

ASSESSMENT OF OCCUPATIONAL HEALTH HAZARDS, WORKPLACE PRACTICES, AND SAFETY BEHAVIOURS AMONG ROADSIDE AUTOMOBILE MECHANICS IN OGBOMOSO, OYO STATE, NIGERIA

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Abstract

This study assessed occupational health hazards, workplace practices, and safety behaviours among roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria. A survey research design was adopted for the study. The population comprised all roadside automobile mechanics in Ogbomoso and its environs. The sample size was determined using Taro Yamane's formula, and a total of 180 respondents were selected using a multistage sampling technique involving stratified, cluster, proportionate, and convenience sampling methods. Data were collected using a structured questionnaire validated by three experts. The reliability of the instrument was established using Cronbach's alpha, yielding a coefficient of 0.73. Data were analysed using descriptive statistics (percentage and mean), while hypotheses were tested using Pearson correlation at the 0.05 level of significance. The findings revealed that body pains ($M = 1.86$) were the most commonly reported occupational health hazards. Working without personal protective equipment ($M = 3.38$) was identified as the most prevalent unsafe workplace practice, while daily disposal of waste ($M = 3.20$) was the most commonly adopted safety behaviour. The results further showed that workplace practices had a significant relationship with occupational health hazards ($r = .75, p < .05$), whereas safety behaviours had no significant relationship with occupational health hazards ($r = .13, p > .05$). The study concluded that unsafe workplace practices significantly contribute to occupational health hazards among roadside automobile mechanics. It was recommended that health educators should conduct awareness campaigns and training programmes to promote safe workplace practices and the consistent use of personal protective equipment.

Keywords: occupational health hazards, workplace practices, safety behaviours, automobile mechanics, nigeria

Introduction

As long as automobiles such as cars, buses, taxis, lorries and vans, among others, using either petrol, hybrid system, or diesels are in existence, the services of roadside automobile mechanics will continue to be relevant. Roadside automobile mechanics are roadside vehicle technicians with little or no formal training who have undergone an apprenticeship training for a certain period of time and have become certified. They are commonly referred to as local automobile mechanics because large numbers of them have makeshift shops which are made with the use of planks, bamboos, tarpaulin and removable iron sheets by the roadside. Roadside automobile mechanics help keep the cars fit for the road. Their services are highly needed because most Nigerians are driving fairly used vehicles (Ojo et al., 2017). According to Akowe (2023) and Hong et al. (2020), roadside automobile mechanics diagnose, repair, adjust, test, inspect and maintain various types of vehicles. Among many roadside automobile mechanics, this study focused mainly on those dealing with motor engine repairs.

The well-being of roadside automobile mechanics in the workplace is very important as it is one of the major determinants of their positive work output. A healthy worker is a potential productive person. Either directly or indirectly, workers are vulnerable to occupational health hazards (OHHs). Hazards refer to conditions or exposures that are capable of adversely affecting workers' physical, psychological or social well-being. Occupational hazard is defined as any potential source that can cause injury or damage to the health of a worker (Canadian Centre of Occupational Health and Safety, 2020). Globally, work-related accidents remain substantial, with approximately 270 million of incidents reported annually alongside significant non-fatal work-related injuries (Hamalainen et al., 2017; International Labour

Organization (ILO), 2017). Wang et al (2018) submitted that work-related mortality and morbidity caused social and economic burden including human and financial losses for workers and their families.

Automobile workshops and the nature of work are potential sources of health risk among roadside automobile mechanics. Evidence from different regions indicates that roadside automobile mechanics are exposed to diverse OHHs, including occupational contact dermatitis (Mohammed et al., 2019), occupational injuries (Heer et al., 2011), neurotoxicity (Keer, et al., 2016), and excess exposure to chemical (Ataro et al., 2019). Peterson (2014) observed that roadside automobile mechanics were exposed to OHHs in their workshops such as slip and falls, cuts and bruises from mishandling tools, and accidents due to motor oil spillage and asbestosis exposure from car paints. In a study conducted by Oche et al. (2020) in the Sokoto metropolis, many roadside automobile mechanics have experienced work-related illnesses such as bruises (89.5%), cut and punctures (80%); and burns (61%). In the United States, as at 2011, 3.9 out of every 100 full-time employees in the automobile repair and maintenance sector agreed that they have suffered some form of non-fatal OHHs (United States Bureau of Labor Statistics, 2015).

