seven dimensions:
 1. Management safety priority, and ability
 2. Management safety empowerment
 3. Management safety justice
 4. Workers' safety commitment
 5. Workers' safety priority and risk non-acceptance
 6. Safety communication, learning, and trust in co-workers' safety competence
 7. Workers' trust in the efficacy of safety systems

➤ **Behavioral Safety Constructs** (adapted from Griffin and Neal):

Safety Compliance

Safety Participation

These independent variables were operationalized through validated Likert-scale instruments to ensure consistency and accuracy across respondents.

4.10. Data Management

To ensure data quality, accuracy and confidentiality, structured procedures were rigorously applied. Data were collected using Open Data Kit (ODK), a digital platform with built-in validation features that minimized entry errors and enhanced completeness.

A pilot test was conducted to assess the clarity and cultural appropriateness of the questionnaire prior to field deployment. Data collection was carried out face-to-face in selected sawmill industries in Malka Nono Sub-city by four trained data collectors under the supervision of two field supervisors. All personnel underwent two days of training covering the questionnaire content, digital data entry protocols, and ethical procedures. Oversight was provided by Occupational Health and Safety (OHS) officers to ensure procedural fidelity and contextual relevance.

Data were reviewed daily for completeness and accuracy through field-level supervision and spot-checking. Submitted responses were securely stored in password-protected digital folders, with regular backups performed to encrypted cloud servers and external storage devices. Following data collection, all responses were exported to IBM SPSS version 27 for cleaning, coding, and analysis. Integrity checks were conducted to identify and resolve any missing values, outliers, or logical inconsistencies. Only complete datasets were retained for final analysis.

To protect participant confidentiality, all personal identifiers were removed before analysis. Data access was restricted to authorized research personnel and used exclusively for academic purposes in accordance with approved ethical standards. For analytical purposes, mean scores for each safety culture dimension and behavioral safety component were computed per respondent. These continuous variables were then transformed into binary variables for regression modeling, using a cut-off score of 2.5:

Mean $\geq$ 2.5: coded as **1** (positive/good safety culture or behavior)

Mean < 2.5: coded as **0** (negative/poor safety culture or behavior)

These binary predictors were subsequently used in logistic regression analysis to assess their association with the dependent variable occupational injury.

4.11. Data Analysis

Data collected through the Open Data Kit (ODK) system was exported into Microsoft Excel for initial cleaning, coding, and verification. The cleaned dataset was subsequently analyzed using IBM SPSS version 27 statistical software tools.

Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize socio-demographic characteristics, safety culture dimensions and behavioral safety indicators.

Safety culture dimensions measured using the NOSACQ-50 questionnaire and behavioral safety component safety compliance and safety participation were assessed using Likert-scale items ranging from (1=strongly disagree to 4=strongly agree). For each respondent, an aggregated mean score was calculated for each dimension, and safety compliance and safety participation. To facilitate the binary logistic regression analysis, these continuous scores were re-coded into categorical variables based on a predetermined cut-off point ($\mu=2.5$). That means, a mean score ≥ 2.5 was classified as “good” (coded as 1), indicating a positive perception or behavior. A mean score < 2.5 was classified as “poor” (coded as 0), indicating a negative perception or behavior. The outcome variable, occupational injury was treated as a binary variable (1=Injured, 0= not injured). Educational status is also categorized into dummy variables, primary (coded =0) and secondary and above (coded =1). In addition, to identify potential predictors of occupational injuries, bivariate binary logistic regression analyses were first conducted. Furthermore, independent variables with a p-value less than 0.25 in the bivariate analysis were then included in a multivariate binary logistic regression model to control for confounding variables and to determine independent associations with occupational injury (66).

Results were reported using adjusted odds ratios (AOR) with 95% confidence intervals (CIs) and the statistical significance was determined at a P-value < 0.05 .

4.12. Data Quality Assurance

To guarantee the reliability and validity of the collected data, the following quality assurance measures were employed:

Daily Supervision and Field Oversight: The principal investigator and the two postgraduate supervisors conducted daily oversight of the data collection process. They ensured adherence to standard operating procedures, monitored data collector performance, and addressed any field-related issues immediately.

Real-Time Monitoring and Feedback: Data were reviewed electronically on a daily basis upon submission. Supervisors cross-checked the submissions for completeness and accuracy, and provided immediate feedback to data collectors to correct errors and reinforce best practices.

Built-In Validation Mechanisms: The ODK system's internal logic and validation rules automatically flagged inconsistent or missing data during interviews. This allowed interviewers to correct responses on the spot, enhancing data reliability.

Systematic Documentation and Reporting: Field activities and challenges were documented daily, and summaries were compiled by supervisors. Any deviations or irregularities encountered were promptly addressed to ensure continuous improvement in data quality.

These integrated data quality management and assurance measures helped ensure that the data collected were robust, credible, and suitable for assessing the relationship between safety culture, Behavioral safety and occupational Injury in the sawmill industries of Malka Nono sub-city, Shaggar City, Oromia, Ethiopia.

4.13. Ethical Considerations

Prior to commencing the study, ethical clearance was obtained from the Ethics Review Committee (ERC) of Addis Ababa University. The purpose and scope of the research were formally presented to the Labor and Social Affairs Office of Malka Nono Sub-City, and institutional consent was secured.

The objectives and procedures of the study were clearly explained to both factory management and workers. Written and verbal consent was obtained from the factory managers as well as the participants before the data collection began. Each participant was informed about the purpose,

potential benefits, and their rights, including the voluntary nature of participation and the right to withdraw from the study at any time without consequence.

To maintain privacy and confidentiality, personal identifiers were removed from the collected data. All responses were anonymized, and the information was used exclusively for the research purpose. Ethical principles of respect, autonomy, and confidentiality were upheld throughout the study.

4.14. Results Dissemination

The findings of this study will be disseminated through both printed and electronic formats. Copies will be submitted to the School of Public Health at the College of Health Sciences, Addis Ababa University. In addition, the results will be presented at relevant academic and professional forums, including conferences, seminars, and workshops, to ensure engagement with key stakeholders and promote the use of evidence in occupational health practice.

Key stakeholders: including the Ministry of Labor and Skills, the Bureau of Labor and Social Affairs, and other related governmental and non-governmental organizations and those four sawmill factories will be provided with the findings to inform policy and practice. Efforts will be also made to publish the results in peer-reviewed scientific journals to contribute to the wider body of knowledge in occupational health and safety.

5. RESULTS

5.1. Socio-demographic characteristics of respondents

A total of 422 workers participated in this study with a response rate of 418(99%). Among these 316 (75.6%) workers were males and 102 (24.4%) workers were females with a mean age of 30.28 (± 6.65) years. The majority, 259 (62.0%) of the participants were aged from 26 to 30. All participants have achieved academic qualifications ranging from non-formal education to higher education. Specifically 177 (42.3%) were at the secondary level, 96 (23.0%) were at the primary level and 132 (31.5%) were at diploma and above level. Regarding employment pattern, 412(98.6%) were permanently employed and a significant portion 310 (74.2%) had less than five years of experience, and 108 (25.8%) had more than five years' experience. Additionally, the majority of workers are married 305 (73.0%), suggesting stability that could enhance job commitment. The mean monthly income including overtime for the study participants was 4,544 ETB, with a range from 1,700 to 15,000 ETB. (Overall, these findings emphasize the importance of focused educational initiatives and training to strengthen workforce skills and improve safety in the sawmill sector.)

Table 1: Socio-Demographic Characteristics of Respondents in sawmill industries in the Tatek Industrial Zone, Malka Nono Sub-city, 2024

Variables	Frequency (N =422)	Percent %
Sex		
Female	102	24.4%
Male	316	75.6%
Age category (in years)		
Under 25	87	20.8%
26-35	259	62.0%
36-45	59	14.1%
46 and above	13	3.1%
Religion		
Orthodox	160	38.3%
Muslim	50	12.0%
Protestant	197	47.1%
Catholic	6	1.4%
Others	5	1.2%
Educational status		
Non formal education	13	2.9%
Primary	96	23.0%
Secondary	177	42.3%
Diploma and above	132	31.5%
Marital status		
Single	113	27.0%
Married	305	73.0%
Number of family members		
Under 2	260	62.2%
3 - 5	144	34.4%
6 and above	14	3.3%
Experience at a sawmill		
< 5 years	310	74.2%
≥ 5 years	108	25.8%
Residence of study participants		
Rent	390	93.3%
Own	21	5%
Others	7	1.7%
Total	418	100%

5.2. Behavioral/individual lifestyle characteristics

The results indicated that 12 participants (3%) used chat and 27 (6.5%) reported drinking alcohol, with none smoking cigarettes. Only 134 participants (32%) felt relatively happy with their jobs. Key factors influencing job satisfaction included the overall employment relationship (48 participants or 11.5%), the worker-management relationship (38 or 9.1%), salary (19 or 4.5%), and workplace safety and health (13 or 3.1%). All 418 respondents (100%) reported that they do not smoke cigarettes, indicating no tobacco use among the study participants in this category. These findings suggest that while some employees are satisfied, there are important areas that need improvement to enhance overall job happiness.

Table 2: Distribution of behavioral characteristics among workers in sawmill industries in the Tatek Industrial Zone, Malka Nono Sub-city, 2024

Variables	Count	Percent %
Do you chewing khat	418	100.0%
No	406	97.1%
Yes	12	2.9%
Do you drink alcohol	418	100.0%
No	391	93.5%
Yes	27	6.5%
Job satisfaction	418	100.0%
Not at all	284	67.9%
Yes, to some degree	19	4.5%
Yes, to the utmost	115	27.5%

5.3. Occupational Injury Prevalence and Severity

Among the 418 respondents, **58 workers (14%)** reported experiencing at least one occupational injury in the past 12 months. Among these injured individuals (**n = 58**), the severity confirmed by medical examination was categorized as follows:

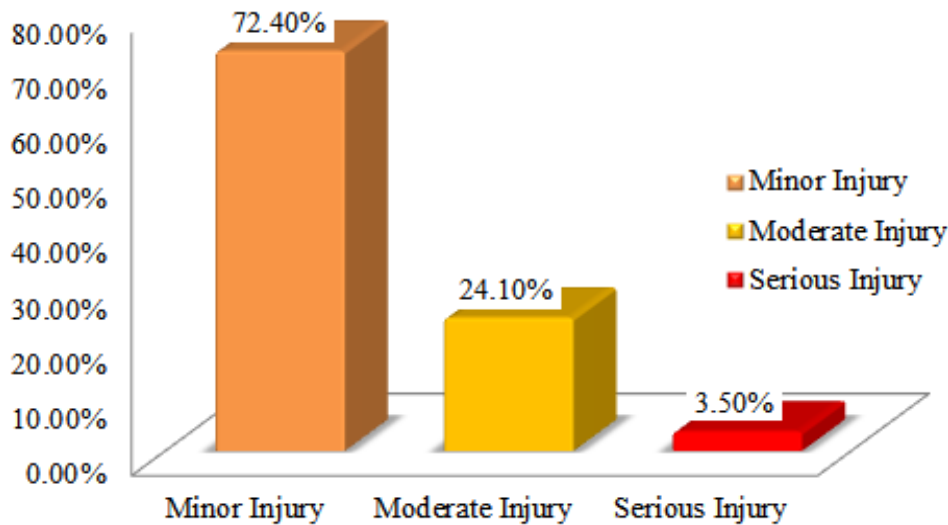
- **Minor injuries:** 42 cases (72.4% of injured workers)
- **Moderate injuries:** 14 cases (24.1%)
- **Serious (non-life-threatening) injuries:** 2 cases (3.4%)

These findings highlight not only the extent of injury occurrence but also the predominance of less severe cases. Nevertheless, the presence of moderate and serious injuries underscores the

importance of enhancing preventive strategies to minimize both the frequency and severity of occupational injuries in the sawmill industry.

Figure 4: Severity of medically confirmed occupational injuries among injured workers (N = 58), sawmill industries in the Tatek Industrial Zone, Malka Nono Sub-city, 2024.

Severity of occupational injuries among injured workers (N = 58)



Note:- Minor injuries accounted for 72.4% of all reported injuries, followed by moderate (24.1%) and serious (3.4%) cases.

