

# HEALTH PROBLEMS AND OCCUPATIONAL HAZARD EXPOSURES AMONG WOOD ARTISANS IN IMO STATE, NIGERIA

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**Abstract:** Objective: To assess health problems and occupational hazards among wood artisans in Imo State, Nigeria. Methods: A descriptive cross-sectional study was carried out, to sample 216 respondents comprising saw millers, wood carvers and carpenters. Their selection was via multistage sampling technique, from 18 community wood clusters in 9 L.G.As, proportionately drawn from the 27 L.G.As that constitute the three senatorial zones of Imo State. A pre-tested semi-structured interviewer-administered questionnaire was employed to obtain data from respondents aged 20 years and above, who consented and met inclusion criteria from October 2022 to November 2023. Data obtained were captured with SPSS version 23, analyzed using descriptive statistics. Chi square test, t-test and logistic regression at 5% level of significance. Results: Conjunctivitis (50.5%), low mean peak expiratory flow rate ( $385.1 \pm 52.4$ /min; 50.9%), noise-induced hearing problems (104db; 56.9%), coarse palms (40.7%), musculoskeletal problems (88.0%) and hypertension (40.7%) were health issues detected. Occupational hazards included physical-wood particles (96.3%), noise (71.8%), heat (61.1%); chemical-wood dust (91.7%) and organic fumes (63.9%); biological-insect bite (61.1%); ergonomic-manual lifting of objects (60.2%), awkward posture (59.3%), repetitive work (54.2%), fixed posture (53.7%), and psycho-social-stress (60.2%) & fatigue (58.8%). Respondents' age, daily income and years at work were significantly associated with their health issues. Conclusion: Wood artisans in Imo State are vulnerable to occupational health problems due to exposures to hazardous work environment and precarious working conditions. Functional occupational safety and health services, safety and health education are needed for these workers.

**Keywords:** Wood artisans; Health problems; Occupational hazards; Imo State

## 1 INTRODUCTION

Health is a resource for everyday living, and a positive concept that encompasses social and physical capabilities [1]. Good health is one's real wealth, in that without it, an individual cannot perform to his maximum potential within the environment where he lives, work and in the greater society. It promotes one's ability and efficiency to do work, increases productivity and provides an individual with economic enhancement. A healthy worker is energetic, active and performs optimally in his respective occupation. Work and health are inseparably linked and each affects the other maximally [2]. Good health leads to positive work effects, while unhealthy work conditions result in work-related health challenges with their consequences to the affected worker, his family, enterprise and the greater society [3].

Occupational health deals with all aspects of health and safety at workplace, with primary aim of preventing work-related hazards and health disabilities. According to World Health Organisation (WHO), there are many risk factors at workplace that can lead not only to accidents, but injuries and diseases including cancer, musculoskeletal disorders, hearing impairment, stress-related diseases, circulatory, respiratory, eye and many communicable diseases [4]. Occupational health care helps in preventing these and has a positive economic impact both on individual, enterprise and the society at large. The risks at workplace are often higher in unorganized sector and small-scale industries whose establishment falls outside the purview of governmental regulations [5].

Occupational health challenges among artisans is a public health issue, yet an under-exposed problem particularly in the developing countries of the world. Craft-workers, workmen, tradesmen and servicemen in wood industries are faced with numerous health challenges, due to their exposures to hazardous work environment, precarious working conditions and unsafe work practices/habits [6]. These health problems exert profound effects not only on artisans health and productivity, but on their socio-economic well-being as well as that of their families [7]. They contribute to a substantial disease burden and economic loss of about 4-6% Gross Domestic Product for most countries of the world [8].

Occupational hazards of physical, chemical, psycho-social, ergonomic and organizational factors are common with artisans especially in low and middle-income countries of the world including Nigeria and have resulted in increased rates of work-related accidents, injuries, diseases and death, and often exacerbate other health problems among these workers [9].

In Nigeria, wood artisans form the substantial proportion of the labour force, but there is little or no occupational services involving social protection, health care and regulatory enforcement for occupation health and safety standard for them. Interaction between their poor living conditions and work hazards often aggravate their health problems, making them vulnerable to occupational morbidity and mortality [10].

