

# Impact of training on occupational health and safety of woodworkers at a wood processing village in Ghana

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## Abstract

Keeping the workplace safe must not be the concern of only workers and companies but also national and global economies whose productivity and competitiveness play a major role on safe working environment. This paper investigated the impact of training on occupational health and safety of woodworkers at a wood processing village in Ghana. The study was conducted using cross-sectional design with 410 wood processing operators. Questionnaires adapted from safety management operation was used for this quantitative study. Data was analysed using descriptive and inferential statistics. All the eight (8) items under the use of personal protective equipment had their mean ratings lower than the theoretical mean of 3.0. This suggest that the woodworkers do not put on personal protective equipment during wood processing. Additionally, the study revealed that the woodworkers were not provided with personal protective equipment at work. Furthermore, the study revealed that training could significantly influence woodworker's practice of occupational health and safety in the wood processing industry. The outcome of this study suggests that the management of the enclave studied need to do more to enforce practice of safety, especially the use of personal protective equipment, to reduce hazards and injuries associated with wood processing industry.

**Keyword:** Occupational health and safety; Training; Woodworkers; Wood processing; Personal protective equipment

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## 1. Introduction

At the turn of the first and second industrial revolution, workplace safety increasingly became an important concept in academic and professional fields. The right to life is the most fundamental right, yet every year 2.2 million men and women are deprived of that right through occupational accidents and work-related diseases [1]). Additionally, [2] indicate that globally two million people die every year as a result of occupational accidents and work-related diseases and injuries. The above may be the tip of the iceberg, as data for estimating non-fatal illness and injury are not available in most developing countries [3].

Occupational injuries alone account for more than 10 million Disability-Adjusted Life Years (DALYs) lost, or healthy years of life lost whether to disability or premature death, and 8% of unintentional injuries worldwide [3]. The sources of injuries included rotating devices, shearing blades and cutting, while accidents suffered by woodworkers included amputations, partial blindness and crushed hands [4]. Poor occupational health and reduced working capacity of

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workers may cause economic loss up to 10-20% of the Gross National Product of a country [5]. Globally occupational deaths, diseases, and illnesses account for an estimated loss of 4% of the Gross Domestic Product [6]. The International Labour Organization (ILO) estimates that work-related accidents and diseases account for a 4% loss in annual global gross domestic products, which is equivalent to USD 2,800 billion [2].

The wood processing industry is rated among occupations with high accidents and injuries in sub-Saharan African countries. In Ghana, the wood/forestry industry together with the agriculture and fishery industries account for more than half of fatal accidents in the industrial sector [7]; [8]; [9]. In 2006, 92 deaths per 100,000 workers were reported in the timber industry in Ghana [10]. Work-related accidents or injuries have social, financial and emotional costs. They can impoverish workers and their families, resulting in loss of quality of life and premature death, reduce output and work capacity, and dramatically increase healthcare expenditures [11]; [12]; [13]. An average of 16 working days are lost to occupational injuries in Ghana [9]. Technological and social conditions, preventive measures, the level of economic development and safety culture among employees all influence workplace safety [14]; [15]; [16]. Although the removal of hazard is the first precedence, it has been guessed that human fault is a contributing feature in 84% to 94% of industrial accident cases due to neglect to wear suitable personal protective equipment (PPE). [17], reported that the actions of fellow workers and supervisors influence the attitude of woodworkers to workplace safety.

The high accident and injury rates within the wood processing industries in Ghana have been attributed to limited awareness of occupational health and safety (OHS), low compliance with safety practices, inadequate engineering and administrative controls, and low usage of personal protective equipment (PPE) [18]; [19]; [20]; [21]. Additionally, the limited usage of PPE among workers across the world has been attributed to shortages, inconvenience and perception of PPE as unnecessary [22]. [19] indicated that the importance of personal protective equipment is overlooked in accidents that occur in the wood industries, as a lack of safety culture. Evidence suggests that wearing the correct personal protective equipment at all times is extremely important in reducing accidents and should be given high priority [23].