5.4. Level of safety culture

Table 3 illustrates the distribution of mean scores across seven dimensions of safety culture among four distinct sawmill industries. Statistically significant differences were observed in Dimensions 1, 2, 3, 5, 6, and 7 ($p < 0.05$), indicating notable variations in safety culture perceptions across industries. These dimensions pertain to critical aspects such as management commitment, communication, safety rules, and worker participation. In contrast, Dimension 4 ($p = 0.121$), which may relate to consistency in safety-related feedback or organizational learning, did not show significant variation, suggesting a relatively uniform perception among all industries. These results underscore the importance of developing industry-specific strategies to enhance safety culture, particularly in the dimensions where significant disparities were identified.

Table 3: The variation in the level of safety culture among the four Sawmill industries (SM, YB, MM, ME) in the Tatek Industrial Zone, Malka Nono Sub-city, 2024

Industry name	N	Dim1	Dim2	Dim3	Dim4	Dim5	Dim6	Dim7
SM	42.000	2.590	2.384	2.452	2.659	2.531	2.753	2.745
YB	245.000	2.252	2.260	2.382	2.736	2.506	2.864	2.700
MM	95.000	2.494	2.421	2.519	2.698	2.562	2.753	2.750
ME	36.000	2.481	2.214	2.231	2.741	2.786	2.722	2.817
Total	418.000	2.360	2.305	2.407	2.720	2.545	2.815	2.726
P-Value		0.000	0.000	0.000	0.121	0.000	0.000	0.003

Note: SM, YB, MM, and ME refer to the study settings. Dim1 to Dim7 represent the seven dimensions of safety culture assessed in this study.

5.5. Internal Consistency Reliability of Safety Culture Dimensions

The internal consistency of the safety culture dimensions was assessed using Cornbrash's alpha. All dimensions demonstrated acceptable to excellent reliability, with alpha values exceeding the minimum threshold of 0.70, indicating good internal consistency of the items within each construct (Dimension 1 : $\alpha = 0.724$ up to Dimension 7 : $\alpha = 0.825$). These findings suggest that the NOSACQ-50 questionnaire items used to measure the seven safety culture dimensions are reliable for assessing perceptions of safety culture among workers in the sawmill industry.

Table 4: Reliability and Validity of Safety Culture Dimensions and occupational injury in sawmill industries in the Tatek Industrial Zone, Malka Nono Sub-city, 2024

Item	Dim1	Dim2	Dim3	Dim4	Dim5	Dim6	Dim7
Cronbach's alpha	0.724	0.858	0.796	0.708	0.859	0.844	0.825
Composite	0.899	0.916	0.964	0.885	0.902	0.969	0.997
Average variance extracted (AVE)	0.536	0.549	0.540	0.507	0.535	0.528	0.505

Note:- Dim1 = Management Commitment; Dim2 = Safety Empowerment Dim3 = Safety Justice, Dim4 = workers' safety commitment, Dim5 = workers' safety priority & risk non-acceptance, Dim6 = Safety communication & trust in co-workers, and Dim7 = Trust in efficacy of safety system.

5.6. Bivariate Logistic Regression Analysis of Factors Associated with Occupational Injury

5.6.1. Socio-demographic and Individual life styles

The bivariate analysis is summarized in Table 5. Below showed that male workers were significantly more likely to report occupational injuries compared to female workers

(COR = 5.05; 95% CI: 1.78–14.31; $p = 0.002$). Workers with secondary and above education had nearly three times higher odds of injury compared to those with under primary education (COR = 2.85; 95% CI: 1.25–6.48; $p = 0.013$).

Workers those had 5–10 years of work experience had a significantly higher likelihood of experiencing injuries than those with less than 5 years (COR = 4.62; 95% CI: 2.58–8.29;

$p < 0.001$), and those with prior experience in other workplaces also showed higher odds (COR = 2.97; 95% CI: 1.38–6.41; $p = 0.005$). Regarding monthly income, workers' earnings between 3001–5000 ETB per month had a 55% lower likelihood of experiencing injury compared to those earning less than 3000 ETB (COR = 0.45; 95% CI: 0.23–0.88; $p = 0.019$).

Religious affiliation, marital status, and chewing khat did not show statistically significant associations, although some categories approached significance.

Table 5: Bivariate analysis of Socio-demographic and occupational Injury among workers in sawmill industries in the Tatek Industrial Zone, Malka Nono Sub-city, 2024

Variables/characteristics		Occupational Injury occurrence		COR at 95% CI
Socio-Demographic		Yes N (%)	No N (%)	
Sex	Female	4 (3.9)	98 (96.1)	1.00
	Male	54 (17.1)	262 (82.9)	5.050 (1.782-14.312)**
Age group	Under 25	9 (10.3)	78 (89.7)	1.00
	26-35	36 (13.9)	223 (86.1)	1.399 (0.645-3.036)
	36-45	11 (18.6)	48 (81.4)	1.986 (0.767-5.143)
	46 and above	2 (15.4)	11 (84.6)	1.576 (0.300-8.264)
Religion category	Others	2 (40.0)	3 (60.0)	1.00
	Orthodox	25 (15.6)	135 (84.4)	0.278 (0.044-1.748)
	Muslim	5 (10.0)	45 (90.0)	0.167 (0.022-1.248)
	Protestant	24 (12.2)	173 (87.8)	0.208 (0.033-1.310)
	Catholic	2 (33.3)	4 (66.7)	0.750 (0.064-8.834)
Education status	Primary	7 (6.5)	100 (93.5)	1.00
	secondary	51 (16.6)	256 (83.4)	2.846 (1.250-6.482)*
Marital status	Widowed & divorced	3 (25.0)	9 (75.0)	1.00
	Single	16 (15.8)	85 (84.2)	0.565 (0.138-2.317)
	Married	39 (12.8)	266 (87.2)	0.440 (0.114-1.695)
No. of family members	Under 2	29 (11.2)	231 (88.8)	1.00
	3-5	28 (19.4)	116 (80.6)	1.923 (1.093-3.383)*
	6 and above	1 (7.1)	13 (92.9)	0.613 (0.077-4.857)
No. supported family	Under 2	55 (13.5)	352 (86.5)	1.00
	3-5	3 (27.3)	8 (72.7)	2.400 (0.618-9.323)
Experience	<5	27 (8.7)	283 (91.3)	1.00
	5-10	30 (30.6)	68 (69.4)	4.624 (2.580-8.287)**
	>10	1 (10.0)	99 (90.0)	1.165 (0.142-9.542)
Other place experience	No	47 (12.5)	330 (87.5)	1.00
	Yes	11 (29.7)	26 (70.3)	2.971 (1.378-6.405)**

5.6.2. Bivariate logistics regression analysis of Individual life styles

These findings indicate that while some individual behaviors such as alcohol use and khat chewing were associated with higher injury prevalence, their associations were not statistically significant. Income level was the only significant predictor among the variables analyzed [(COR = 0.45; 95% CI: 0.23–0.88)*], suggesting that economic conditions may influence workplace injury risk and reflect broader occupational health disparities.

Table 6: Bivariate analysis of Individual life styles and occupational Injury among workers in sawmill industries in the Tatek Industrial Zone, Malka Nono Sub-city, 2024

Variables/characteristics		Occupational Injury occurrence		COR at 95% CI
Individual life style		Yes N (%)	No N (%)	
Alcohol	No	51 (13.0)	340 (87.0)	1.00
	Yes	7 (25.9)	20 (74.1)	2.333 (0.940-5.795)
Chewing Khat	No	54 (13.3)	352 (86.7)	1.00
	Yes	4 (33.3)	8 (66.7)	3.259 (0.949-11.195)
Monthly Income	Under 3000	17 (21.8)	61 (78.2)	1.00
	3001-5000	26 (11.1)	209 (88.9)	0.446 (0.227-0.876)*
	>5000	15 (14.3)	90 (85.7)	0.598 (0.278-1.287)
Job satisfaction	No at all	44 (15.5)	239 (84.5)	1.00
	Yes, to some degree	13 (11.2)	103 (88.8)	0.686 (0.354-1.327)
	Yes, to utmost	1 (5.3)	18 (94.7)	0.302 (0.039-2.319)

5.6.3. Bivariate logistics regression analysis safety culture dimensions and behavioral safety factors

Several safety culture dimensions were significantly associated with injury occurrence: Workers with poor scores on Dimension 1 (management commitment) were significantly more than twice as likely to experience injuries compared to those with good scores (COR = 0.44; 95% CI: 0.24–0.80; $p = 0.008$). Dimension 2 (management safety empowerment) was also significantly associated with injury risk, as workers with poor scores had nearly threefold higher odds of experiencing injury (COR = 2.97; 95% CI: 1.40–6.19; $p = 0.004$). Dimension 4 (workers' safety commitment) and Dimension 5 (workers' safety priority and risk non-acceptance) were both

significantly associated with increased odds of injury, with COR = 2.46 ($p = 0.031$) and COR = 1.93 ($p = 0.029$), respectively.

Additionally, Dimension 6 (safety communication, learning, and trust in co-workers' safety competence) demonstrated the strongest association with injury risk, with workers reporting poor scores having almost six times higher odds of injury (COR = 5.98; 95% CI: 2.61–13.45; $p < 0.001$). In contrast, Dimensions 3 and 7 were not statistically significant predictors of injury.

Both components of behavioral safety were strongly associated with occupational injury. Workers with poor safety compliance had significantly higher odds of injury (COR = 5.05; 95% CI: 2.76–9.22; $p = 0.001$). Similarly, poor safety participation was also associated with an increased likelihood of workplace injury (COR = 3.05; 95% CI: 1.54–6.01; $p = 0.001$).

Table 7: Bivariate analysis of safety culture dimensions and behavioral safety factors and occupational injury among workers in four sawmill industries.

Safety Culture dimensions		Yes (N %)	No (N, %)	COR
Dim1	Good	42 (10.0)	192 (45.9)	1.00
	Poor	16 (3.8)	168 (40.2)	2.297 (1.246-4.235)**
Dim2	Good	49 (11.7)	233 (55.7)	1.00
	Poor	9 (2.2)	127 (30.4)	2.967 (1.401-6.196)**
Dim3	Good	32 (7.7)	162 (38.8)	1.00
	Poor	26 (6.2)	198 (47.4)	1.491 (0.853-2.604)
Dim4	Good	9 (2.2)	25 (6.0)	1.00
	Poor	49 (11.7)	335 (80.1)	2.457 (1.072-5.515)*
Dim5	Good	21 (5.0)	82 (19.6)	1.00
	Poor	37 (8.9)	278 (66.5)	1.925 (1.068-3.476)*
Dim6	Good	12 (2.9)	15 (3.6)	1.00
	Poor	46 (11.0)	345 (82.5)	5.979 (2.614-13.454)**
Dim7	Good	19 (4.5)	89 (21.3)	1.00
	Poor	39 (9.3)	271 (64.8)	1.479 (0.803-2.659)
Behavioral Safety factors				
Compliance	Good	25 (6.0)	47 (11.2)	1.00
	Poor	33 (7.9)	313 (74.9)	5.045 (2.759-9.244)**
Participation	Good	15 (3.6)	37 (8.9)	1.00
	Poor	43 (10.3)	323 (77.3)	3.045 (1.544-6.005)**

Note: Good = ($\mu \geq 2.5$), Poor = ($\mu < 2.5$) and 1.00 =reference

5.7. Multivariable analysis of associated factors among workers in the sawmill industry

Variables that were statistically significant in the bivariate analysis were entered to control for confounding effects. In the multivariable logistic regression model variables such as education status, and size of family members, were not significantly associated with the occurrence of occupational injury ($p > 0.05$). However, the model identified several independent predictors of occupational injury among sawmill workers. These included sex, work experience, previous work experience, and monthly income. Among the dimensions of safety culture, Dimension 2 (Management Safety Empowerment) and Dimension 6 (Safety Communication, Learning, and Trust in Co-workers) were significant predictors. Additionally, safety compliance emerged as a strong behavioral predictor of reduced injury risk.

Male workers were 3.48 times more likely to experience occupational injuries compared to female workers [AOR = 3.48, 95% (CI=1.19-10.2)*] indicating a significant gender-related risk factor. Workers who had 5-10 years' experience were 3.847 times more likely to sustain an occupational injury compared to those less than 5 years of work experience [AOR=3.85, 95%(CI=2.00-7.39)] at P-value ($P < 0.001$). Workers who had prior experience in another workplace were about 2.55 times more likely to be injured than those without such experience [AOR = 2.55, 95 % (CI=1.08-6.06)*] possibly indicating risk transfer from previous unsafe practices or unfamiliarity with the current work environment. While, workers earning 3001–5000 ETB per month had a 65% lower likelihood of experiencing injuries compared to those earning under 3000 ETB [AOR = 0.35, 95% (CI= 0.17-0.73) *].