Work-related health disorders such as chronic obstructive pulmonary (respiratory) disorders, musculoskeletal disorders,

noise-induced hearing loss, eye problems and skin problems are the most common occupational health disorders among wood artisans [11].

In Nigeria, majority of workmen and craft workers in wood enterprises work long hours (>8hours) with obsolete tools and machines, without adequate personal protective equipment due to poor finances and difficulties in obtaining credit facilities, and are therefore highly exposed to risks of work-related health issues [12].

There are 340 million records of occupational accidents and 160 million yearly occurrences of work-related illnesses globally. From same statistics, a total of 2.3 million deaths occur annually due to work-related diseases, while 6,300 workers die as a result of occupational accidents. One worker dies every 15 minutes, while 153 workers are involved in work-related accidents every 15 minutes world over. Available data from low- and middle-income countries (LMICs) though scanty and of varying quality, show increased incidences of work-related morbidity than in high-income countries of the world [13].

Numerous researches have been carried out to ascertain health problems of artisans in different parts of the world, including Nigeria. In a study on occupational health problems of Phulkari artisans in Mohali district of Punjab India, revealed headache, acidity, dizziness, hand and foot numbness and pain in different parts of the body including eyes, neck, back, legs, knees, arms, hand joints and finger tips as the health problems faced by artisans. As reported by Gupta, though these artisans were aware of their health problems, yet they neglect routine medical checkups, regular exercise and precautionary measures [14].

In Nigeria, in a study on physical work conditions and perceived health problems among informal automobile artisans, revealed manual lifting of heavy work items, oral sucking of petrol, long years at work and long working hours as factors significantly associated with work-related illnesses, while prolonged standing was found to be significantly associated with injuries. Results of study on health problems, work hazards and health needs of artisans in Ibadan, also revealed musculoskeletal joint pain (63.3%) and low back pain (54.7%) as some of the health problem of artisans studied. Indeed, needle prick was the commonest injury among tailors (79.9%) and hair dressers (57.8%), while cuts and lacerations were the commonest injury among carpenters (96.7%) and mechanics (90.9%). Findings of these studies point towards increased prevalence of health problems among these workers [15]. But of these studies, only few have been done in this part of the country, hence this research to assess health problems and occupational hazard exposures of wood artisans in Imo State, Nigeria. Findings of this study will serve as screening for work-related health problems of wood artisans as well as provide baseline data for diagnosis of these health issues, that will lead to provision of occupational health care services for artisans in Nigeria.

## 2 MATERIALS AND METHODS

A descriptive cross-sectional design was adopted for the study. Two hundred and sixteen (216) respondents consisting of saw millers, wood carvers and carpenters/furniture makers who consented and met inclusion criteria, participated in the study. Their selection was via multi-stage sampling technique, from eighteen (18) community wood clusters in nine (9) local government areas comprising 30% of the total local government areas, proportionately drawn from the three senatorial zones of Imo State. A set of detailed validated questions which formed the semi- structured questionnaire were administered through face-to-face direct contact to the respondents aged 20 years and above, who had lived not less than two years in Imo State, and had been actively involved in artisanal activities. This was done in both rural and urban community wood clusters randomly selected in Imo State for data collection, with all ethical requirements obtained. Assessment of their occupational health problems and hazards exposures were defined on the basis of critical markers such as occupational hazard exposures, awareness to occupational hazards and attitude towards safety and health practices. Ocular, respiratory, hearing, dermatology, musculoskeletal and blood pressure were some of the health conditions assessed using physical examination tools. The study lasted from October 2022 to November 2023. In the administration of questionnaire, the rate of incomplete and “wrong” responses due to poorly understood questions were drastically reduced as clarification sought were given in the process. The informed consent of the respondents was obtained before actual administration of the questionnaire. The literate respondents were allowed to fill the questionnaire by themselves while non-literates respondents had the questions in their local language and their responses accurately filled by the researcher or the research assistants. Each question took about 3-5 minutes to be completed. Data obtained was captured with SPSS version 23 and presented in tables using descriptive statistics for preliminary data analysis while chi square test, t-test and logistic regression at  $P < 0.05$ , were other analytical methods utilized.