[24], indicated that in reducing injuries employers should focus more on the proper selection of the device and on the information and training of employees in the manner of wearing PPE. Employee training helps them in obtaining the essential knowledge, skills, and attitude to be capable of using the required PPE [25]. [26], indicated that legal obligations are necessary to provide and encourage the use of PPE and emphasized the importance of training that includes the benefits of using PPE.

In Ghana, the current National Labour Act 651 does not include any comprehensive provisions on occupational health and safety. There is also no institutional facility for training of occupational health and safety professionals at the local levels. Training of occupational health and safety professionals has largely been at the mercy of donor organizations outside the country. This paper therefore, seeks to assess the impact of training on the occupational health and safety of the workers at a wood processing village in Ghana.

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## 2. Material and methods

The study was conducted using both cross-sectional and interventional design. According to [27] cross-sectional surveys are appropriate for situations where the data to be collected are based on self-reported beliefs. Besides, it helps to collect data and compare many different variables at the same time without manipulating the study environment. 410 wood processing operators were used for the study. These includes: 50 bandsaw operators, 156 circular saw operators, 71 surface planner operators, 30 sanders, 64 spindle moulder operators and 39 mortiser operators. Five-point likert-scale questionnaire adapted from safety management perception questionnaire [28] was used for this study.

The questionnaire for the study was divided into three sections. The first part assessed the machine operator's adherence to occupational health and safety in the centre. The second part assessed the provision of personal protective equipment to the machine operators. Respondents were asked to indicate if they were provided with personal protective equipment like nose mask, ear plug, safety boots, overall, groves and goggles. The third part assessed the machine operators practice of occupational health and safety before and after training. Occupational health and safety equipment, pictures and charts were used to train the participants. 410 wood machine operators were trained. The machine operators were put into ten groups with each group numbering 41. This number was due to limited space of the conference hall at the study area. Each group was taken through occupational health and safe practice training related to woodwork. The training focused on the need to practice occupational health and safety by wearing of the personal protective equipment's such as earplugs, nose mask, gloves, safety boots and overall. Additionally, participants

were given training on the various safety signs as well as the need to keep the working environment clean. Two months after the training the machine operators were re-assessed on their practice of occupational health and safety.

The data collected was computed and analysed. Correlation analysis was used to determine the associations between respondents' adherence to wearing personal protective equipment and provision of personal protective equipment. The mean and standard deviation of the ratings for each of the items were computed and compared to the theoretical mean rating (assuming normal distribution of responses) to ascertain the respondents' perception on the themes studied. An item-by-item analysis of variance (ANOVA) at 5% level of significance was performed to establish possible significant difference in the respondents' ratings of the factors studied. P-values lower than 0.05 were deemed significant. In such situations Scheffe's post hoc test was used to make pair wise comparison of the means.

### 3. Results and discussion

#### 3.1. Adherence to Occupational Health and Safety Regulations

The results in Table 1 indicate the mean ratings and their corresponding standard deviations of the elements on the use of occupational health and safety practices by the machine operators at the Wood Processing Village in Ghana. The theoretical mean for the five-point likert-scale questionnaire used was 3.0.

**Table 1** Descriptive statistics of ratings of machine operators on the adherence to occupational health and safety regulations by machine operators

Item #	Element of adherence to occupational health and safety	Mean rating (n=410)	Standard deviation
<b>Personal Protective Equipment</b>			
1	Do you wear gloves when working?	1.15	0.642
2	Do you wear overall when working?	1.22	0.481
3	Do you wear goggles when working?	2.04	0.712
4	Do you wear face shield when working?	1.03	0.874
5	Do you wear nose and mouth mask when working?	2.13	0.432
6	Do you wear earplugs when working?	1.45	0.197
7	Do you wear helmet when working?	1.09	0.432
8	Do you wear safety boot when working?	1.34	0.521
<b>Machines and Maintenance</b>			
9	Do you ensure that guards and fence are in place during wood machining?	3.87	0.742
10	Do you ensure that trained personnel operate the machine	4.02	0.710
11	Do you ensure that electrical gadgets are put off before leaving the plant?	4.13	0.687
12	Do you ensure that woodworker's adherence to safety rules and regulations of all machines?	3.92	0.714
13	Do ensure that machine maintenance and repairs?	4.41	0.612
14	Do ensure adequate maintenance of saws blades?	4.33	0.625
15	Do you ensure that worn out chains and ropes are changed?	4.45	0.604
	Resultant mean for the use of safety practices for work	2.71	0.683