Among the assessed safety culture dimensions, Dimensions 1, 4, and 5 were not found to be statistically significant predictors of occupational injury occurrence in the sawmill industry. In contrast, Dimension 2 (management safety empowerment) and Dimension 6 (safety communication, learning and trust in co-workers' safety competence) remained as significant predictors in the multivariable model ($p < 0.05$). Workers with poor scores on Dimension 2 (management safety empowerment) were more than twice as likely to experience injury compared to those with a positive perception of safety culture [AOR = 2.15; 95% CI: 0.98–4.70; $p < 0.05$]. Notably, Dimension 6 (safety communication, learning, and trust in co-workers' safety competence) showed an even stronger association, with workers reporting poor scores being

nearly four times more likely to be injured than those with good scores [AOR = 3.99; 95% CI: 1.84–8.64; $p < 0.0001$]. Workers who reported strong supervisory support and perceived fairness and empowerment in safety-related decisions were significantly less likely to experience workplace injuries.

Regarding behavioral safety, safety compliance was also identified as a significant protective factor. Workers who reported high levels of compliance with safety procedures were significantly less likely to sustain occupational injuries. As presented in Table 6, adherence to safety protocols plays a crucial role in reducing injury risk among sawmills workers.

Table 8: Multivariate analysis of occupational Injury occurrence and associated safety factors among workers in sawmill industries.

Variables/characteristics		Occupational Injury		COR at 95% CI	AOR at 95% CI
		Yes	No		
<i>Sex</i>	Female	4	98	1.00	
	Male	54	262	5.050 (1.782-14.312) **	3.478 (1.190-10.164)*
<i>Education status</i>	Primary	7	100	1.00	
	secondary	51	256	2.846 (1.250-6.482)*	
<i>No. of family members</i>	Under 2	29	231	1.00	1.00
	3-5	28	116	1.923 (1.093-3.383)*	3.063 (0.334-0.036)
	6 and above	1	13	0.613 (0.077-4.857)	
<i>experience</i>	<5	27	283	1.00	1.00
	5-10	30	68	4.624 (2.580-8.287)**	3.847 (2.002-7.392)**
	>10	1	99	1.165 (0.142-9.542)	1.489 (0.158-14.004)
<i>Other place experience</i>	No	47	330	1.00	1.00
	Yes	11	26	2.971 (1.378-6.405)**	2.554 (1.076-6.063)*
<i>Monthly Income</i>	Under 3000	17	61	1.00	1.00
	3001-5000	26	209	0.446 (0.227-0.876)*	0.354 (0.171-0.730)*
	>5000	15	90	0.598 (0.278-1.287)	0.598 (0.267-1.337)
<i>Dim1</i>	Poor	16	168	2.297 (1.246-4.235)**	1.77 (0.891-3.515)
	Good	42	192	1.00	1.00
<i>Dim2</i>	Poor	9	127	2.967 (1.401-6.196)**	2.147 (0.982-4.696)*
	Good	49	233	1.00	1.00
<i>Dim4</i>	Poor	49	335	2.457 (1.072-5.515)*	1.264 (0.386-4.142)
	Good	9	25	1.00	1.00
<i>Dim5</i>	Poor	37	278	1.925 (1.068-3.476)*	1.198 (0.619-2.319)
	Good	21	82	1.00	1.00
<i>Dim6</i>	Poor	46	345	5.979 (2.614-13.454)**	3.988 (1.841-8.635)**
	Good	12	15	1.00	1.00
<i>Compliance</i>	Poor	33	313	5.045 (2.759-9.244)**	5.318 (2.567-11.020)**
	Good	25	47	1.00	1.00
<i>Participation</i>	Poor	43	323	3.045 (1.544-6.005)**	1.222 (0.531-2.812)
	Good	15	37	1.00	

Note: 1=reference, *P<0.05 and **P<0.01 for both COR and AOR

1. DISCUSSION

The present study aimed to investigate the relationship between safety culture, Behavioral safety and occupational Injury in the sawmill industry in Malka Nono Sub City, Shaggar City, Oromia Region, Ethiopia. The NOSACQ-50 questionnaire was utilized as a diagnostic tool and binary and multivariate logistic regression model were applied. The workers' assessment of safety culture across four sawmills industries yielded a mean NOSACQ-50 score of 2.692. Among the respondents, 62.8% had scores above the mean. These findings are consistent with a study conducted in Gondar, where the mean safety culture score was 2.81, with 56.8% of workers scoring above the mean NOSACQ-50 value(9).

The analysis revealed that the mean scores for the seven safety culture dimensions across the four sawmills were generally low, ranging from 2.305 to 2.815, with an overall average of 2.692. According to the NOSACQ-50 interpretation guidelines(39), scores below 2.70 indicate a low level of safety culture, highlighting areas in need of significant improvement. Interestingly, only Dimensions 4, 6, and 7 recorded mean scores above the 2.70 threshold, were suggesting relatively stronger perceptions in these specific areas. In contrast, the remaining dimensions scored below 2.70, indicating weaker perceptions of safety culture among workers. These findings align with results from a previous study conducted in the large-scale construction sector using the same NOSACQ-50 instrument, which similarly reported higher scores for Dimensions 4, 6, and 7, while the rest remained below the threshold(67).

The results indicate that certain socio-demographic and organizational factors are significantly associated with occupational injury in Ethiopia's sawmill industry. Male workers were found to have a higher risk of injury compared to female workers, and individuals with education levels above primary school were also more likely to experience injuries. Additionally, workers with 3–5 years of experience and those with prior industry experience demonstrated an elevated risk of injury, suggesting that familiarity with the work environment does not necessarily equate to safer practices. After adjusting for potential confounders in the AOR analysis, gender, experience (3–5 years), and prior experience remained significant contributors to increased injury risk, indicating these factors independently influence safety outcomes.

Conversely, higher income levels (3001–5000 ETB) were associated with a lower likelihood of injury, and this association remained statistically significant even after adjusting for potential

confounders in the AOR analysis. This indicates that income serves as a protective factor in reducing the odds of occupational injury.

Importantly, although workers with poor scores in safety culture dimensions; - specifically Dimension 1, Dimension 4, and Dimension 5, as well as poor safety participation showed significant associations with increased occupational injury risk compared to those with good scores under the Crude Odds Ratio (COR) analysis, these associations were no longer statistically significant after adjusting for potential confounding variables in the Adjusted Odds Ratio (AOR) model. This discrepancy underscores the importance of accounting for contextual and confounding factors when evaluating the influence of specific safety dimensions. Similar inconsistencies between unadjusted and adjusted models have been documented in prior research; for example, Clarke and Mearns reported that certain elements of safety culture may initially appear impactful but lose significance once broader organizational or demographic variables are considered (51,73).

The results indicated that Safety Culture Dimension 3 (Management Safety Justice) and Dimension 7 (Trust in the Efficacy of the Safety System) did not show statistically significant associations with the occurrence of occupational injuries.

However, the findings revealed a significant association between safety culture, behavioral safety and occupational injuries. Specifically, poor scores in Dimension 2 (management safety empowerment), Dimension 6 (safety communication, learning, and trust in co-workers' safety competence), and safety compliance were significantly associated with increased odds of injury occurrence compared to workers with good perceptions. This finding is supported by existing literature. Effective safety communication has been demonstrated to significantly reduce workplace injuries by promoting safety compliance and encouraging active participation among workers(32,69). Similarly, trust in co-workers plays a critical role in maintaining a safe work environment, as peer commitment to safety has been linked to improved safety behaviors and a reduction in injury rates(70,71). Furthermore, research has shown that perceived organizational and coworker support fosters employee safety voice, thereby enhancing in reduction of accident (47).

The results of this study indicate that promoting safety communication, fostering a culture of learning, and enhancing trust among co-workers can reduce workplace injuries and accidents in

the sawmill industry by approximately 73.1%. These findings are consistent with a 2017 study conducted in a similar setting in Kenya, which reported that a lack of training contributed to 43% of occupational injuries. Additionally, the current study demonstrates that comprehensive implementation of safety compliance measures significantly mitigates occupational injuries, with an observed reduction of 81.2% according to the Adjusted Odds Ratio (AOR). This result aligns with the Kenyan study, which found that injuries could be reduced by up to 81% through the consistent use of appropriate personal protective equipment (PPE), regular toolbox talks, and sustained sensitization of both workers and employers on safety issues and their enforcement (72).

The context of this study, sawmill operations in a developing region adds weight to the findings. Literature shows that in resource constrained environments, factors like poor enforcement, inadequate training, and informal work practices undermine safety culture development. The NOSACQ-50 framework proved instrumental in diagnosing these cultural dimensions, aligning with prior validation studies in both European and African contexts. Thus, the findings reinforce the critical role of safety culture in shaping both behavioral outcomes such as safety compliance and participation and objective indicators, including injury rates. This supports the ILO advocacy for proactive, culturally embedded safety practices across industrial sectors (73).

2. STRENGTHS AND LIMITATIONS

2.1. Strengths

- **Use of Validated Instruments:** Safety culture was assessed using the NOSACQ-50 tool, and structured, pre-tested questionnaires were used for behavioral safety and injury data.
- **Digital Data Collection:** The use of ODK (Open Data Kit) for digital data collection minimized data entry errors, improved completeness, and enhanced overall data quality.
- **High Response Rate:** A 99% participation rate reduced the likelihood of non-response bias.
- **Trained Data Collectors:** Data were collected by trained interviewers under close supervision, which helped ensure consistency and minimize interviewer bias.
- **Local Context Adaptation:** Questionnaires were adapted to the local context and translated into appropriate languages to enhance understanding and cultural relevance.

2.2. Limitations

This study has several limitations.

- **Recall Bias:** Participants may have experienced difficulty accurately recalling injury events over the past 12 months and reporting perceptions related to workplace safety, potentially affecting data reliability.
- **Limited Generalizability:** The study was restricted to sawmill industries in Malka Nono Sub-City, Shaggar City, Oromia Region, which may limit the applicability of findings to other industrial sectors or regions.
- **Language and Literacy Barriers:** Differences in participants' language proficiency and literacy levels may have affected their understanding of survey questions, despite efforts to facilitate clarity during interviews.

3. CONCLUSION

This study highlights the critical role of safety culture and behavioral practices in shaping occupational injury outcomes within Ethiopia's sawmill industry. Among the seven safety culture dimensions assessed, Dimension 2 (Management Safety Empowerment) and Dimension 6 (Safety Communication, Learning, and Trust in Co-workers) emerged as significant protective factors, showing a strong and consistent association with reduced odds of occupational injury even after adjusting for confounding variables. These findings underscore the importance of empowering workers through management support and fostering open channels of communication and mutual trust, which are foundational to proactive safety behavior. Although other safety culture dimensions and behavioral components safety participation showed protective effects in unadjusted analyses, their significance diminished in the adjusted model, highlighting the dominant influence of management-led empowerment and collaborative safety practices. Additionally, higher income levels (3001–5000 ETB) and adherence to safety compliance remained significant protective factors, pointing to the role of socioeconomic stability and rule based behavior in mitigating injury risk.

In contrast, individual factors such as male gender, work experience of 3–5 years, and prior industry experience were significantly associated with a higher risk of injury, suggesting that demographic characteristics and routine familiarity with hazardous environments do not necessarily translate into safer outcomes. These results indicate a need for targeted safety interventions that specifically address complacency and risk normalization among experienced workers.

Overall, the study provides compelling evidence that building a strong, participatory, and communicative safety culture rooted in management empowerment and interpersonal trust is essential for improving occupational safety. These findings offer valuable context specific insights for policymakers, industry leaders, and occupational safety practitioners aiming to reduce injury rates in high-risk sectors, particularly within developing country settings.

4. RECOMMENDATIONS

Based on the findings and limitations of this study, the following recommendations are proposed to improve occupational injury in the sawmill industry and comparable industrial settings. These recommendations are directed at key stakeholders, including employers, government bodies, industry regulators, research institutions, and workers' unions, to ensure shared responsibility and coordinated action:

4.1. For Workers:

- Actively engage in safety communication and training to improve personal awareness and collective responsibility for workplace safety.
- Adhere strictly to safety protocols and use PPE consistently, particularly among experienced workers who may underestimate certain risks due to familiarity with tasks.
- Participate in toolbox talks and peer learning sessions to foster a supportive safety culture based on trust and shared experience.