## 3 RESULTS

**Table 1** Socio-Demographic Characteristics of Respondents

Age	Frequency (N)	Percentage (%)
20-29	33	15.3
30-39	64	29.6
40-49	48	22.2
50-59	63	29.2
60 +	8	3.7
Total	216	100.0
Gender		

Male	200	92.6
Female	16	7.4
Total	216	100.0
Marital Status		
Married	156	72.2
Single	48	22.2
Others	12	5.6
Total	216	100.0
Education Level		
Primary	51	23.6
Secondary	123	56.9
Tertiary	14	6.5
Non-formal	28	13.0
Total	216	100.0
Daily Income (#)		
< 2,000	13	6.0
2,000-3,000	44	20.4
4,000-5,000	79	36.6
Above 5,000	80	37.0
Total	216	100.0
Work Duration		
2-4 years	27	12.5
5-7 years	51	23.6
8-10 years	77	35.6
Above 10 years	61	28.2
Total	216	100.0
Work Schedule		
2-4 hours	8	3.7
5-6 hours	14	6.5
8-10 hours	194	89.8
Total	216	100.0

**Table 2** Common Reported Ocular (Eye) Issues Among Respondents

Common Reported ocular Issues	Frequency (N)	Percentage (%)
Are you experiencing any of these eye (ocular) issues now?		
Eye itching	63	29.2
Redness	6	2.8
Tearing	21	9.7
Gritty sensation	36	16.7
Pain	8	3.7
Blurry vision	21	9.7
None	61	28.2
Total	216	100.0

**Table 3** Common Reported Respiratory Issues Among Respondents

Common Reported Respiratory Issues	Frequency (N)	Percentage (%)
Are you experiencing any of these respiratory issues now?		
Cough	44	20.4
Phlegm production	21	9.7
Wheezing	22	10.2
Chest pain	23	10.6
Tightness of chest	42	19.4
None	64	29.6
Total	216	100.0

**Table 4** Common Reported Hearing Issues Among Respondents

Common Reported Hearing Issues	Frequency (N)	Percentage (%)
Are you experiencing any of these hearing issues now?		

Ringing sensation	21	9.7
Humming sensation	44	20.4
Heaviness of the ear	23	10.6
Tuning- up the volume of phone	21	9.7
None	107	49.5
Total	216	100.0

**Table 5** Common Reported Dermatology (Skin) Issues Among Respondents

Common Reported Dermatology (Skin) Issues	Frequency (N)	Percentage (%)
Are you experiencing any of these dermatology (skin) issues now?		
Bruises	9	4.2
Lacerations	36	16.7
Cuts	69	31.9
Burns	0	0.0
Itching	46	21.3
None	56	25.9
Total	216	100.0

**Table 6** Common Reported Musculoskeletal Issues Among Respondents

Common Reported Musculoskeletal Issues	Frequency (N)	Percentage (%)
Are you experiencing any of these musculoskeletal issues now?		
Joint pain	10	4.6
waist pain	86	39.8
Low back pain	22	10.2
Stiffness of muscles	21	9.7
Numbness	10	4.6
Fatigue	33	15.3
Tenderness	11	5.1
None	23	10.6
Total	216	100.0

**Table 7** Common Reported Blood Pressure Issues Among Respondents

Common Reported Blood Pressure Issues	Frequency (N)	Percentage (%)
Are you experiencing any of these blood pressure issues now?		
Headache	42	19.4
Palpitation	8	3.7
Sleep difficulty (Insomnia)	11	5.1
Dizziness	12	5.6
Fainting	7	3.2
Shortness of breath	5	2.3
None	128	59.3
Total	216	100.0

**Table 8** Other Common Reported Health Issues Among Respondents

Other Common Reported Health Issues	Frequency (N)	Percentage (%)
What other health issues are you experiencing now?		
Crushing wound	57	26.4%
Fracture	24	11.1%
Electric shock	10	4.6%
None	125	57.9%
Total	216	100.0

**Table 9** Occurrence of Health Problems Among Respondents

Occurrence of Health Problems	Frequency (N)	Percentage (%)	Test Result	P Value
Ocular Health				
Conjunctivitis	109	50.5		