The results indicate that all the eight (8) items under the use of personal protective equipment had their mean ratings lower than the theoretical mean of 3.0. As indicated in Table 1 the Item # 4 "Do you wear face shield when working" had

the least mean rating of 1.03 (SD = 0.874) whilst the item # 5 “Do you wear nose and mouth mask when working” had the highest mean rating of 2.13 (SD = 0.432). This suggests that the machine operators at the Wood Village never, rarely or do not put on personal protective equipment during wood processing. Reasons given by the respondents were inadequate training and education on the use of the protective equipment as well as non-enforcement of the use of the personal protective equipment. This result is consistent with a study conducted by [29] in the assessment of safety practices and injuries associated with timber processing at a timber firm in Ghana. The study revealed that the woodworkers in that firm did not use personal protective equipment during wood processing and this could expose them to injuries and health issues. [30] also on their study on practical tool and procedure for workplace risk assessment indicated that 72% of the woodworkers assessed did not wear personal protective equipment in the enterprises studied in Estonia. [31], indicated that the number one-most reason for non-usage of personal protective equipment’s by woodworkers was employers not providing such for employees. Additionally, a study by [32], indicated that 87.5% of the sawmill workers studied did not wear nose mask, 93.8% did not wear safety boots, earplugs and goggles during wood processing.

The other seven (7) items under adherence to “machines and maintenance” have their mean ratings exceeding the theoretical mean of 3.0. As indicated in Table 1, the Item # 9 “Do you ensure that guards and fence are in place when machines are in use” had the least mean rating of 3.87 (SD = 0.742) whilst the item # 15 “Do you ensure that worn out chains and ropes are changed” had the highest mean rating of 4.45 (SD = 0.604). The ratings of the machine operators ranging from 3.87 to 4.45 indicates that the machine operators do ensure that: worn out chains and ropes are changed before they operate the machines; guards and fence are in place during wood machining, trained personnel operate the machines and electrical gadgets are put off before operators leave plant and machine. [33] on analysis and prevention of serious and fatal accidents related to moving parts of machinery reported that 85% of the woodworkers studied did not practice occupational health and safety in the sawmills studied.

The study further revealed that woodworkers at the sawmills studied do ensure that fence are in place during wood machining and electrical gadgets put off before they leave the plant. Additionally, the woodworkers’ adherence to the use of personal protective equipment was lower compared to machine and maintenance. This may be due to the fact that the machine operators were aware of the dangers that could result from poor machine maintenance therefore, they do report any fault the machines develop.

### **3.2. Effect of educational background of the machine operators on the adherence to occupational health and safety practices**

Table 2 indicates the effect of educational background on the practice of occupational health and safety by the machine operators at the Sokoban Wood Village. The item-by-item mean ratings of the respondents with no formal education, MSLC/JHS, secondary, and tertiary education under the sub-title “personal protective equipment” were all less than the theoretical mean of 3.0. Additionally, the result this part of the study indicates that generally, the level of education of the respondents did not significantly influence their adherence to the use of personal protective equipment. This means that the non-wearing of the personal protective equipment of the workers was not influenced by their educational background but could be from other factors as indicated earlier.

Similar studies on the effect of education on the use of personal protective equipment among sawmill workers in North Central Nigeria”, [34] concluded that less than 20% of the sawmill workers wore protective devices/clothing and this was due to the fact that health and safety standards were neither practiced nor enforced. Additionally, [35] conducted a study on occupational health and safety challenges for small scale enterprises and also concluded that educational background does not significantly influence the woodworkers on the practice of occupational health and safety by the workers at the wood village.