4.2. At the Industry Level (Sawmill Owners and Managers):

- Empower employees in safety-related decision-making by encouraging reporting of hazards, providing regular feedback, and involving them in safety planning.
- Strengthen communication channels and foster a learning-oriented environment to build trust among workers.
- Identify and monitor high-risk worker groups and provide targeted training and supervision.
- Ensure fair compensation, as income stability was shown to be a protective factor, which may enhance motivation and compliance with safety procedures.

4.3. For Research and Academic Institutions:

- Conduct further empirical studies to explore causal relationships between specific dimensions of safety culture (e.g., management safety empowerment and safety communication) and occupational injury outcomes, as these were identified as significant predictors in this study.

- Investigate the mechanisms through which poor safety compliance behavior contributes to increased occupational injury risk, building on this study's findings that poor behavioral safety is significantly associated with higher injury occurrence.
- Expand research to include comparative assessments across various industrial settings in Ethiopia and similar low-income contexts, to determine whether patterns observed in sawmill industries hold in other high-risk sectors.
- Promote interdisciplinary collaboration to develop and validate contextually appropriate tools for assessing safety culture and behavioral safety in resource-limited industrial environments.

4.4. For Policy Makers (e.g., Oromia Bureau of Labour and Social Affairs / OBoLSA, Ministry of Labour and Skills / MLS)):

- Formulate and enforce comprehensive safety regulations that prioritize safety culture development, beyond basic compliance requirements.
- Mandate regular safety audits and monitoring in sawmill industries, with a focus on empowering workers and promoting trust in safety systems.
- Provide incentives or recognition for industries that demonstrate strong safety culture practices and reduced injury rates.
- Support worker education programs and income stabilization initiatives, recognizing the role of socioeconomic factors in occupational safety.

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6. Annexes

6.1. Annex I;- Participant information sheet

How are you?

My name is FIKRU BELETE GORENTO

Title: -Impact of Safety Culture on Safety Performance in Sawmill Industries in Shagger city Oromia Regional state Ethiopia, 2023-24, using Cross-sectional study design.

My name is Fikru Belete Gorento, I am here a student of Addis Ababa University, School of Public Health, Department of Environmental and Occupational Health. I am here today to study the Impact of Safety Culture on Safety Performance in Sawmill Industries in Shagger city Oromia Regional state Ethiopia, 2023-24 for the partial fulfilment of a master's degree in Environmental and Occupational Health. This research aim is to identify the occupational safety culture in Sawmill and to investigate the effects of safety culture on safety performance. I kindly ask you to participate in this study and provide me a fact-based answers. The time required for this study is 20-25 minutes.

Risks: - There is no risk by participating in this study however, your responses are fully confidential and you are not required to write your name on this questionnaire. All questions depend on your willingness to respond to them. If you feel any discomfort with the questions, it is your right to drop it at any time. You may even decide not to participate in this study from the beginning.

Benefits: - You will not directly benefit from your engagement in this study. However, your Engagement in this study is very helpful in identifying the effects of safety culture on safety performance and how to increase the role of employee engagement in safety performance in sawmill industries.

Confidentiality; - All information you provide will be kept confidential and no one except the research team members will have access to the information. Your honest and truthful response to each question will play a major role in the realization of the objective of the research. Therefore, I am very grateful to you and greatly appreciate your help.

Finally, if you have, any questions regarding this study please contact the principal investigator, Fikru Belete Addis Ababa University, College of Health Sciences, School of Public Health Cell phone No: +251913031206 E-mail: nathanifiker@gmail.com or Dr. Teferi Abegaz (Tel +251911361607), Email: teferiabegaz@gmail.com, teferi.abegaz@aau.edu.et or Dr. Meaza Gezu (Tel +251-) meaza.gezu@gmail.com (advisors) Addis Ababa University, College of Health Sciences, School of Public Health or School of Public Health ethical review committee (Tel +251-115157701).

At this time, do you want to ask me anything about the purpose or content of this noise level measuring equipment? Are you willing to participate in the study?

School of Public Health College of Health Sciences Addis Ababa University

6.2. Annex II ; - Informed consent form

City Shagger Sub city: Malka Nono District: Tatek Industrial Zone Factory code: SM-0_____.

Date of data collection January 02 to February 30/2024 Code of data collector S_____

Name of data collector; _____ Sign_____

Introduction: This questionnaire is intended to collect information from sawmill factories in Tatek Industrial Zone, Malka Nono sub-City of Shagger City, Oromia regional state, Ethiopia. The information you /your organization provides is very crucial to analyze the Impact of safety culture on safety performance in Sawmill Industries in Shagger City of Oromia. Thus, you are warmly requested to provide us with genuine information. The information you provide will be confidential. You will have all legitimate right not to be involved in this study or even withdraw from the study at any time. I hereby verify that I have read and fully understood the above notice and am willing to fill out the questionnaire. Therefore, I am willing to participate in the study.

Participant signature_____ Date_____

6.3. Annex III English Version Questionnaire

Code of participant-----

Date of data collection -----

Part I. Socio-demographic factors and Behavioral factors/individual's life style.

Direction: Choose one possible answer and tick it in the box.

No	Questions	Possible response
01	Sex	Male ☐ Female ☐
02	Age	
03	Religion	1. Orthodox ☐ 2. Muslim ☐ 3. Protestant ☐ 4. Catholic ☐ 5. Others ☐
04	Marital status	1. Single ☐ 2. Married ☐ 3. Divorced ☐ 4. Widowed ☐
05	Number of family members	_____
06	Number of family members supported	_____
07	Educational status	1. Illiterate ☐ 2. Read & write ☐ 3. Primary school (1-8) ☐ 4. Secondary (9-12) ☐ 5. technical, diploma & ☐
08	Employment pattern	1. Contract (for specified time and work) ☐ 2. Permanent (for unspecified period) ☐ 3. Other, specify----- ☐
09	How long have you been working at _____	_____ Code _____
10	Did you work in other sawmill rather than _____	yes ☐ No ☐
11	If the answer yes for Question No.010 How many _____	_____
12	Residence	1. Own ☐ 2. Rent ☐ 3. ☐
13	How far in km from your residence to work place?	_____
14	Monthly Income including over time _____ Eth. Birr/month	
15	Have you ever been injured during your work in previous 12 months	1. Yes ☐ 2. No ☐
16	If your answer to Q- yes How many times?	_____
17	Specify Degree of Injury	Minor ☐ Moderate ☐ Serious ☐
18	Do you drink alcohol?	yes ☐ No ☐

19	If yes for question number 18, how often do you take?	1. Every other day ☐	2. Two days a ☐	3. One day a week/less than ☐	4. Any other, specify,---- ☐	
20	Do you chewing Chat/Khat?			Yes ☐	No ☐	
21	Do you smoke cigarette?			Yes ☐	No ☐	
22	If yes to Q-21 how many per day			_____		
23	Are you happy or satisfied with the job you are engaged now?	1. Yes to utmost ☐	2. Yes to some ☐	3. Not at all ☐		
24	If yes to Q-23 to at most or to some degree, what makes you happy on your current job? (check all)	The overall employment relation is good & fundamental rights are	The salary is good and other benefits are	The relation between management and workers is healthy and participatory	Occupational safety and health standards are maintained and work places are safe and healthy	Any other, specify---- -----

Part .II A:- In the following section please describe how you perceive that the managers and supervisors at this workplace deal with safety. Although some questions may appear very similar, please answer each one of them.

No	Put only one X for each question	Strongly	Disagree	Agree	Strongly
101	Management encourages employees here to work in accordance with safety rules - even when the work schedule is tight	☐	☐	☐	☐
102	Management ensures that everyone receives the necessary information on safety	☐	☐	☐	☐
103	Management looks the other way when someone is careless with safety	☐	☐	☐	☐
104	Management places safety before production	☐	☐	☐	☐
105	Management accepts employees here taking risks when the work schedule is tight	☐	☐	☐	☐
106	We who work here have confidence in the management's ability to deal with safety	☐	☐	☐	☐
107	Management ensures that safety problems discovered during safety rounds/evaluations are corrected immediately	☐	☐	☐	☐

108	When a risk is detected, management ignores it without action	☐	☐	☐	☐
109	Management lacks the ability to deal with safety properly	☐	☐	☐	☐
110	Management strives to design safety routines that are meaningful and actually work	☐	☐	☐	☐
111	Management makes sure that everyone can influence safety in their work environment	☐	☐	☐	☐
112	Management encourages employees here to participate in decisions which affect their safety	☐	☐	☐	☐
113	Management never considers employees' suggestions regarding safety	☐	☐	☐	☐
114	Management strives for everybody at the worksite to have high competence concerning	☐	☐	☐	☐
115	Management never asks employees for their opinions before making decisions regarding	☐	☐	☐	☐
116	Management involves employees in decisions regarding safety	☐	☐	☐	☐
117	Management collects accurate information in accident investigations	☐	☐	☐	☐
118	Fear of sanctions (negative consequences) from management discourages employees here from	☐	☐	☐	☐
119	Management listens carefully to all who have been involved in an accident	☐	☐	☐	☐
120	Management looks for causes, not guilty persons, when an accident occurs	☐	☐	☐	☐
121	Management always blames employees for accidents	☐	☐	☐	☐
122	Management treats employees involved in an accident fairly	☐	☐	☐	☐

Part II B: - In the following section please describe how you perceive that employees at this workplace deal with safety

No	Put only one X for each question	Strongly disagree	Disagree	Agree	Strongly agree
123	We who work here try hard together to achieve a high level of safety	☐	☐	☐	☐
124	We who work here take joint responsibility to ensure that the workplace is always kept tidy	☐	☐	☐	☐
125	We who work here do not care about each other's safety	☐	☐	☐	☐
126	We who work here avoid tackling risks that are discovered	☐	☐	☐	☐
127	We who work here help each other to work	☐	☐	☐	☐
128	We who work here take no responsibility for each other safety	☐	☐	☐	☐
129	We who work here regard risks as unavoidable	☐	☐	☐	☐
130	We who work here consider minor accidents to be a normal part of our daily work	☐	☐	☐	☐
131	We who work here accept dangerous behaviour as long as there are no accidents	☐	☐	☐	☐
132	We who work here break safety rules in order to complete work on time	☐	☐	☐	☐
133	We who work here never accept risk- taking even if the work schedule is tight	☐	☐	☐	☐
134	We who work here consider that our work is unsuitable for cowards	☐	☐	☐	☐
135	We who work here accept risk-taking at work	☐	☐	☐	☐
136	We who work here try to find a solution if someone points out a safety problem	☐	☐	☐	☐
137	We who work here feel safe when working together	☐	☐	☐	☐
138	We who work here have great trust in each other's ability to ensure safety	☐	☐	☐	☐
139	We who work here learn from our experiences in order to prevent accidents	☐	☐	☐	☐
140	We who work here take each other's opinions and suggestions concerning safety seriously	☐	☐	☐	☐

141	We who work here seldom talk about safety	☐	☐	☐	☐
142	We who work here always discuss safety issues when such issues come up	☐	☐	☐	☐
143	We who work here can talk freely and openly about safety	☐	☐	☐	☐
144	We who work here consider that a good safety representative plays an important role in	☐	☐	☐	☐
145	We who work here consider that safety rounds /evaluations have no effect on safety	☐	☐	☐	☐
146	We who work here consider that safety training to be good for preventing accidents	☐	☐	☐	☐
147	We who work here consider early planning for safety as meaningless	☐	☐	☐	☐
148	We who work here consider that safety rounds/evaluations help find serious hazards	☐	☐	☐	☐
149	We who work here consider safety training to be meaningless	☐	☐	☐	☐
150	We who work here consider it important to have clear-cut goals for safety	☐	☐	☐	☐

Part III: - In the following section please describe how you perceive that employees at this workplace deal with Behavioral safety (safety compliance and safety participation)

No	Put only one X for each question	Strongly	Disagree	Agree	Strongly
201	I use all the necessary safety equipment(PPE) to do my job	☐	☐	☐	☐
202	I use the correct safety procedures for carrying out my job	☐	☐	☐	☐
203	I ensure the highest levels of safety when I carry out my job	☐	☐	☐	☐
204	I put in extra effort to improve the safety of the workplace	☐	☐	☐	☐
205	I promote the safety program within the organization	☐	☐	☐	☐
206	I voluntarily carry out tasks or activities that help to improve workplace safety	☐	☐	☐	☐

If you wish to elaborate on some of your answers, or if you have any comments regarding the study, you are welcome to write them here.

Comments: _____

Thank you for filling in the questionnaire. Please ensure you have checked off the box on the front page showing that you have given your informed consent to participate in the study.