Pinguecula	21	9.7		
Statistical Test (Likelihood Ratio)			160.33 <sup>LR</sup>	0.0001
Respiratory Health				
Low Peak Expiratory Flow Rate (PEFR)	110	50.9		
Mean PEFR ( $\pm$ std. dev)	385.1 $\pm$ 52.4			
Statistical Test (t)			2.224	0.027
Hearing (ear) Health	123	56.9		
Statistical Test (Chi Square)			0.006	0.981
Dermatology (skin) Health issues				
Coarse palms	88	40.7		
Cuts	44	20.4		
Scaly palms	63	29.2		
Statistical Test (Chi Square)			169.23	0.0001
Musculoskeletal Health	190	88.0		
Statistical Test (Chi Square)			0.601	0.438
Arterial (Blood) Pressure Health issue				
Hypertension	88	40.7		
Statistical Test (Chi Square)			0.042	0.828

**Table 10** Physical Hazards Exposures Among Respondents

Physical Hazard Exposures	Frequency (N)	Percentage (%)
Do you encounter the following physical hazards in your workplace?		
Noise		
Yes	155	71.8
No	61	28.2
Total	216	100.0
Heat		
Yes	132	61.1
No	84	38.9
Total	216	100.0
Wood particles		
Yes	208	96.3
No	8	3.7
Total	216	100.0
Vibration		
Yes	94	43.5
No	122	56.5
Total	216	100.0
Fire		
Yes	88	40.7
No	128	59.3
Total	216	100.0

**Table 11** Chemical Hazard Exposures Among Respondents

Chemical Hazard Exposure	Frequency (N)	Percentage (%)
Do you encounter the following chemical hazards in your workplace?		
Wood dust		
Yes	198	91.7
No	18	8.3
Total	216	100.0
Organic fumes		
Yes	138	63.9
No	78	36.1
Total	216	100.0
Smoke		
Yes	52	24.1
No	164	75.9
Total	216	100.0

**Table 12** Ergonomic Hazards Exposures Among Respondents

Ergonomic Hazard Exposures	Frequency (N)	Percentage (%)
Do you encounter the following ergonomic hazards in your workplace?		
Repetitive work		
Yes	117	54.2
No	99	45.8
Total	216	100.0

Fixed posture			
Yes	116	53.7	
No	100	46.3	
Total	216	100.0	
Awkward posture			
Yes	128	59.3	
No	88	40.7	
Total	216	100.0	
Manual lifting of Objects			
Yes	130	60.2	
No	86	39.8	
Total	216	100.0	

**Table 13** Biological Hazard Exposures Among Respondents

Biological Hazard Exposures	Frequency (N)	Percentage (%)
Do you encounter the following biological hazards in your workplace?		
Insect Bite		
Yes	132	61.1
No	84	38.9
Total	216	100.0
Snake Bite		
Yes	9	4.2
No	207	95.8
Total	216	100.0

**Table 14** Psycho-social Hazard Exposures Among Respondents

Psycho-social Hazard Exposures	Frequency (N)	Percentage (%)
Do you encounter the following psycho-social hazards in your workplace?		
Stress		
Yes	130	60.2
No	86	39.8
Total	216	100.0
Fatigue		
Yes	127	58.8
No	89	41.2
Total	216	100.0
Exhaustion		
Yes	38	17.6
No	178	82.4
Total	216	100.0

**Table 15** Awareness Towards Hazards and Their Sources Among Respondents

Awareness of Hazards & Sources	Frequency (N)	Percentage (%)
Are you aware that you are exposed to various hazard(s) in your work place?		
Yes	199	92.1
No	17	7.9
Total	216	100.0
What is your source of awareness?		
Work safety books		
Yes	30	15.1
No	186	84.9
Total	216	100.0
Radio/ TV media		
Yes	32	16.1
No	184	83.9
Total	216	100.0
Colleagues/friends		
Yes	35	17.6
No	181	82.4
Total	216	100.0

Social media			
Yes	28	14.1	
No	188	85.9	
Total	216	100.0	
Personal experience			
Yes	142	62.8	
No	74	37.2	
Total	216	100.0	