The item-by-item one-way analysis of variance (ANOVA) to assess the influence of educational background on the respondents’ ratings on the adherence to machine maintenance (Tables 2) indicated that, at 5% level of significance 5 out of the 7 items showed no significant effects of the machine operators’ educational background on their adherence to the items under machine and maintenance. However, 2 out of the 7 items showed that educational background of the machine operators had significant effect on their adherence to the items under machine and maintenance. Generally, the result of this study is contrarily to a study conducted by [36], on psychosocial risk assessment-ensuring the well-being of employees which concluded that woodworkers with higher educational background were more likely to be aware of the dangers of not practicing safety at the wood workshops studied than their counterparts with lower educational background. [36], further indicated that those with higher educational background can read and comprehend the machine manuals and the signs therefore, help to practice occupational health and safety.

**Table 2** ANOVA on effect of educational background on the adherence to occupational health and safety regulations

Item #	Elements of adherence to OHS	No formal Education (n <sub>1</sub> = 28)		JHS/MSLC Education (n <sub>2</sub> = 272)		Secondary Education (n <sub>3</sub> = 78)		Tertiary Education (n <sub>4</sub> = 32)		F-value	p-value
		Mean	SD	Mean	SD	Mean	SD	Mean	SD		
<b>Personal Protective Equipment</b>											
1	Do you wear gloves/mittens when working?	2.45	0.51	2.62	0.48	2.65	0.47	2.34	0.68	1.38	0.164 <sup>†</sup>
2	Do you wear overall when working?	1.94	0.39	2.45	0.12	2.32	0.11	1.65	0.79	1.41	0.089 <sup>†</sup>
3	Do you wear goggles when working?	2.93	0.92	2.34	0.23	2.09	0.19	2.54	0.44	1.68	0.545 <sup>†</sup>
4	Do you wear face shield when working?	1.02	0.18	1.11	0.11	1.41	0.13	1.14	0.07	1.48	0.434 <sup>†</sup>
5	Do you wear nose and mouth mask when working?	2.34	0.43	2.41	0.37	2.76	0.93	2.21	0.25	3.49	0.049*
6	Do you wear earplugs or ear muffs when working?	2.43	0.23	2.21	0.02	2.06	0.17	1.24	0.14	1.36	0.608 <sup>†</sup>
7	Do you wear helmet when working?	1.12	0.07	1.24	0.06	1.33	0.11	1.18	0.05	1.76	0.306 <sup>†</sup>
8	Do you wear safety boot when working?	1.43	0.29	1.06	0.15	1.87	0.32	1.02	0.19	1.35	0.310 <sup>†</sup>
<b>Machines and Maintenance</b>											
9	Do you ensure that guards and fence are in place during wood machining?	4.45	0.44	4.32	0.17	4.03	0.32	4.74	0.57	1.88	0.535 <sup>†</sup>
10	Do you ensure that trained personnel operate the machine	4.45	0.33	4.64	0.25	4.52	0.26	4.72	0.18	1.44	0.279 <sup>†</sup>
11	Do you ensure that electrical gadgets are put off before they leave plant?	4.45	0.07	4.45	0.07	4.25	0.12	4.63	0.04	1.89	0.073 <sup>†</sup>
12	Do you ensure woodworkers adherence to safety rules and regulations?	4.02	0.09	3.98	0.14	3.85	0.19	4.09	0.08	2.81	0.046*
13	Do ensure machine maintenance and repairs?	4.31	0.13	4.46	0.05	4.08	0.31	4.41	0.04	1.97	0.078 <sup>†</sup>
14	Do ensure adequate conditioning of saws and blades?	3.63	0.32	3.89	0.19	3.42	0.54	3.76	0.34	1.29	0.067 <sup>†</sup>
15	Do you ensure that worn out chains and ropes are changed?	4.17	0.12	4.39	0.05	4.21	0.08	3.74	0.39	3.08	0.041*

\*Statistically significant at 0.05 level of significance; †Not statistically significant at 0.05 level of significance

### 3.3. Provision of personal protective equipment (PPE) to wood machine operators

The provision of personal protective equipment to woodworkers has become imperative with the sole aim of protecting one from occupational injuries and health hazards [37]. The result in **Table 3** indicates the ratings of the wood machine operators on provision of personal protective equipment by their employers. The mean ratings of the machine operators on the provision of personal protective equipment for the 8 items assessed ranged from 1.07 for item # 8 “I am provided with helmet during processing wood” to 1.67 for item # 1 “I am provided with gloves/mittens during processing wood”. The resultant mean rating for the 8 items was 1.30.