6.4. Annex IV Afan Oromo Version Information sheet

Akkam jirtu? Nagaan Isiniif haa ta'u! Ani _____ Jedhama.

Asitti kanaan argameef, Univarsitii Finfinneetti Kollajii saayinsii fayyaa Hawwasaa tti sagantaa barnoota digrii 2ffaa gosa barnoota saayinsii Naannoo fi Ogummaa fayyaa barataa Fiqiruu Ballaxaa bakka bu'e ti. Isinii Warshaa Muka baqaqsuu kana keessatti hojjetaa/ hojjechisaa tatan dhimmi Dhiibbaa aadaan faayadama seeftii bu'a seftii irratti qabu mata dure jedhu irratti qorannoo Eeba digrii 2ffaa bara 2016 taasifamu kana irratti akka hirmataniif filatamtani jirtu.

Kayyoon qorannoo kana Aadaa safetii warsha Muka baqaqsuu keessa jiru adda basuu fi akkasummas dhiibba aadaan safetii bu'aa seftii irratti qabu qorachuun madaluu dha. Kaanaaf yeoon gannoo kana gutuuf fudhatuu daqiqaa 20-25 qofa waan ta'eef, yaadota gaditti tarreefaman erga dubbiftani booda wanti isiniif hin gallees yoo jiratee gafatanii yoo itti waligaltani gafannoo kana akka gutan kabajaan isiin gafana.

Gafanno kana gutuu keessaniif rakko umamuu kan hin jire ta'u ibsa yaadni isiin kennitan iccitiin kan qabamu, akksuma maqaan nama yaada kenne kan hin barrefamne waan ta'eef osoo gutaa jirtanuu ykn osoo hin jalqabiin fedha yoo dhabdan dhisuuf mirga gutuu kan qabdan ta'u.

. **Bu'a**;- Isin gafanno kana waan gutaniif bu'aan addatti argatan kan hin jire ta'u hubatani haa ta'uuyy malee hirmachuun yaada sirii waan kennitaniif, dhiibbaa aadaan safetii bu'a seftii irratti qabu adda bafachuu fi hirmanaa hojjetoonni warsha kana keessatti bu'aa seftii irratti qaban akka dabaluuuf gargara.

Iccittii ; - Yaada fi odeefanoon kennitan kamiyyuu iccitiin kan qabamu ta'e namoota qorano kanarratti hirmatani irra kan hafee nama kamifiyyu kan hin ibsamnee dha. Deebii dhugaa fi haqa qabeessa ta'e isiin gafannoo kanaaf kenitan kayyoo qorannoo kana dhugoomsuu keessatti ga'e gudda kan taphatu ta'u isiin hubachiifna. Bu'uuruma kanaan waan hojiira olchitaniif gargsaa keessaniif gudda isiin kabajna.

Dhumarratti, Gafii kaamiyyuu qorannoo kanaan wal-qabatuu yoo qabatan, nama kallatiin qorannoo kana taasisuu barataa Fiqiruu Ballaxaa Univarsitii Finfinneetti, Kollajii saayinsii Fayyaa, M/Barumsaa Fayyaa Hawwasaa Cell phone No: +251913031206 E-mail: nathanifiker@gmail.com gafachuu kan dandeessan ta'u ibsa dabalataniis karaa teessoo arman gadii kanaan gafii qabdan dhiyyeessu ni dandeessu. Dr. Teferi Abegaz (Tel +251911361607),

Email: teferiabegaz@gmail.com, teferi.abegaz@aau.edu.et or Dr. Meaza Gezu (Tel +251-) meaza.gezu@gmail.com (advisors) Addis Ababa University, College of Health Sciences, School of Public Health or School of Public Health ethical review committee (Tel +251-115157701).

Yeroo kanatti gafiin gafachuu barbaddan ni jira? Yoo gaafii hin qabdan ta'ee qoranno kana irratti hirmachuuf fedhii ni qabdu? Yoo fedhii qabatan waligaluu keessaniif mallattoo keessaniin nuuf mirkanneessa.

6.5. Annex V Afan Oromo Version Consent form

Mana Baruumisa Fayyaa Hawwasaa Kolajjii Saayinsii Fayyaa Univarisitii Finfinnee

Unka Waligalteen itti mallata'u Magaala Shagger Kuta magaala: Aanaa Malka Nonnoo: Zoonii IndustriiTatek: SM-0_____.

Yeroo ragaan kun itti sassabame Guaandhala 02 to Ebla 30/2024 Kadii raga sassabamu S_____

Maqaa nama data sassabuu; _____mallattoo_____

Seensa;- Gafanoon kun bal'inaan odeefannoo warsha muka baqaqsuu Zonii Industirii Tataq kuta magaala Malka Nonnoo magaala shaggar, Naannoo Oromiyaa Itiyoophiyaa keessatti argamukan ilaaludha. Deebiin isin ykn dhabbatni keessan kenu qoranno dhimmi dhiibba aadaa saftii bu'a hojii irratti qabuu madaluuf kan gargaruu dha. Kanaaf isiniis odeefannoo haqa kennuuf filatamtani jirtu. Faayidaan gaafannoo kanaa iddoo hojii kanattii dhimma Fayyummaa fi Nagummaa Ogummaa yaada isin qabdan isin irraa argachuufi. Deebiin isin nuuf kennitan kompiitaraan kan qindaa'u ta'ee icciitidhaan kan qabamu ta'a. Deebiin nomoota kamiinuu kennamu haala kamiinuu dhuunfaa qeenxeedhaan hindhiyaatu. Nutii gaaffii hunda akka nuuf deebistan kan barbaannu ta'u , gaaffii hunda ykn gaaffii deebisuuf fedhii hinqabne dhiisuudhaaf mirga niqabdu.

Gaaffii hunda dubbiseera, bu'uura armaan olitti caqafameen gaafannoo hunda deebisee xumuruuf irratti walii galeera.

Mallattoo Hiramataa/ttuu_____Guyyaa _____

6.6. Annex VI Afan Oromo Version questionnaire

Kuta I; - Gaafiilee qajeelfama amala Ummataaa, Hawwasummaa fi Dhuunfaa ilaalchisee gaditti tarrefamanif, filannoo dhiyatee keessa deebii gafatamtootni deebisanii iddo duwwa kenamee irratti barreesa.

Lakk.	Gaafii	Filannoo deebiif dhiyatee				Kodii	_____
01	Saala	1. Dhiira	☐	2. Dubartii	☐		
02	Umurii	----- waggaa					
03	Amantaa	1. Ortodox ☐	2. Islamaa ☐	3. Pirotellantii ☐	4. Katolikii ☐	5. Kan biro____ ☐	
04	Haala gaa'eela	1. kan fudhee /heerumtee ☐	2. kan hin funnee/hin heerumne ☐	3. Kan hiikee /tte ☐	4. Kan jala du'e/ttee ☐	5. kan wali hiikan ☐	
05	Baay'ina matii _____						
06	Baay'ina matii gargarmani _____						
07	Sadarkaa barnoota	1. kan hin barannee ☐	2. Bareessuuf dubbisuu kan danda'u/suu ☐	3. Kuta 1-8 ☐	4. Kuta 9-12 ☐	5. Teekinikaa, dipilomaa fi isaa olii ☐	
08	Haala qaxarri	1. Kontirataan ☐	2. Dhabbiidhaan ☐				
09	Dhabbataa kana keessa yeroo hangaamiif tajajilan _____						
10	Dhabbataa kana alaa kan biro keessa hojjetan ni beektuu			1. Eyyee ☐	2. Lakkii ☐		
11	Gafii lakk-011 eyyee yoo ta'e hangamiif hojjetan? _____						
12	Haala mana jireenya	1. Kan dhuunfa ☐	2. kiraa ☐	3. Kan biroo ☐			
13	Fageenyi mana jireenya keessan iddo hojiira qabu Km _____						
	Galiin ji'a keessan keessan meeqa? OT dabalatee -----Qar						
15	Ji'ota 12n darban balaan iddo hojii isin quname ni jira ?			1. Eyyee ☐	2. Lakkii ☐		
16	Gafii 15f eyyee yoo jettan yeroo meeqaaf isin qunamee? _____						
17	Dhugatii Alkolii ni dhugduu?	1. Eyyee guyyaa hundaa ☐	2. Eyyee darbe darbee ☐	3. sirumayyuu hin fayyadamu ☐			
18	Lakk gaffii 17 debbiin keessan yero hunda / darbe darbee yoo ta'e hangam?	1 Guyaa tokko darbee ☐	2. Torbetti guyyaa lama ☐	3. Torbetti guyyaa tokko ykn sana gadii ☐	4. Kan biro yaa ibsamu ☐		
19	Jimaa ni qamatuu ?	1. Eyyee ☐	2. Lakkii ☐				
20	Tamboo ni xuxxuu	1. Eyyee ☐	2. Lakkii ☐				
	Lakk gafii 20 Eyyee yoo jettan jiddu galeessan guyyatti hangam			----- Sigaraa ni fixaa.			

22	Hojii amma hojjecha jirtanitti gammaddoo dha?		1.Eyyee Gutumagututti	2.Hanga tokko garii dha	3. Itti hin gamadduu	
			☐	☐	☐	
23	Lakk gafii 22 Debiin keessan gutmmaan / hanga tokko gammaddoo yoo ta’e sababaa isaa ibsa	1.Walit dhufeenyi hojii garrii fi mirgii bu’uura ni kabajama waan ta’eef	2.Minda garii fi faayidaa biro waan argadhuuf	3.Hojjetaaf hojjechisaa jidduu walitti dhufeenyi gariin waan jiruu fi hirmachiisummaan waan jiruuf	4.Fayyummaaf nagummaan iddoo hojii gutuu waan ta’eef	5. Kan biro yoo jiratee ibsa
		☐	☐	☐	☐	☐

Kutaa II;- Armaan gadii keessatti iddoo hojii kana keessatti itti gaafatamtoonni hojii dhiyoo fi SupparvaayiZaroonni hubannoo dhimma Nagummaa Ogummaa irratti hubannoo isaan qaban ibsaa! Gaafiiwwan tokko tokko waan walfakkaatan/yaada tokko qaban iisinitti fakkaachuu danda'u.Haata'u malee deebiin keessan barbaachisaa waan ta'eef hunda isaa irratti deebii akka itti kennitan kabajaan isin gaafanna.

lakk	Gaaffi hunda isaatiif mallattoo x tokko qofa taasisaa	Siriitti itti walii hingalu	Irratti walii hingalu	Irrattin waliigala	Siriittin irratti waliigala
101	Walitti qabaan Maanajimantii yeroo hojiin heddu itti baay'ates hojjettoonni seera/qajeelfama Nagummaa Ogummaa hordofanii akka hojjetan ni jajjabeessu	☐	☐	☐	☐
102	Hojjettoonni tokkoon tokkoo isaanii odeeffannoo Nagummaa Ogummaa argachuu isaanii ni mirkaneessu	☐	☐	☐	☐
103	Hojjettoonni dhimma Nagummaa Ogummaa yeroo xiyyeeffannoo itti kennuu dhaban itti gaafatamtoonni kallatti raawwii biroo ni	☐	☐	☐	☐
104	Itti gaafatamaan dhaabbatichaa Nagummaa ogummaa hojjetaa bu'aa/Hoomishtummaa	☐	☐	☐	☐
105	Hojjettoonni haala balaadhaaf saaxilamanii jiranitti baay'inna hojiirraa kan ka'e hoggantoonni cal'isanii bira darbu.	☐	☐	☐	☐
106	Nuti hojjettoonni dhaabbata kana keessa hojjenu hoggantoonni keenya dandeettii rakkoo Nagummaa Ogummaa furuu isaan qaban irratti	☐	☐	☐	☐