In southern India, 50% of the automobile workers have once suffered musculoskeletal injuries (Philip et al., 2014). In Nigeria, Saliu et. al. (2015) reported musculoskeletal disorders as the most frequent OHHs among roadside automobile mechanics. Slips and falls into an inspection pit were reported as a common problem, including fatal accidents from working beneath inadequately secured vehicles (Idris & Arah, 2015). Oluwagbemi (2007) submitted that roadside automobile mechanics suck petrol and use it to wash their hands leading to the absorption of tetraethyl. In Nigeria, Saliu et al.

(2015) affirmed that automobile workers were among those reported to have been exposed to lead. In the study of Akowe (2023) carried out among automobile repair artisans in Uyo metropolis, Akwa Ibom, the OHHs reported among them include burns, cuts, bruises, tiredness, and low back pains.

Roadside automobile mechanics engaged in several activities in their workplaces that predispose them to different OHHs. In the study of Tamene et al. (2020), it was reported that the application of force, repetitive tasks, manual handling of heavy loads, stress and lack of training caused work-related musculoskeletal disorders among roadside automobile mechanics. Roadside automobile mechanics are in daily contact with chemicals and flammable materials, electronic devices, heavyweight equipment and moving vehicles (Idris & Arah, 2015). Peterson (2014) submitted that working under vehicles, using heavy machinery and power tools, prolonged standing all day long, and the straining of backs and muscles exposed roadside automobile mechanics to OHHs. As observed by these researchers, poor workshop arrangement, nonchalant attitudes, and the throwing of tools while playing can also expose roadside automobile mechanics to various OHHs.

Workplace behaviours cannot be overlooked. It is one of the cheapest and safest measures to prevent accidents and promote the health of workers. With good safety behaviours, avoidable accidents, injuries, and death could be averted. Regardless of experience, workshop safety, personal safety, and emergency preparedness are important as they will prevent industrial accidents (Motey, 2013). Akowe (2023) reported poor safety practices among roadside automobile mechanics as many of them did not use safety devices when working. The result of the study Ozomata et al. (2021) carried out among roadside automobile mechanics in

Lagos State revealed that only 21.7% of respondents had good safety practices against occupational hazards.

The use of personal protective equipment (PPE) is another good safety behaviour that can prevent the occurrence of many OHHs among roadside automobile mechanics. All work in the automobile mechanic workshop could be deadly if not done cautiously. Therefore, adherence to safety precautions, guiding rules, and safety measures is one of the keys to prevent OHHs and stay healthy in the workplace. Motey (2013) pointed out sharp objects, heavy metals, oil, chemicals, among others, are potential hazards to the health of roadside automobile mechanics. It is advisable that roadside automobile mechanics put on safety kits for adequate protection against hazards. It was reported that over one-third of workers did not wear PPE despite its potential for providing protection from physical, chemical and biological hazards (Alli, 2008). Motey (2013) listed the use of protective wears such as safety boots, overalls, aprons, hand gloves, safety glasses or face shield, ear plugs, and filter/ mask respirators as good safety behaviours towards the prevention of OHHs among roadside automobile mechanics.

Statement of the Problem

Certain workplace behaviours such as fuel siphoning, poor hygiene practices, and inconsistent use of PPE significantly increase exposures to OHHs among roadside automobile mechanics. These workers face multiple biological, mechanical, ergonomic, and chemical hazards, among others. The skill of some roadside automobile mechanics in handling or lifting heavy objects are poor and this exposes them to musculoskeletal problems. Health hazards can emanate from fumes, hydraulic oil, battery acids, sharp objects, dirty environment, awkward body positioning during vehicle repair, and poor jack

positioning, to mention a few. The study of Selvi and Nimra (2017) showed that musculoskeletal diseases (62%) were the most commonly reported health problems facing roadside automobile mechanics, followed by cuts and injuries (58%).

The literature further revealed that many scholarly studies have been done among automobile mechanics in several parts of Nigeria. Some studies assessed knowledge of OHHs and safety practices among automobile mechanics; determinants of OHHs; health problems/morbidities among automobile mechanics; and others have examined safety practices alone. However, there is no study that has assessed OHHs, workplace practices, and safety behaviours together. Also, there is paucity of data on the present subject matter in this study. Therefore, the researchers assessed OHHs, workplace practices, and safety behaviours among roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria.