**Table 3** Provision of personal protective equipment (PPE) to wood machine operators

Item#	Element on provision of personal protective equipment	Mean rating (n = 410)	Standard deviation
1	I am provided with gloves/mittens during processing wood	1.67	0.073
2	I am provided with overall during processing wood	1.48	0.081
3	I am provided with safety boot during processing wood	1.11	0.162
4	I am provided with goggles during processing wood	1.08	0.180
5	I am provided with face shield during processing wood	1.12	0.167
6	I am provided with nose and mouth mask during processing wood	1.18	0.116
7	I am provided with earplugs during processing wood	1.29	0.091
8	I am provided with helmet during processing wood	1.07	0.188
	Resultant mean for elements on provision of personal protective equipment	1.30	0.084

The mean ratings which was lower than the theoretical mean of 3.0, suggest that the machine operators were never or were rarely provided with personal protective equipment. Interview of the machine operators suggested that, the operators were employed on contract bases and that they were supposed to buy their own personal protective equipment. This is contrary to the requirement by [38], which indicate that when there is occupational exposure, the employer shall provide at no cost to the employee the appropriate personal protective equipment such as but not limited to gloves, gown/coat, face shield, nose mask and eye protection.

In a similar study by [31], the results indicated that 79% of the wood factory workers were not provided with any form of personal protective equipment by their employers. The study indicated that the reasons for non-provision of personal protective equipment by employers was that workers do not use them when they were provided for. [39], indicated that lack of knowledge on the importance of the use of personal protective equipment among workers in wood industry may influence their low desire to acquire the personal protective equipment's for work. This according to [40], is as a result of low educational status and lack of knowledge of personal protective equipment of employers of labour may also largely contribute to non-provision of personal protective equipment's at workplace

The study further looked at how the operations at the various department influence the provision for personal protective equipment to the operators in (**Table 4**). Item-by-item one-way analysis of variance at 5% level of significance indicates that the operation of the woodworker does not significantly influence the employer provision of personal protective equipment for the workers. Therefore, the study concluded that irrespective of the operations of sawmill workers, the employers did not provide for them personal protective equipment during processing of wood at the Wood Village. This finding is similar to the outcome of a study conducted by [41], which revealed that only 8.6% of the employers provided respirators and overall, to their employees irrespective of the operation the employee performs. The words of Kofi Annan (former UN General Secretary) as cited in [42] indicated that health and safety should not only be considered as sound socioeconomic and political policy but rather a basic human right issue. At the workplace all activities and arrangements must be in the right position to protect and safeguard human lives from work-related accidents and illness. According to [43], an increase in employer and employee involvement with health and safety issues actually helped to reduce accident rates from 1.2 to 0.1 per 100,000 man-hours.

Despite the fact that health and safety measures are meant to provide safe working environment to get employees committed to their work, its provision should not be left to the discretion of the employer as the [44] make it compulsory by apparently directing employers and employees in their roles and responsibilities in managing Occupational Health, Safety and Environment in the country. This shows that though having a clear objective on health and safety is important, yet employers should not see it as privilege for their employees but rather their right.