107	Rakkoolee Nagummaa ogummaa adda baasuuf sakatta'iinsi/daawwannaan yeroo taasifamu rakkoon qixa sirrii ta'een argamuu fi tarkaanfiin hatattamaa akka irratti fudhatamu hoggantoonni ni mirkaneessu.	☐	☐	☐	☐
108	Yeroo balaan hojiirratti qaqqabu rakkoon inni qaqqabsiisuu danda'u adda bahanii erga beekkamanii hoggantoonnii tarkaanfii fudhachuu dhabuun cal'isanii bira darbu	☐	☐	☐	☐
109	Hoggantoonni dhaabbata keenyaa rakkoo Nagummaa Ogummaa qixa sirrii ta'een furuuf dandeettiin isaan hanqata	☐	☐	☐	☐
110	Hoggantoonni dhaabbata keenyaa sagantaa hojii fayyummaa Ogummaa hiikkaa qabu bocuun raawwachuuf tattaanfii ni taasisu	☐	☐	☐	☐
111	Tokkoon tokkoo hojjetootaa hojii hojjetu irratti dhimma Nagummaa Ogummaa raawwachaa jiraachuu hoganaan dhiyoo isaanii ni mirkaneessa	☐	☐	☐	☐
112	Rakkoon Nagummaa Ogummaa hojjetootaa miidhuu danda'u yoo qunname hojjettoonni murtee kennuu irratti akka hirmaatan hoggantoonni ni	☐	☐	☐	☐
113	Dhimma Nagummaa Ogummaa irratti hojjettoonni yeroo yaada kaasan hoggantoonni irraa hinfudhatan	☐	☐	☐	☐
114	Iddoo hojiitti tokkoon tokkoo hojjetootaa balaa haala nagummaa Ogummaa hojjetaarra gahuu danda'u ilaalchisee dandeettii ol'aanaa akka	☐	☐	☐	☐
115	Hoggantoonni dhimma Nagummaa ogummaa hojjetootaa irratti murtee osoo hinkennin dura hojjetoota gaafatanii hinbeekan	☐	☐	☐	☐
116	Dhimma Nagummaa ogummaa irratti murtee kennuuratti hojjettoonni akka hirmaatan hoggantoonni ni jajjabeessu	☐	☐	☐	☐
117	Sakatta'iinsi Balaa/Miiddhaa adda baasuu yeroo raawwatu hoggantoonni ragaa sirrii ta'e ni sassaabu	☐	☐	☐	☐
118	Balaa kamiyyuu haala nurratti qaqqabuu danda'u fi balaawwan xixiqqaa yeroo gabaasa goonu adabbiin hoggantootaan nurratti raawwata jennee waan	☐	☐	☐	☐
119	Hoggantoonni hojjetoota hunda yeroo balaan qaqqabu jiran xiyyeeffannoodhaan ni dhaggeeffatu	☐	☐	☐	☐
120	Yeroo balaan qaqqabu hoggantoonni nama balleessaa qabu irratti osoo hintaane ka'umsa balaa irratti xiyyeeffannoo kennu	☐	☐	☐	☐
121	Yeroo balaan uumamu hunda hoggantoonni hojjetoota balaaleffatu	☐	☐	☐	☐

122	Yeroo balaan qaqqabu hojjettoota jiran hoggantoonni bifa seera qabeessa ta'een keessummeessu	☐	☐	☐	☐
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Kutaa III; - Kan itti aanu kana keessatti hubannoo hojjettoonni dhimma Nagummaa Ogummaa iddoo hojii irratti qaban nuuf ibsaa

lakk	Gaaffi hunda isaatiif mallattoo x tokko qofa taasisaa	Siriitti itti	Irratti walii	Irrattin	Siriittin
123	Hojjettoonni dhaabbata kana keessatti hojjennu hundi keenya Nagummaan Ogummaa sadrkaa ol'aanaara akka gahu ni yaalii ni taasifna	☐	☐	☐	☐
124	Yeroo hunda naanoon hojii keenya balaa irraa bilisa akka ta'u hundi keenya waliin ni tattanfanna.	☐	☐	☐	☐
125	Hojjettoonni as-keessa hojjennu keessaa tokko nageenya hojjetaa birootif hindhiphatu/dhimma hinqabu	☐	☐	☐	☐
126	Hojjettoonni dhaabbata kana keessa hojjenu yeroo hojiirra jirru wanti addaa balaa geessisuu danda'u yoo jiraate balaan akka hinqaqqabne dursinee ni ittisna	☐	☐	☐	☐
127	Hojjettoonni hundi hojii keenya of-eeggannoodhaan hojjechuuf walii-wajjiin wal deeggarra.	☐	☐	☐	☐
128	Hojjettoonni dhaabbata kana keessa wajjiin hojjennuu nagummaa hiriya keenyaatiif dhimma walii hinqabnu	☐	☐	☐	☐
129	Hojjettoonni dhaabbata kana keessa hojjennu hundi rakkoon balaa/miidhaa namarraan gahuu danda'u maqfamuu akka hindandeenye ni yaadna.	☐	☐	☐	☐
130	Hojjettoonni dhaabbata kana keessa hojjennu balaa/miidhaa xixiqqaa akka qaama hojii idilee keenyaattai malee akka miidhaatti hin lakkoofnu	☐	☐	☐	☐
131	Hojjettoonni hundi wanta balaa geessisuu danda'u tokkollee akka hinjiree fi miidhaan kamiyyuu akka nura hingeennetti yaadna	☐	☐	☐	☐

132	Hojjettoonni wajjiin hojjennuu hundi keenya hojji keenya yeroon xumuruuf jecha qajeelfamoota Nagummaa fi Ogummaa ni cabsina	☐	☐	☐	☐
133	Hojjettoonni wajjiin hojjennuu hundi keenya dhiibbaan baa'ina hojii nurra jiraatus wantoota balaa nurraan gahuu danda'an cal'isnee bira hindabarru	☐	☐	☐	☐
134	Hojjettoonni dhaabbata kana keessa hojjennuu hundi keenya namoota hojiidhaan ciccimoo hintaaneeff akka itti hintolleti yaadna	☐	☐	☐	☐
135	Hojjettoonni dhaabbata kana keessa hojjennuu hundi keenya wantoota balaa/miidhaa hojiirratti geessisuu danda'an cal'isnee bira dabarra.	☐	☐	☐	☐
136	Hojjettoonni wajjiin hojjennuu hundi keenya namoota wajjiin hojjennu kamiyyuu rakkoon Nagummaa Ogummaa yeroo qunnamu fala barbaaduuf yaalii nitaasifna.	☐	☐	☐	☐
137	Hojjettoonni wajjiin hojjennuu hundi keenya Nagummaa Ogummaa keenyarratti shakkii hin qabnu	☐	☐	☐	☐
138	Hojjettoonni wajjiin hojjennuu hundi keenya gahumsa hir'yaan keenya Nagummaa Ogummaa irratti qabutti amantaa qabna	☐	☐	☐	☐
139	Hojjettoonni hundi dogoggora kana duraa irraa barannee balaa akka nura hingenye ni ittisna.	☐	☐	☐	☐
140	Hojjettoonni wajjiin hojjennuu hundi keenya dhimma Nagummaa Ogummaa irratti yaada walii keenya wal-dhageenya.	☐	☐	☐	☐
141	Hojjettoonni wajjiin hojjennuu hundi keenya waa'ee Nagummaa Ogummaa irratti waliin dubbannee hinbeeknu	☐	☐	☐	☐
142	Yaadonnii dhimma Nagummaa Ogummaa irratti yeroo ka'u hojjettoonni wajjiin hojjennuu hundi keenya irratti ni mari'anna.	☐	☐	☐	☐
143	Hojjettoonni wajjiin hojjennuu hundi keenya waa'ee Nagummaa Ogummaa irratti bilisaan fi iftoominaan waliin nidubbanna	☐	☐	☐	☐
144	Hojjettoonni wajjiin hojjennuu hundi keenya bakka bu'aan dhimma Nagummaa Ogummaa balaa/Miidhaa ittisuu irratti gahee guddaa akka qabu ni yaadna.	☐	☐	☐	☐

145	Hojjettoonni wajjiin hojjennuu hundi keenya daawwannaan ykn madaalliin Nagummaa ogummaa iddoo hojii keenyarratti taasifamu jijjiirama fooyyee qabu tokkollee hinfidu	☐	☐	☐	☐
146	Hojjettoonni wajjiin hojjennuu hundi keenya leenjii Nagummaa Ogummaa hojiirratti kennamu balaa/miidhaa ittisuf akka fayyadu ni hubanna.	☐	☐	☐	☐
147	Kana dura karoora Nagummaa Ogummaa qopheessuun hiikkaa akka hinqabne hojjettoonni wajjiin hojjennuu hundi keenya ni yaadna	☐	☐	☐	☐
148	Hojjettoonni wajjiin hojjennuu hundi keenya daawwannaa ykn madaalliin Nagummaa Ogummaa iddoo hojiitti adeemsifamu balaa miidhaa fidu adda baasuf akka gargaaru ni amanna	☐	☐	☐	☐
149	Leenjiin Nagummaa Ogummaa hiikkaa akka hinqabne hojjettoonni wajjiin hojjennuu hundi keenya ni yaadna.	☐	☐	☐	☐
150	Hojjettoonni wajjiin hojjennuu hundi keenya dhimma Nagummaa Ogummaa irratti galma ifa kaa'uun faayidaa guddaa qaba jennee ni amana.	☐	☐	☐	☐

Kuta III :- Gafii amala FNO(fayyumma fi naguma ogumma) wligalteewwan FNO fi hirmanna nageenya hojii keessatti ilaalchisee kan armaan gadii ti.

lakk		Siriitti	Irratti	Irrattin	Siriitti
201	Gaaffi hunda isaatiif mallattoo x tokko qofa Hojii koo hojjechuuf, meeshalee egumsaa nagummaa fayyuma hunda nan fayyadama.	☐	☐	☐	☐
202	Ani hojii kiya hojjechuuf ulaagalee nagummaa sirrii ta'an nan hordofa.	☐	☐	☐	☐
203	Ani yeroon hojii hojjedhu sadarkaa nugummaa ol'anaa ta'u isaa nan mirkaneessa.	☐	☐	☐	☐
204	Ani hojii dabaltaa nagummaa bakka hojii foyyeessan ni rawwadha.	☐	☐	☐	☐

205	Ani sagantaa nagummaa dhabbataa waliin ta'uun nan beeksiisa.	☐	☐	☐	☐
206	Ani feedhii kottiin hojiwwan nagummaa bakka hojii foyyeessan nan rawwadha.	☐	☐	☐	☐

Deebiiwwan keessan tokko tokkoof ibsa dabalataa kennuuf ykn qorannoo kanarratti yaada kennuu yoo barbaaddan barreessaa -----
Gaafannoo kana yaada keessan irrattii kennuu keessaniif isin galateeffanna!

Maaloo fuula jalqabaa irrattii qorannoo kanarratti hirmaachuuf fedhii qabaachuu keessan kan ibsu fuula jalqabaa gaafannoo kanaa irratti mirkaneessaa!

6.7. Annex VII; - የ ተሳታፊ መረጃ ወረቀት

ስላም፡

ፍቅሩ በለጠ ጎሬንቶ እባላለሁ።

ረዕስ፡ -የደህንነት ባህል በ እንጨት መሰንጠቂያ ኢንዱስትሪ ውስጥ በደህንነት አፈፃፀም ላይ ያለው ተጽእኖ በሽገር ከተማ ኦሮሚያ ክልላዊ መንግስት ኢትዮጵያ 2023-24 የስርጭት ጥናት ዲዛይን በመጠቀም።

ስሜ ፍቅሩ በለጠ ጎሬንቶ እባላለሁ እዚህ የአዲስ አበባ ዩኒቨርሲቲ የህዝብ ጤና ትምህርት ቤት የአካባቢና የስራ ጤና ትምህርት ክፍል ተማሪ ነኝ። ዛሬ እዚህ የተገኘሁት የደህንነት ባህል በደህንነት አፈፃፀም ላይ የሚያሳድረውን ተጽእኖ በሽገር ከተማ ኦሮሚያ ክልላዊ መንግስት ኢትዮጵያ፣ 2023-24 በ እንጨት መሰንጠቂያ ኢንዱስትሪ የአካባቢ እና የስራ ጤና ሁለተኛ ዲግሪዬን በከፊል ለመጨረስ ነው። ይህ የምርምር ዓላማ በ እንጨት መሰንጠቂያ ኢንዱስትሪ ውስጥ ያለውን የሥራ ደህንነት ባህል ለመለየት እና የደህንነት ባህል በደህንነት አፈፃፀም ላይ ያለውን ተጽእኖ መመርመር ነው። በዚህ ጥናት ላይ እንድትሳተፉ በትህትና እጠይቃለሁ እና በእውነታ ላይ የተመሰረተ መልሶች እንድትሰጡኝ በትህትና እጠይቃለሁ። ለዚህ ጥናት የሚያስፈልገው ጊዜ ከ20-25 ደቂቃ ነው።