**Table 16** Attitude Towards Occupational Health Protection Among Wood Respondents

Attitude Items	SD Freq (%)	D Freq (%)	N Freq (%)	A Freq (%)	SA Freq (%)	Mean	St.dev
Occupational health should be taken seriously and given prompt attention	0 (0.0)	0 (0.0)	32 (14.8)	60 (27.8)	124 (57.4)	4.50	2.95
Protection of occupational health is a joint responsibility of everybody	0 (0.0)	0 (0.0)	20 (9.3)	84 (38.9)	112 (51.9)	4.50	2.95
Paying extra attention to occupational health protection is not an unnecessary burden on me	6 (2.8)	32 (14.8)	41 (19.0)	113 (52.3)	24 (11.1)	2.70	2.57
Having training on health and safety measures at work is required to reduce the work risk	0 (0.0)	24 (11.1)	56 (25.9)	93 (43.1)	43 (19.9)	3.38	1.82
The use of personal protective equipment is necessary to reduce the risk of exposure to occupational health problem	0 (0.0)	16 (7.4)	38 (17.6)	85 (39.4)	77 (35.6)	3.38	2.04
Work overall coats should always be worn in whenever work is going on	25 (11.6)	41 (19.0)	50 (23.1)	77 (35.6)	23 (10.6)	2.70	1.37
Hand gloves should always be worn when handling equipment	9 (4.2)	38 (17.6)	43 (19.9)	52 (24.1)	74 (34.3)	2.70	1.47
Hands should be properly washed after contact with equipment	0 (0.0)	14 (6.5)	34 (15.7)	54 (25.0)	114 (52.8)	3.38	2.70
Incorporating proper work breaks and stretching is essential to reduce exposure stress	3 (1.4)	21 (9.7)	32 (14.8)	64 (29.6)	96 (44.4)	2.70	2.31
Head gears and safety boots should be put on when working	8 (3.7)	39 (18.1)	28 (13.0)	114 (52.8)	27 (12.5)	2.70	2.57
The use of nose masks should be encouraged at work	0 (0.0)	48 (22.2)	44 (20.4)	78 (36.1)	46 (21.3)	3.38	1.01
Self-evaluation of workplace risk factors should be done always	0 (0.0)	0 (0.0)	55 (25.5)	83 (38.4)	78 (36.1)	4.50	0.93
First aid equipment should be available at work place	0 (0.0)	0 (0.0)	24 (11.1)	39 (18.1)	153 (70.8)	4.50	4.41
Prolonged standing should be avoided	11 (5.1)	40 (18.5)	33 (15.3)	98 (45.4)	34 (15.7)	2.70	2.03
All exposures to excessive wood dust should be avoided	0 (0.0)	13 (6.0)	46 (21.3)	115 (53.2)	42 (19.4)	3.38	2.70
Punitive actions should be taken against violators of safety practices	30 (13.9)	66 (30.6)	55 (25.5)	59 (27.3)	6 (2.8)	2.70	1.55
						3.36	2.10

SD: strongly disagree, D: Disagree, N: Neutral, A: Agree, SA: Strongly Agree, St. Dev: Standard deviation

**Table 17** Influence of Awareness and Attitude on Occurrences of Health Problems Among Respondents

Health Problems	Coefficient	Std. error	df	P	Odds Ratio (OR)	95% C.I. for OR	
						Lower	Upper
Awareness							
Blood Pressure problem	-0.760	0.265	1	0.004	2.138	1.272	3.594
Musculoskeletal problem	-2.590	1.018	1	0.011	13.333	1.812	18.134
Dermatological problem	-1.002	0.270	1	0.000	0.367	0.216	0.623
Hearing problem	-1.264	0.336	1	0.000	0.283	0.146	0.546
Respiratory problem	-0.768	0.265	1	0.004	0.464	0.276	0.781
Ocular problem	-1.454	0.278	1	0.000	0.234	0.135	0.403
Attitude							
Ocular problem	-1.679	0.195	1	0.000	0.187	0.127	0.273
Respiratory problem	-0.207	0.162	1	0.202	0.813	0.592	1.117
Hearing problem	0.339	0.161	1	0.035	1.404	1.024	1.926
Dermatological problem	-0.890	0.179	1	0.000	0.411	0.289	0.583
Musculoskeletal problem	-0.065	0.158	1	0.681	0.937	0.687	1.278