**Table 4** Influence of operation on provision of personal protective equipment by employers

Item #	Element on provision of personal protective equipment	Sawing Operation (n <sub>1</sub> = 206)		Planning Operation (n <sub>2</sub> = 71)		Moulding Operation (n <sub>3</sub> = 64)		Sanding Operation (n <sub>4</sub> = 30)		Boring Operation (n <sub>5</sub> = 39)		F-value	p-value
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
1	I am provided with gloves/mittens during wood processing	2.09	0.38	1.46	0.94	1.21	0.66	1.38	0.80	2.21	0.79	1.804	0.147 <sup>†</sup>
2	I am provided with overall during wood processing	2.05	0.79	1.42	0.95	2.28	0.52	2.02	0.90	1.62	0.80	5.402	0.081 <sup>†</sup>
3	I am provided with safety boot during wood processing	1.07	0.82	1.03	0.91	1.12	0.87	1.08	0.80	1.24	0.88	2.865	0.137 <sup>†</sup>
4	I am provided with goggles during wood processing	1.14	0.83	1.09	0.98	1.13	0.82	1.01	0.79	1.02	0.87	.240	0.868 <sup>†</sup>
5	I am provided with face shield during wood processing	1.13	0.86	1.04	0.91	1.08	0.76	1.09	0.75	1.27	0.94	10.08	0.213 <sup>†</sup>
6	I am provided with nose and mouth mask during wood processing	1.22	0.88	1.15	0.67	1.07	0.43	1.07	0.35	1.37	0.79	3.419	0.118 <sup>†</sup>
7	I am provided with earplugs during wood processing	1.91	0.94	1.79	0.78	1.12	0.85	1.10	0.91	1.06	0.85	1.012	0.388 <sup>†</sup>
8	I am provided with helmet during wood processing	1.01	0.92	1.07	0.85	1.09	0.85	1.53	0.93	1.12	0.73	3.336	0.068 <sup>†</sup>

\*Statistically significant at 0.05 level of significance; <sup>†</sup>Not statistically significant at 0.05 level of significance

### 3.4. Influence of training on the practice of occupational health and safety by machine operators.

Training needs are basically any shortfall in employee performance or potential performance, which can be remedied by appropriate training [45]. The result in **Table 5** indicates that, all the eight (8) items assessed under personal protective equipment had their mean rating values less than the theoretical mean value of 3.0 before receiving training. This suggests that the machine operators never or rarely do not wear or put on personal protective equipment. On contrary, six (6) out of eight (8) items assessed after the training, had their mean values above the theoretical mean rating of 3.0. Exceptions were items # 4 “Do you wear face shield when working” and item # 6 “Do you wear helmet when working” which had their mean ratings below the theoretical mean rating of 3.0 before the training and after training. The above suggests that, the training provided had significant effects on the employee’s attitude towards the use of health and safety equipment. [46] indicated that employers who provide all new employees with training on safe and proper job procedures experience encounter fewer accidents. [47], on training of wood processing workers in Nigeria indicated that training helps to reduce or avoid the occurrence of accidents at a workplace. He further asserted that workers entered the timber industry not as trained wood industry workers with a requisite professional knowledge and therefore needs training to avoid untold level of hazards.

Effect of training (**Table 5**) on the adherence to machine and maintenance indicates that all the seven (7) items assessed had their mean rating improved after training.

**Table 5** Descriptive statistics of ratings on the use of safety practices by the machine operator’s before and after training

SR. No	Element on the use of safety practices for machine operators	Before Training		After Training		F-Value	P-Value
		Mean	SD	Mean	SD		
<b>Personal Protective Equipment?</b>							
1	Do you wear gloves when working?	1.15	0.642	3.59	0.024	1.30	0.011*
2	Do you wear overall when working?	1.22	0.481	4.14	0.018	2.41	0.046*
3	Do you wear goggles when working?	2.04	0.712	3.61	0.022	1.65	0.016*
4	Do you wear face shield when working?	1.03	0.874	1.45	0.031	1.24	0.059†
5	Do you wear nose and mouth mask when working?	2.13	0.432	3.87	0.020	5.08	0.013*
6	Do you wear earplugs when working?	1.45	0.197	4.45	0.013	1.04	0.021*
7	Do you wear helmet when working?	1.09	0.432	1.09	0.038	2.31	0.055†
8	Do you wear safety boot when working?	1.34	0.521	3.34	0.023	1.11	0.027*
<b>Machines and Maintenance</b>							
9	Do you ensure that guards and fence are in place during wood machining?	3.87	0.742	4.27	0.016	3.419	0.718†
10	Do you ensure that trained personnel operate the machine	4.02	0.710	4.09	0.017	1.012	0.528†
11	Do you ensure that electrical gadgets are put off before leaving the plant?	4.13	0.687	4.73	0.010	3.336	0.078†
12	Do you ensure that woodworker’s adherence to safety rules and regulations?	3.92	0.714	4.02	0.019	3.51	0.472†
13	Do ensure machine maintenance and repairs?	4.41	0.612	4.61	0.011	3.419	0.319†
14	Do ensure adequate maintenance of saws blades?	4.33	0.625	4.53	0.012	.378	0.711†
15	Do you ensure that worn out chains and ropes are changed?	4.45	0.604	4.55	0.012	.068	0.092†
	Resultant mean for the use of safety practices	2.71	0.683	3.76	0.987		