ስጋቶች፡ - በዚህ ጥናት ውስጥ በመሳተፍ ምንም አይነት ስጋት የለም፣ነገር ግን ምላሾችዎ ሙሉ በሙሉ ሚስጥራዊ ናቸው እናም በዚህ መጠይቅ ላይ ስምዎን እንዲጽፉ አይገደዱም። ሁሉም ጥያቄዎች ለእነሱ ምላሽ ለመስጠት ባሎት ፍላጎት ላይ ይመሰረታሉ። በጥያቄዎቹ ላይ ምንም አይነት ምቹት ከተሰማዎት በማንኛውም ጊዜ መተው መብትዎ ነው። በዚህ ጥናት ላይ ከመጀመሪያውም ላለመሳተፍ ልትወስን ትችላለህ።

ጥቅማ ጥቅሞች፡ - በዚህ ጥናት ውስጥ በመሳተፍዎ በቀጥታ ተጠቃሚ አይሆኑም። ሆኖም፣ ያንተ

በዚህ ጥናት ውስጥ መሳተፍ የደህንነት ባህል በደህንነት አፈፃፀም ላይ ያለውን ተፅእኖ ለመለየት እና በእንጨት መሰንጠቂያ ኢንዱስትሪዎች ውስጥ በደህንነት አፈፃፀም ውስጥ የሰራተኛ ተሳትፎን ሚና እንዴት ማሳደግ እንደሚቻል ለመለየት በጣም አጋዥ ነው።

ሚስጥራዊነት; - ሁሉም ያቀረቡት መረጃ በሚስጥር ይጠበቃል እና ማንም ሰው ከተመራማሪው ቡድን አባላት በስተቀር መረጃውን ማግኘት አይችልም። ለእያንዳንዱ ጥያቄ የሰጡት ታማኝ እና እውነተኛ ምላሽ የጥናቱ ዓላማን እውን ለማድረግ ትልቅ ሚና ይጫወታል። ስለዚህ፣ ለአንተ በጣም አመሰግናለሁ እናም እርዳታህን በጣም አደንቃለሁ።

በመጨረሻም ደህንን ጥናት በተመለከተ ማንኛውም አይነት ጥያቄ ካሎት ፍቅሩ በለጠ አዲስ አበባ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ የህዝብ ጤና ትምህርት ቤት ሞባይል ስልክ ቁጥር፡ +251913031206 ኢሜል፡ nathanifiker@gmail.com ወይም ዶ/ር ተፈሪ አበጋዝ (Tel +251911361607) ኢሜል ያግኙ። teferi.abegaz@aau.edu.et ወይም ዶ/ር መአዛ ገዙ (Tel +251-) meaza.gezu@gmail.com (አማካሪዎች) አዲስ አበባ ዩኒቨርሲቲ፣ ጤና ሳይንስ ኮሌጅ፣ የኅብረተሰብ ጤና ትምህርት ቤት ወይም የሕብረተሰብ ጤና ትምህርት ቤት የሥነ ምግባር ገምጋሚ ኮሚቴ (ቴል +251-115157701)።

በዚህ ጊዜ፣ስለዚህ የድምጽ ደረጃ መለኪያ መሳሪያ አላማ ወይም ይዘት ማንኛውንም ነገር ልትጠይቀኝ ትፈልጋለህ? በጥናቱ ለመሳተፍ ፈቃደኛ ነህ?

6.8. Annex VIII; - በ መረጃ የ ተደገፈ የ ስ ምምነ ት ቅ ጽ ኮ ዶች :

ከተማ ሸገር ክፍለ ከተማ፡ መልካ ኖኖ አውራጃ፡ ታጠቅ ኢንዱስትሪያል ዞን የፋብሪካ ኮድ፡ SM_____

መረጃ የሚሰበሰብበት ቀን ከጥር 02 እስከ ፌብሩዋሪ 30/2024 የመረጃ ሰብሳቢው ኮድ S_____

የመረጃ ሰብሳቢው ስም፡ _____ ምልክት _____

መግቢያ:- ይህ መጠይቅ በኦሮሚያ ክልላዊ መንግስት በሸገር ከተማ በታጠቅ ኢንዱስትሪያል ዞን መልካ ኖኖ ክፍለ ከተማ ከሚገኙት የእንጨት መሰንጠቂያ ፋብሪካዎች መረጃ ለመሰብሰብ የታሰበ ነው። በኦሮሚያ በሸገር ከተማ ውስጥ በ እንጨት መሰንጠቂያ ኢንዱስትሪ ውስጥ የደህንነት ባህል በደህንነት አፈፃፀም ላይ ያለውን ተፅእኖ ለመተንተን እርሶ/ድርጅትዎ የሚያቀርቡት መረጃ በጣም ወሳኝ ነው። በመሆኑም እውነተኛ መረጃ እንድትሰጡን በአክብሮት እንጠይቃለን። ያቀረቡት መረጃ ሚስጥራዊ ይሆናል። በዚህ ጥናት ውስጥ ላለመሳተፍ ወይም በማንኛውም ጊዜ ከጥናቱ ላለመውጣት ሁሉም ህጋዊ

መብት ይኖርዎታል። ከዚህ በላይ ያለውን ማስታወቂያ እንዳንበብኩ እና ሙሉ በሙሉ እንደተረዳሁ አረጋግጣለሁ እናም መጠይቁን ለመሙላት ፈቃደኛ ነኝ። ስለዚህ፣ በጥናቱ ለመሳተፍ ፈቃደኛ ነኝ።

የተሳታፊ ፊርማ _____ ቀን _____

6.9. አባሪ IX የአማርኛ ሥሪት መጠይቅ

የአሳታፊ ኮድ -----

መረጃ የሚሰበሰብበት ቀን -----

ክፍል I. ስነ-ሕዝብ ሁኔታዎች እና የባህሪ ሁኔታዎች/የግለሰብ የህይወት ዘዴ።

አቅጣጫ፡ አንድ የሚቻል መልስ ይምረጡ እና በሳጥኑ ውስጥ ምልክት ያድርጉበት።

ተ/ቁ	ጥያቄዎች				ሊሆን የሚችል መልስ			
01	ፆታ				ወንድ	☐	ሴት	☐
02	እድሜ							
03	ሀይማኖት	1. አርቶዶክስ ☐	2. ሙስሊም ☐	3. ፕሮቴስታንት ☐	4. ካቶሊክ ☐	5. ሌላ ☐		
04	የጋብቻ ሁኔታ	1. ያላገባ ☐	2. ያገባ ☐	3. የተፋታ ☐	4. የሞተበት ☐			
05	የቤተሰብ አባላት				_____			
06	የሚደገፍ የቤተሰብ አባላት ብዛት				_____			
07	የትምህርት ደረጃ	1. ያልተማረ ☐	2. ማንበብ ና መፃፍ ☐	3. የመጀመሪያ ደረጃ (1-8) ☐	4. ሁለተኛ ደረጃ (9-12) ☐	5. ዲፕሎማ ና ከዛ በላይ ☐		
08	የቅጥር ሁኔታ	1. ውል (ለተወሰነ ጊዜ እና ሥራ) ☐		2. ቋሚ (ለልተወሰነ ጊዜ) ☐		3. ሌላ፣ ይግለጹ ----		
09	በእንጨት መሰንጠቂያ ውስጥ ምን ያህል ጊዜ እየሰሩ ነው?				_____	ኮድ	_____	
10	ከኮድ _____ እንጨት መሰንጠቂያ ውጪ በሌላ የእንጨት				አዎ	☐	አይ	☐
11	ለጥያቄ ቁጥር 010 መልሱ አዎ ከሆነ ስንት ነው።				_____			

12	መኖሪያ	1.የግል	☐	2. ኪራይ	☐	3. ሌላ	☐	
13	ከመኖሪያዎ ወደ ሥራ ቦታ በኪ.ሜ ምን ያህል ይርቃል?			_____				
14	ወርሃዊ ገቢ የትርፍ ሰአትን ጨምሮ _____							
15	ባለፉት 12 ወራት ውስጥ በስራዎ ላይ ጉዳት ደርሶብዎት ያውቃሉ				1. አዎ	☐	2. አይ	☐
16	መልሶ አዎ ከሆነ ስንት ጊዜ			_____				
17	የጉዳቱ መጠን ይገለፅ	ቀላል	☐	መካከለኛ	☐	ከባድ	☐	
18	አልኮል ትጠጣለህ/ጫለሽ?			አዎ	☐	አይ	☐	
19	ለጥያቄ ቁጥር 18 መልሶ አዎ ከሆነ ምን ያህል ጊዜ ትወስዳለህ?	1.በየ ቀኑ	2.በሳምንት ሁለት ቀን	3.አንድ ቀንና ከዛም በታች በሳምንት	4.ሌላ ካለ ይገለፅ,----			
		☐	☐	☐	☐			
20	ጫት ትቅማለህ/ሚያለሽ?			አዎ	☐	አይ	☐	
21	ሲጋራ ታጫሳለህ/ሻለሽ?			አዎ	☐	አይ	☐	
22	ለጥያቄ ቁጥር 21 መልሶ አዎ ከሆነ በቀን ምን ያህል?			_____				
23	አሁን በተሰማሩበት ሥራ ደስተኛ ነዎት ወይም ረከተዋል?	1. አዎ በከፍተኛ ደረጃ	2.አዎ በተወሰነ ደረጃ	3.አይደለሁም				
		☐	☐	☐				
24	ለ Q-23 በከፍተኛ ወይም በተወሰነ ደረጃ አዎ ከሆነ፣ አሁን ባለው ስራዎ ደስተኛ የሚያደርገው ምንድን ነው? (ሁሉንም አረጋግጥ)	አጠቃላይ የስራ ግንኙነቱ ጥሩ እና መሰረታዊ መብቶች የተከበሩ ናቸው።	ደመወዙ ጥሩ ነው እና ሌሎች ጥቅማ ጥቅሞችም አሉ።	በአስተዳደሩ እና በሰራተኞች መካከል ያለው ግንኙነት ጤናማ እና አሳታፊ ነው	የሙያ ደህንነት እና የጤና ደረጃዎች ይጠበቃሉ እና የስራ በታዎች አስተማማኝ እና ጤናማ ናቸው	ሌላ ማንኛውም፣ ይግለጹ - ----		
		☐	☐	☐	☐			

በሚቀጥለው ክፍል ላይ በዚህ ስራ ቦታ የቅርብ ኃላፊዎች እና ሱፐርቪዘርዎች ስለ ሙያ ደህንነት ያላቸውን ግንዛቤ ይግለፁልን. አንዳንድ ጥያቄዎች ተመሳሳይ ሊመስሉ ይችላሉ ነገር ግን ለሁሉም ጥያቄዎች የእርሶ ምላሽ አስፈላጊ ስለሆነ ሁሉንም እንዲመልሱል እንጠይቆታለን.

	ለእያንዳንዱ ጥያቄ አንድ የ'x' ምልክት ብቻ ያድርጉ	በጣም አልስማማም	አልስማማም	እስማማለሁኝ	በጣም እስማማለሁኝ
101	የድርጅቱ ማኔጅመንት/ኃላፊ የስራ ጫና በሚኖርበትም ወቅትም ቢሆን የሙያ ደህንነት ህግ/መመሪያ ሠራተኞች ተከትለው እንዲሠሩ ያበረታታል።	☐	☐	☐	☐
102	እያንዳንዱ ሠራተኛ አስፈላጊ የሙያ ደህንነት መረጃ መቀበላቸውን ኃላፊ ያረጋግጣል	☐	☐	☐	☐
103	ሠራተኞች ስለ ሙያ ደህንነት ችላ/ትኩረት በማይሰጡበት ጊዜ ኃላፊዎች ሌላ የሚተገበርበት አማራጭ መንገድ ይፈልጋሉ	☐	☐	☐	☐
104	የድርጅቱ ኃላፊዎች የሙያ ደህንነትን ከውጤታማነት/ምርታማነት ያስቀድማሉ	☐	☐	☐	☐
105	ሠራተኞች አደጋ ሊያስከትል የሚችል ነገር ተጋልጦው ሳለ ከስራ ጫና የተነሳ ኃላፊዎች በዝምታ ያልፉሉ	☐	☐	☐	☐
106	እኛ እዚህ ድርጅት ውስጥ የምንሠራ ሠራተኞች በኃላፊዎች የሙያ ደህንነት ችግር የመፍታት አቅም ላይ እንተማመናለን	☐	☐	☐	☐
107	የሙያ ደህንነት ችግሮችን ለመለየት ፍተሻ/ጉብኝት በሚደረግበት ጊዜ በትክክል ችግሮች መገኘታቸውንና አፋጣኝ እርምጃ መወሰዱን ኃላፊዎች ያረጋግጣሉ	☐	☐	☐	☐
108	የስራ ላይ አደጋ ሊያደርስ/ሊያስከትል የሚችሉ ነገሮች ተለይተው ከታወቁ በኋላም ኃላፊዎች እርምጃ ሳይወስዱ በዝምታ ያልፉሉ	☐	☐	☐	☐
109	የድርጅታችን ኃላፊዎች የሙያ ደህንነት ችግሮች በትክክል የመፍታት ብቃት ያንሳቸዋል	☐	☐	☐	☐
110	የድርጅታችን ኃላፊዎች ትርጉም ያለውና የሚሠራ የሙያ ደህንነት ክፍለጊዜ ዲዛይን ለማድረግ ይጥራሉ	☐	☐	☐	☐

