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Awareness of Occupational Hazards, Health Problems and Safety Measures among Sawmill Workers in North Central Nigeria

[Kuzey-Orta Nijerya'da Kereste Fabrikası İşçilerinde Mesleki Riskler, Sağlık Sorunları ve Güvenlik Önlemleri Farkındalığı]

SUMMARY
AIM: Research on occupational exposures in sawmill has suggested that workers in sawmills are at risk of developing allergenic disorders, cancer and lung diseases. To determine the perception of occupational hazards, health problems and use of safety measures among sawmill workers in Ilorin.
METHODS: This descriptive cross sectional study was carried out using two hundred and fifty seven (257) workers in sawmill industries who had been in continuous employment in sawmill factories for a minimum of one year. They were selected by a multistage sampling process from sawmills in Ilorin. A semi-structured interviewer administered questionnaire was used.
RESULTS: The majority of the respondents were wood traders, and machine operators. The occurrences of minor accidents were reported. Less then 20% of the sawmill workers wore protective devices/clothing, and health and safety standards were neither practiced nor enforced. Most perceived occupational hazards in the sawmill were dust and noise among 28.1% and 26.1% of the respondents respectively.
CONCLUSIONS: The level of awareness of various occupational hazards was low except that of electric shock that was high. The most common health problems experienced was minor accidents. Availability and use of safety devices were also poor. Sociodemographic factors were not found to influence the attitude and use of safety measures at workplace but awareness had significant influence on the level of use of safety measures. There is a need to improve the level of awareness, availability and use of safety measures among the workers through subsequent sensitization and awareness.

ÖZET
AMAÇ: Kereste fabrikalarında mesleki riskler üzerine yapılan araştırmalar işçilerin alerjik hastalıklar, kanser ve akciğer hastalıkları gelişme riski ile karşı karşıya olduklarını desteklemektedir. Bu çalışma, Ilorin'de kereste fabrikası işçilerinin mesleki riskler, sağlık sorunları ve emniyet tedbirleri kullanımı algılarını belirlemek amacıyla gerçekleştirilmiştir.
METOD: Bu kesitsel tanımlayıcı çalışma kereste fabrikasında en az bir yıldır çalışan 257 işçi üzerinde yapılmıştır. Katılımcılar, Ilorin'deki kereste fabrikasında çalışan işçiler arasından aşamalı örnekleme yoluyla seçilmiştir. Yarı yapılandırılmış anket uygulaması kullanılmıştır.
BULGULAR: Ankete katılanların çoğunluğu kereste simsarı ve makine operatörüdür. Meydana gelen küçük kazalar rapor edilmiştir. İşçilerin %20'den daha azı koruyucu giyecek ve cihazlar kullanmaktadır ve işçilere sağlık-güvenlik standartlarına uyma eğitimi verilememiştir, sağlık-güvenlik standartlarına uymak zorunlu da değildir. Kereste fabrikasında katılımcılar tarafından algılanan mesleksel risklerin sırasıyla toz (%28,1) ve gürültü (%26,1) olduğu saptanmıştır.
SONUÇ: Elektrik çarpması dışında iş riskleri bilinç düzeyinin düşük olduğu görülmüştür. En sık görülen sağlık sorunlarının küçük kazalar olduğu saptanmıştır. Güvenlik cihazlarının kullanılabilirliği de kötü olarak değerlendirilmiştir. Sosyodemografik özelliklerin iş yerinde güvenlik önlemleri kullanımına etkisinin olmadığı, ancak farkındalığın emniyet tedbirlerinin kullanım düzeyi üzerinde anlamlı etkisinin olduğu bulunmuştur. İşçiler arasında emniyet tedbirleri kullanımı, duyarlılığı ve farkındalığı düzeylerinin geliştirmesine ihtiyaç olduğu değerlendirilmektedir.

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Key Words:
Occupational Hazards, Health Problems, Safety Measures, Sawmill Workers.

Anahtar Kelimeler:
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INTRODUCTION

By-products of wood processing such as wood dust, mould, formaldehyde and noise are well known with respect to their health effects. Research on occupational exposures in sawmill has suggested that workers in sawmills are at risk of developing allergenic disorders, cancer and lung diseases (1). They are also exposed to synthetic chemicals used in these woods.

Most adverse effects caused by microorganism associated with wood dust have an immunological background. The best known are those caused by moulds which may abundantly develop in suitable conditions on stored wood (planks, chips) as a secondary wood infection. The inhalation of large amounts of spores and mycelial fragment of fungi

may cause in exposed workers strong antibody response and respiratory disorders or organic dust toxic syndrome (2). Less known are health effects of microorganisms developing in stored timber logs as a primary infection of wood. Timber may contain depending on kind of wood and conditions of storage, large quantities of diverse bacteria and fungi comprising potentially pathogenic species.

In Nigeria various studies have shown the role of occupational exposure to environmental pollutants in the incidence of respiratory diseases (3).

High levels of noise have long been recognized by industrial safety technicians as unsafe to workers. In a typical wood industry, decibel levels often exceed industry limits and may cause hearing loss (4).

Timber processing factories (sawmills) abound in Ilorin in various parts of the city. They are all privately owned and involved in processing and sales of timber to members of the public for building construction and furniture making.

This study was therefore carried out to determine the perception of occupational hazards and health problems among selected workers with the use of a pretested interviewer administered questionnaire designed by the researchers.

MATERIALS AND METHODS

The study was carried out Ilorin, capital city of Kwara State, Nigeria. There were eleven privately owned sawmills factories located in various parts of the city. The study involved 257 workers who accepted to take part in the study. The questionnaire contained both closed and open-ended questions on demographic data as well as the work history, perceived occupational hazards and occupational health problems.