\*Statistically significant at 0.05 level of significance; †Not statistically significant at 0.05 level of significance





**Figure 1** A worker without any PPE on and has figures cut off



**Figure 2** Bandsaw operator without any personal protective equipment



**Figure 3** A worker with nose marks, ear plugs, goggles, hat on after receiving training



**Figure 4** A worker with nose marks, ear plugs, goggles, hand gloves on after receiving training

Figure 1 and 2, are showing wood machine operators operating machines without wearing any personal protective equipment during wood processing before training

**Figure 3**, is showing wood machine operator operating machine with hat been used as helmet to protect his head from droppings of sawdust and wood shavings. He also had his earplugs on to control noise pollution, goggles, shirt as overall and nose and mouth mask to prevent inhalation of sawdust after he had received training. **Figure 4**, is also showing another wood machine operator with goggles, earplugs, long sleeves and T-shirt as overall, hand grooves and nose and mouth mask during wood processing after their had received training. Some of the workers asserted that, it is not because they do not want to wear the PPEs but they are not provided for by their employers. This clearly shows that when wood workers are giving frequent training on the need to wear PPEs and provided for by their employers will help reduce accident occurring

#### 4. Conclusion

The study found out that the woodworkers at the wood village in Ghana rarely or do not wear personal protective equipment during processing of wood. This exposes the workers at the Wood Village to a high risk of occupational hazard. However, the workers adhered to the maintain requirements of the various wood processing machines they were using. Furthermore, the study indicates that, the educational background of the respondents did not significantly influence their practice of occupational health and safety issues relating to their work.

The study again revealed that, personal protective equipment was never provided for by employers of the machine operators when operating machines or performing jobs that required their use. Worker's exposure to dust and noise was due to lack of control at source and inadequate protective clothing (goggles, ear plugs, and nose and mouth masks. Reasons cited by the operators for non-usage of PPE include; no provision by employer, had no money to buy, inconveniences, and not necessary. Furthermore, the study indicate that training significantly influence the woodworker's practice of occupational health and safety in the wood processing village. Most workers were seen putting on personal protective equipment such as earplugs, nose mask, hand grooves, googles, overalls and safety boots after they had received training. Moreover, the employers were constantly maintaining their machines whenever any of the parts gets spoiled.

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#### Compliance with ethical standards

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##### *Disclosure of conflict of interest*

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work report.

##### *Statement of informed consent*

Ethical issues which were ensured in this study included issues of informed consent, invasion of privacy, anonymity of respondents, voluntarism and plagiarism. The researcher's sought the permission of all participants in the research before the conduct of the study (informed consent). Introductory letter was sent to the management of the SWV and their approval received before the research commenced. The researcher made prior visits to management of the company in order to pre-arrange data gathering periods. This was to prevent unnecessary interruption in their work schedules thereby invading their privacy. Neither names nor any identifiable information from respondents was taken as a way of ensuring the ethical principle of anonymity in social research. This was to prevent possible victimization of respondents in situations that certain responses may be viewed as injurious to management or colleagues. While distributing the questionnaire, the researchers verbally informed all respondents who agreed to answer questionnaires that, their participation was voluntary. They could, therefore opt out at any stage of the research process. They could also skip questions they did not know the answers otherwise any guess they made would be taken as a correct answer for analysis of the data. This was just to ensure that the researchers did not breach the ethical principle of voluntarism to participate in social research. Pieces of information cited from earlier studies on occupational health and safety to support analysis of the study were duly acknowledged through both in-text referencing and a bibliography. This was meant to avoid academic dishonesty or plagiarism.

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