111	እያንዳንዱ ወራተኛ በሚሠራው ስራ የሙያ ደህንነትን እየተገበረ መሆኑን የቅርብ ኃላፊ ያረጋግጣል	☐	☐	☐	☐
112	የሠራተኞችን ደህንነት ሊጎዳ የሚችል ነገር ሲያጋጥም ወራተኞች በውሳኔ ሰጪነት እንዲሳተፉ ኃላፊዎች ያበረታታሉ	☐	☐	☐	☐
113	በሙያ ደህንነት ዙሪያ ወራተኞች የሚያቀርቡትን ሀሳብ ኃላፊዎች አይቀበሉም	☐	☐	☐	☐
114	በስራ ቦታ ላይ እያንዳንዱ ወራተኛ በሙያ ደህንነትና አደጋ ሊያስከትል የሚችል ሁኔታዎች በተመለከተ ከፍተኛ ችሎታ እንዲኖረው ኃላፊዎች ይጥራሉ	☐	☐	☐	☐
115	ኃላፊዎች በሙያ ደህንነት ዙሪያ ውሳኔ ከመስጠታቸው በፊት የወራተኞችን አስተያየት ጠይቀው አያቁም	☐	☐	☐	☐
116	በሙያ ደህንነት ዙሪያ በውሳኔ ሰጪነት ወራተኞች አብረው እንዲሳተፉ ኃላፊዎች ያበረታታሉ	☐	☐	☐	☐
117	የአደጋ/ጉዳት የመለየት ምርመራ በሚካሄድበት ጊዜ ትክክለኛው መረጃ ኃላፊዎች ይሰበስባሉ	☐	☐	☐	☐
118	የትኛውንም አደጋ ሊያደርስ የሚችልና የሚደርሱብንን ጥቃቅን አደጋዎች ሪፖርት ለማድረግ ከኃላፊዎች ቅጣት ይደርስብናል ብለን ስለምናስብ ሪፖርት ለማድረግ እንፈራለን	☐	☐	☐	☐
119	ኃላፊዎች አደጋው በሚደርስበት ጊዜ የነበሩትን ሁሉንም ወራተኞች በጥምና ያዳምጣሉ	☐	☐	☐	☐
120	አደጋ በሚደርስበት ጊዜ ኃላፊዎች ጥፋተኛውን ሰው ሳይሆን የአደጋው መንስኤ ላይ ትኩረት ያደርጋሉ	☐	☐	☐	☐
121	ሁልጊዜ ኃላፊዎች አደጋ በሚከሰትበት ወቅት ወራተኞችን ይወቅሳሉ	☐	☐	☐	☐
122	አደጋው በደረሰበት ወቅት ሲሰሩ የነበሩ ወራተኞችን ኃላፊዎች በተገቢው መልኩ ያስተናግዳሉ	☐	☐	☐	☐

በሚቀጥለው ክፍል ላይ በዚህ ስራ ቦታ ሠራተኞች ስለ ሙያ ደህንነት ያላቸውን ግንዛቤ ይግለጹልን

	ለእያንዳንዱ ጥያቄ አንድ የ'x' ምልክት ብቻ ያድርጉ	በጣም አልስማማም	አልስማማም	እስማማለሁኝ	በጣም እስማማለሁኝ
123	እዚህ ድርጅት ውስጥ የምንሠራ ሠራተኞች ሁላችንም የሙያ ደህንነት የላቀ ደረጃ እንዲደርስ እንሞክራለን	☐	☐	☐	☐
124	ሁሌም የስራ አከባቢያችን ንፁህና ከአደጋ የፀዳ እንዲሆን ሁላችንም ሠራተኞች በጋራ እንተታለን	☐	☐	☐	☐
125	እዚህ የምንሠራ ሠራተኞች አንዱ ለአንዱ ሠራተኛ ደህንነት አይጨነቅም	☐	☐	☐	☐
126	ሁላችንም እዚህ የምንሠራ ሠራተኞች ስራችንን በምናከናውንበት የተለዩ አደጋ ሊያስከትሉ የሚችሉ ሁኔታዎች እንዳይደርሱ እንከላከላለን	☐	☐	☐	☐
127	ሁላችንም ሠራተኞች ስራችንን በጥንቃቄ ለማከናወን እርስ በርሳችን እንተባበራለን	☐	☐	☐	☐
128	እዚህ የምንሠራ ሠራተኞች ለስራ ባልደረባችን ደህንነት ግድ አይለንም	☐	☐	☐	☐
129	ሁላችንም እዚህ የምንሠራ ሠራተኞች አደጋ/ጉዳት ሊያስከትል የሚችል ነገር ሊወገድ እንደማይችል እናስባለን	☐	☐	☐	☐
130	እዚህ የምንሠራ ሠራተኞች ሁላችንም አነስተኛ	☐	☐	☐	☐
131	ሁላችንም ሠራተኞች አደጋ ሊያስከትል የሚችል ባህሪም	☐	☐	☐	☐
132	ሁላችንም እዚህ የምንሰራ ሠራተኞች ስራችንን በወቅቱ	☐	☐	☐	☐

	ለመጨረስ የሙያ ደህንነት መመሪያዎችን እናፈርሳለን				
133	ሁላችንም እዚህ የምንሠራ ሠራተኞች ምንም እንኳን የስራ ጫና ቢኖርም አደጋ የሚያስከትሉ ነገሮችን በዝምታ አናልፋቸውም	☐	☐	☐	☐
134	እዚህ የምንሠራ ሁላችንም ስራችን ጎበዝ ያልሆኑ ሰዎች እንደማይመች እናስባለን	☐	☐	☐	☐
135	ሁላችን እዚህ የምንሠራ ሠራተኞች በስራ ላይ ጉዳት/ አደጋ ሊያስከትሉ የሚችሉ ነገሮችን በዝምታ እናልፋቸዋለን	☐	☐	☐	☐
136	ሁላችንም ሠራተኞች ማንኛው የስራ ባልደረባችን የሙያ ደህንነት ችግር ሲያጋጥመዉ መፍትሄ ለመፈለግ እንሞክራለን	☐	☐	☐	☐
137	ሁላችንም ሠራተኞች በጋራ በምንሠራበት ጊዜ ምንም አይነት የደህንነት ስጋት አይዘንም	☐	☐	☐	☐
138	እዚህ የምንሠራ ሁላችንም ሠራተኞች በስራ ባልደረባችን የሙያ ደህንነት ብቃት ላይ እንተማመናለን	☐	☐	☐	☐
139	ሁላችንም ሠራተኞች ካለፉት ስህተቶቻችን በመማር አደጋ/ጉዳት እንዳይደርስ እንከላከላለን	☐	☐	☐	☐
140	ሁላችንም እዚህ የምንሠራ ሠራተኞች አንዳችን የሌላውን በሙያ ደህንነት ዙሪያ ምክርም ሆነ ሀሳብ እንቀበላለን	☐	☐	☐	☐
141	ሁላችንም እዚህ የምንሠራ ሠራተኞች ስለሙያ ደህንነት ተነጋግረን አናውቅም	☐	☐	☐	☐
142	የሙያ ደህንነት ሀሳብ በሚነሳበት ወቅት ሁልጊዜ ሁላችንም እዚህ	☐	☐	☐	☐

	የምንሠራ ሠራተኞች እንወያያለን				
143	ሁላችንም እዚህ የምንሠራ ሠራተኞች በነፃነትና በግልፅ	☐	☐	☐	☐
144	ሁላችንም እዚህ የምንሠራ ሠራተኞች ጥሩ የሙያ ደህንነት ተወካይ የስራ ላይ አደጋዎችን/ጉዳቶችን ለመከላከል ከፍተኛ ሚና እንዳለው እናስባለን	☐	☐	☐	☐
145	ሁላችንም ሠራተኞች በስራ ቦታችን ላይ የሚደረጉ የሙያ ደህንነት ጉብኝቶችን/ግምገማዎችን በእኛ ደህንነት ላይ የተሻለ ለውጥ የላቸውም	☐	☐	☐	☐
146	ሁላችንም ሠራተኞች የሙያ ደህንነት ስልጠና የስራ ላይ አደጋዎችን/ጉዳቶችን ለመከላከል እንደሚጠቅም እንገነዘባለን	☐	☐	☐	☐
147	ቀደም ብሎ ስለ ሙያ ደህንነት ዕቅድ ማዘጋጀት ትርጉም እንደሌለው ሁላችንም እዚህ ምንሠራ ሠራተኞች እናስባለን	☐	☐	☐	☐
148	ሁላችንም ሠራተኞች በስራ ቦታችን ላይ የሚደረጉ የሙያ ደህንነት ጉብኝቶች/ግምገማዎች አደገኛ የሆኑ ጠንቆችን ለመለየት እንደሚረዱ እናምናለን	☐	☐	☐	☐
149	የሙያ ደህንነት ስልጠና ትርጉም እንደሌለው ሁላችንም እዚህ የምንሠራ ሠራተኞች እናስባለን	☐	☐	☐	☐
150	ሁላችንም እዚህ የምንሠራ ሠራተኞች ስለሙያ ደህንነት	☐	☐	☐	☐

ክፍል III: - በሚከተለው ክፍል እባክትን በዚህ የስራ ቦታ ላይ ያሉ ሰራተኞች ከባህሪ ደህንነት (ከደህንነት ጋር ተገዢነት እና የደህንነት ተሳትፎ) ጋር እንደሚገናኙ እንዴት እንደተረዱት ይግለጹ።

ተ/ቁ	ለእያንዳንዱ ጥያቄ አንድ X ብቻ ያስቀምጡ	በጣም አልስማማም	አልስማማም	እስማማለሁ	በጣም እስማማለሁ
201	ስራዬን ለመስራት ሁሉንም አስፈላጊ የደህንነት መሳሪያዎች (PPE) እጠቀማለሁ	☐	☐	☐	☐
202	ሥራዬን ለማከናወን ትክክለኛ የደህንነት ሂደቶችን እጠቀማለሁ	☐	☐	☐	☐
203	ሥራዬን በምሠራበት ጊዜ ከፍተኛውን የደህንነት ደረጃ አረጋግጣለሁ	☐	☐	☐	☐
204	የሥራ ቦታን ደህንነት ለማሻሻል ተጨማሪ ጥረት አድርጌያለሁ	☐	☐	☐	☐
205	በድርጅቱ ውስጥ የደህንነት ፕሮግራሙን አስተዋውቃለሁ	☐	☐	☐	☐
206	የሥራ ቦታን ደህንነት ለማሻሻል የሚረዱ ተግባራትን በፈቃደኝነት አከናውናለሁ	☐	☐	☐	☐

አንዳንድ መልሶችን ለማብራራት ከፈለጉ ወይም ስለጥናቱ አስተያየት መስጠት ከፈለጉ እዚህ ጋር አስተያየት መስጠት ይችላሉ፡

አስተያየቶች:

⑩ ቃለመጠይቁን ስለሞሉ እናመሰግናለን፡፡እባክዎን በመጀመሪያው ገፅ ላይ በጥናቱ ለመሳተፍ የሚገልፅ የፍቃደኝነት መጠየቂያ መኖሩን ያረጋግጡ

6.10. Annex X; Assurance of principal investigator

I, the undersigned, hereby affirm my unwavering commitment to upholding the highest standards of scientific integrity and ethical conduct throughout the research project. I acknowledge and accept full responsibility for ensuring that the project is carried out following the established protocols and guidelines. In pursuit of this commitment, I pledge to provide regular and timely progress reports to my advisors, keeping them informed of the advancements, challenges, and outcomes of the research. I will actively seek their invaluable guidance and approval in all key aspects of the project, recognizing their expertise and experience.

Name of the student: **Fikru Belete (BSc,)** Date: _____ Signature: _____

Approval of the primary Advisor

Name of the primary advisor: **Teferi Abegaz (PHD)** Date: _____

Signature: _____

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