Sawmill workers were selected by a multistage cluster sampling. The first stage involved random selection of six sawmills. The second stage was proportionate allocation the number of workers to be selected from each of the selected sawmills. The third stage was random selection of workers from the selected sawmills. Inclusion criteria in the study were workers who had engaged in wood handling for a preceding minimum period of one year either as sellers of wood or machine operators. Statistical analysis was done using the SPSS statistical package of the computer. Statistical significance was set at p-value of < 0.05.

RESULTS

All respondents (100%) were aware that electric shock was a hazard to which they were all exposed. Dust was perceived to be a hazard in the work place by 28.1% of respondents followed by noise (26.1%) and the least known hazard was inhalation of fungi and moulds spores (Table 1).

Majority (47.5%) of the workers obtained information about safety measures through their employers, 16.0% from seminars while 36.6% had no source of information (Table 1). Minor accidents constituted the health problems that the workers experienced the most (40.5%). This was followed by stress and exhaustion after work (25.7%) and eye irritation (14%) (Table 2).

Table 1. Awareness of hazards and safety measures at the work place among respondents

Variables	Freq (%)
Hazards that respondents are aware of	
Dust	72 (28.1)
Heat	25 (9.6)
Noise	67 (26.1)
Fungi and moulds	1 (0.3)
Chemical	7 (2.7)
Machine	60 (23.2)
Electric Shock	257 (100)
Source of information on safety measures	
Employer	122 (47.5)
Seminars	41 (16)
None	94 (36.6)

Table 2. Types of health problems experienced by respondents

Health problems	Freq (%)
Difficulty in breathing	14 (5.4)
Eye irritation	36 (14)
Skin irritation	7 (2.7)
Minor accidents	104 (40.5)
Major accidents	30 (11.7)
Stress and exhaustion	66 (25.7)
Electric shock	0 (0)

A larger percentage (61.9%) of workers worked for minimum of 8hrs per day while 38.1% worked for more than 8hrs. Majority (62.3%) of the workers were aware of the need for safety measures in their work place while 37.3% were not. (Table 3)

Table 3. Distribution by issues pertaining to safety measures

Variables	Freq (%)
Aware of Need For Safety Measures	
Yes	160 (62.3)
No	97 (37.7)
Use of Safety Measures	
Never Use	91 (56.9)
Always Use	24 (15)
Occasionally	33 (20.6)
Rarely	12 (7.5)
Reasons For Not Using Safety Devices	
Employer Not Providing Devices	33 (36.3)
Devices Not Necessary	21 (23.1)
Devices Not Convenient	18 (19.8)
Forget To Use	19 (20.9)
Working Hours/Day	
8 Hrs/Day	159 (61.9)
> 8 Hrs/Day	98 (38.1)

Table 4. Awareness on safety measures and use of protective device

Use of Protective Device	Awareness of Safety Measure	
	Aware (%)	Not Aware (%)
Yes	79 (49.4)	33 (34)
No	81 (50.6)	64 (66)

p = 0.016

On the frequency of utilization of protective devices, 56.9% of respondents never used devices at all while only 15% always use protective devices when working. Some of the reasons given for not using the devices were that the devices were not provided by the employers (36.3%), the devices were not necessary (23.1%), not convenient (19.8%) or forgetfulness (20.9%) (Table 3).

There is significant association between the awareness of safety measures and use of protective devices ($p<0.05$) (Table 4). There is no association between the educational status of the workers and the use of protective devices ($p>0.05$). There is no association between the educational status of the workers and the awareness of safety measures ($p>0.05$).

DISCUSSION

A number of studies have reported that workers in wood processing industries are exposed to relatively high level of dust in their working environment (5). In this study, one of the major hazards that caused problems to the health of the workers was dust. The dust exhaust from the machine precipitate problems like cough and sputum production after processing wood as well as eye irritation. Similar studies in Nigeria have reported increased prevalence of respiratory symptoms, principally cough, chest pain and sputum production among sawmill workers (3,6). The prevalent respiratory symptom in this study was difficulty in breathing. This is most probably because the air the workers breathed at work contained excessive amount of dust and also poor ventilation, closed-in-working areas.

The findings showed that most perceived occupational hazards in the sawmill were electric shock, dust and noise. However, the injury from electric shock was nil. The absence of electric shock among the respondents is probably because the workers were more careful in handling electricity due to the high level of awareness of its dangers.

In this study larger percentage of the worker spent maximum of 8 hours at work and some work less than 8 hours which correspond with the normal 8-hour workday standard term exposure limit (1). Some of the workers spent more than 8 hours per day. Those that spent more than 8hours per day may experience more stress at the end of the day and this can also increase the risk of injury at workplace. Surveys have indicated that a large proportion of machine operators had long-term health problems that are connected to their longer hours at work (7,8). These problems arise from spending excessive periods of time in a machine, where operators continuously carry out the same task and working a limited number of muscles. Noise exposure cases in the workplace often take years to become apparent. The long term exposure to noise from machine can lead to industrial deafness.

In this study less than 15% of the workers always used any form of protective device. Majority of the workers did not make use of the available protective gadgets. Some of the employers did not provide the devices and in situation where it is available the respondents found it unnecessary and others said it was not convenient when used. This is compared with the study done in Benin City, Nigeria (3) which indicated that less than 5% of the workers wore face masks or protective clothing/boots at work.

The level of awareness of various occupational hazards among sawmill workers in the study area was low except for that of electric shock that was high.

The most common health problems experienced was minor accidents. Availability and use of safety devices were also poor. Sociodemographic factors were not found to influence the attitude and use of safety measures at workplace but awareness had significant influence on the level of use of safety measures. There is a need to improve the level of awareness, availability and use of safety measures among the workers through subsequent sensitization and enlightenment.

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