Blood Pressure problem	-1.147	0.257	1	0.000	0.317	0.192	0.525
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**Table 18** Relationship between Socio-Demographic Factors and Health Problems Among Respondents

Occupational Health Issues	Significant Socio-Demographic Factors at P<0.05
Ocular (Eye) Problem	Age, Sex, Educational level, Daily income
Respiratory Problem	Duration of work
Hearing (Ear) Problem	Age & Duration of work
Dermatology (Skin) Problem	Duration of work
Musculoskeletal Problem	Age & Daily income
Arterial (Blood) Pressure Problem	Age

#### 4 DISCUSSION

Craft-men, workmen and tradesmen in wood industries constitute the substantial proportion of the nation's labour force, but they are particularly vulnerable to occupational health problems due to their exposure to hazardous work environment, precarious working conditions and unsafe work practices/habits.

Socio-demographically (table 1), majority of wood artisans were found to be between the ages of 30-39 years ((29.6%). This agreed with a similar study by [16] in Ifo, Kwara State.

Sex distribution showed that wood occupation is male dominated (99.5%). This may be due to gender bias towards these occupations especially in developing countries including Nigeria. It may also be due to the fact that most activities involved in wood occupation are physically demanding and can only be matched by men's strength. The few females among them may have been those who had been toughened by life circumstances and who have chosen to do any kind of job to survive. The findings supported similar studies by [10]

As concern educational level, greater proportion of wood workers had attained secondary school (56.9%). This is true because, often times people go into artisanal activities after secondary education either for lack of funds to further education to tertiary level, hence the high record for secondary educational level among respondents. The findings agreed with the study of Elenwo<sup>15</sup> which showed that majority (57.0%) of the respondents attained secondary education. Majority of them had daily income of ₦4,000 & above ₦5,000 (37.0%), showing that their activities were in high demand in Imo State. Greater proportion of these wood artisans had worked 8 years and above (35.6 %), lending credence to the saying that perfection comes with years of practice. And since most of them learn by experience as the study revealed, hence high duration (years) at work among these artisans. Majority of them work between 8-10 hours daily (98.8%), which corroborated similar studies by [17]. Activities of these wood artisans fall outside the purview of government regulation, no wonder they work as they like especially for long hours [18].

The common reported health problems among the respondent artisans as shown in tables 2-8 were eye itching (29.2%), cough (20.4%), humming sensation in the ear (20.4%), cuts (31.9%), waist pain (39.8%) and headache (19.4%).

Occurrences of health problems as presented in table 9, revealed conjunctivitis (50.5%) and pinguicula (9.7%) as detected ocular issues among respondents. Above half of wood workers had conjunctivitis. This may be due to their exposure to wood particles and the reason behind the itching and gritty sensation they commonly reported.

The mean peak expiratory flow rate (PEFR) was found to be low (385.1±52l/min) among the majority of respondents (50.9%), an indication of decline in their lung function. This may be to their exposures to wood dusts and organic fumes which are prevalent in their work environment. The findings corroborated Adeoye<sup>2</sup> in Osun State.

The mean noise level at wood respondents workplace (104db) exceeded the permissible limit (95db), thereby making the majority of them (56.9%) at risk of noise-induced hearing problems (NIHL). Significant difference with permissible limit on noise found was  $P=0.0001$ ,  $t=10.76$ . The findings agreed with similar studies [18][19]

Occurrences of dermatology (skin) issues among the respondents included coarse palms (40.7%), scaly palms (29.2%) and cuts (20.4%). These health issues may be due to obsolete tools and machines of work. These equipment, because of their pointed edges, high-powered force, unguarded moving belts and rotating wheels, may exert stress and injure wood workers exposed to them as reported by [18]. The findings are in tandem with Agu<sup>5</sup> & Balogun<sup>11</sup>.

Majority of the respondents had musculoskeletal problems (88.0%). These health issues may be as a result of ergonomic hazards including manual lifting, repetitive activities, fixed and awkward postures, as well as long working hours which respondents encounter daily. These work routines affect the muscles, tendons, ligaments, and nerves resulting in musculoskeletal disorders (MSDs) of waist pain, back pain, neck pain, joint pain, muscle stiffness and many others. The findings corroborated similar studies by [19]

Occurrence of hypertension health problems among respondents was 40.7%. The findings agreed with similar studies by [20] in Vellore, Southern India.

Occupational hazards encountered by respondents in their work activities as presented in tables 10-14, revealed noise (71.8%), heat (61.1%) and wood particles (96.3%) as the most encountered physical hazards, wood dust (91.7%) and organic fumes (63.1%) as the most encountered chemical hazards. Awkward postures (59.3%) and manual lifting of heavy work materials (60.2%) were the frequent ergonomic hazards encountered. However, greater proportion of these workers also encountered repetitive work (54.2%) and fixed posture hazards (53.7%). Insect bites (61.1%) was the commonest biological hazard, while psycho-socially, majority of respondents (60.2%) encountered hazard of stress (60.2%) and fatigue (58.8%). The findings agreed with similar studies by [6]

Awareness towards occupational hazard exposures as presented in table 15, was quite high among wood respondents



(92.1%), with main source of awareness being personal experience (62.8%). The findings collaborated similar studies by [21][22], which also revealed that the majority of the respondents were aware of the hazards, and the main source of awareness was from personal experiences.

Wood artisans recorded strong attitude towards occupational health protection (mean = 3.36, st. dev= 2.10) (table 16). The overall mean score was above the cut-off point of 3.0 for a 5 point likert scale (i.e[5+4+3+2+1]/5). Up to nine items have scores above the overall mean. Attitude on making first aid equipment available at work place had 70.8% strongly agreed, with none disagreed or strongly disagreed. But attitude towards the use of personal protective equipment among respondents, recorded poor response especially attitude towards putting on work coverall coats whenever work is going on (mean =2.70, st. dev = 1.37), with only 35.6% and 10.6% agreeing and strong agreeing to it. Attitude towards putting on hand gloves (mean =2.70, st. dev = 1.37), head gears and safety boots (mean = 2.70, st. dev = 1.47) also recorded poor results. The findings agreed with similar studies by [23][24][25], Nigeria, all of which revealed abysmal poor health and safety protection among respondents as against the awareness levels revealed from their studies. In a study, it revealed that 80% of the workers had no occupational health and safety training, while several other studies [26], all pointed towards low levels of compliance to occupational safety and health protection. According to the said studies, poor usage of personal protective equipment (PPE) was found to be instrumental to self-reported health problems among studied artisans.

Influence of awareness and attitude on occurrence of occupational health problems, showed negative coefficients with most of the health issues assessed, indicating that positive changes in them could reduce occurrences of health problems [27].

Most of the assessed health issues in relationship to socio-demographic factors as presented in table 18, showed significant association with artisans' age, daily income and years (duration) at work. Occupational health issues occurred majorly in older artisans with increased years at wood occupations. Findings tallied with a related study by [28][29], which showed that increased age may come with lowered immunity which makes an individual susceptible to pathogens at work.

## 5 CONCLUSION

Occupational health problems among wood artisans in Imo State, Nigeria is a public health issue, yet an under-exposed challenge. These workers are exposed to hazardous work environment, precarious working conditions and unsafe work practices/habits. Heat, noise, wood particles, fire, organic fumes, wood dust and smoke, insect bites, repetitive work, fixed and awkward postures, manual lifting of heavy objects, stress and fatigue are some of the work-related hazards encountered by wood workers in Imo State. Awareness to these occupational hazards though high, yet their attitude towards safety and health protection especially as concern usage of personal protective equipment during work activities is quite poor, hence the risk of occupational health problems among these workers. Conjunctivitis, cough, noise-induced hearing problems, coarse palms, waist pain and hypertension are prevalent among them. These health problems are significantly associated with artisans' age, daily income and years (duration) at work. Older workers with many years at work are found more with health issues than the younger ones.

Increased sensitization, training and education and provision of functional occupational safety and health services are therefore needed to ameliorate health issues associated with wood activities in Imo State.

## COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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