Research Questions

The following questions were answered in this study:

1. What forms of occupational health hazards are experienced by roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria?
2. What workplace practices are associated with occupational health hazards among roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria?
3. What safety behaviours are adopted by roadside automobile mechanics to prevent occupational health hazards in Ogbomoso, Oyo State, Nigeria?

Hypotheses

The following null hypotheses were tested in this study:

1. There is no significant association between workplace practices and occupational health hazards among roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria.
2. There is no significant association between the safety behaviours adopted and the prevention of occupational health hazards among roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria?

Methodology

A descriptive cross-sectional survey design was employed in this study. The study was conducted between September and December 2025 among roadside automobile mechanics (RAMs) in Ogbomoso and its environs. The sample size was determined using Taro Yamane's formula: $n = N / (1 + N(e)^2)$. A multistage sampling technique involving stratified, proportionate, and convenience sampling methods was used to select 180 respondents from different locations within the study area. Stratified sampling technique was used to put RAMs into different zones. Based on each zone, a proportionate sampling technique was used to determine the number of respondents per zone. Also, a convenient sampling technique was used to select the final respondents across zones. The study excluded mechanics below 18 years of age, apprentices, and those with less than two years of work experience. Data were collected using a structured questionnaire titled *Assessment of Occupational Health Hazards, Workplace Practices, and Safety Behaviours among Roadside Automobile Mechanics (AOHHWPSBRAM)*. The instrument was divided into four sections: Section A elicited socio-demographic information, Section B assessed

occupational health hazards, Section C examined workplace practices, and Section D focused on safety behaviours. The instrument was validated by three experts in Health Education, Public Health, and Community Health. Reliability was established using Cronbach's alpha, yielding a coefficient of 0.73. Ethical approval was obtained, and informed consent was secured from all participants. Confidentiality of responses was strictly maintained. Four trained research assistants assisted in data collection. Data were analysed using SPSS version 25. Descriptive

statistics (frequency, percentage, and mean) were used to answer research questions, while Pearson Product Moment Correlation (PPMC) was used to test the hypotheses at a 0.05 level of significance.

Results

Research Question One: What forms of occupational health hazards are experienced by roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria?

**Table 1: Mean Scores of OHHs Experienced by Roadside Automobile Mechanics
N= 180**

S/N	Occupational Health Hazards	Mean	Rank	Remarks
1	Skin problems	1.56	7 th	High prevalence
	Fracture	1.46	10 th	Low prevalence
3	Eye irritation	1.53	9 th	High prevalence
4	Respiratory problems	1.46	10 th	Low prevalence
5	Body pains	1.86	1 st	High prevalence
6	Scald injuries	1.57	6 th	High prevalence
7	Wounds	1.62	4 th	High prevalence
8	Electrical shock	1.30	13 th	Low prevalence
9	Burns	1.58	5 th	High prevalence
10	Injury to body parts	1.64	3 rd	High prevalence
11	Fatigue	1.78	2 nd	High prevalence
12	Violence	1.38	12 th	Low prevalence
13	Slip and fall	1.55	8 th	High prevalence

Criterion Mean = 1.50

Table 1 presents the mean scores and ranking of OHHs experienced by roadside automobile mechanics in Ogbomoso, Oyo State. The results show that body pains (M = 1.86), fatigue (M = 1.78), and injury to body parts (M = 1.64) were the most commonly reported OHHs. Conversely, electrical shock (M = 1.30), violence (M = 1.38), and fractures (M = 1.46) were among the least reported hazards. Since all mean values were compared with a criterion mean of 1.50, items with mean scores above 1.50 were considered more prevalent.

Research Question Two: What workplace practices are associated with occupational health hazards among roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria?

Table 2: Mean Scores of Workplace Practices Associated with OHHs among Roadside Automobile Mechanics

N= 180

S/N	Workplace Practices	Mean	Rank	Remarks
1	Lifting of heavy objects	3.12	6 th	High prevalence
2	Washing of hands with petrol	3.18	4 th	High prevalence
3	Mishandling of power tools	2.72	10 th	High prevalence
4	Pulling/pushing of heavy objects	3.10	8 th	High prevalence
5	Stepping/walking on oily /slippery floors	2.43	12 th	Low prevalence
6	Prolonged bending/squatting due to repair	3.21	3 rd	High prevalence
7	Working under unsupported vehicle	2.46	11 th	Low prevalence
8	Sucking of petrol through tube	3.14	5 th	High prevalence
9	Exposure to exhaust fumes and gases	3.37	2 nd	High prevalence
10	Working under lifted vehicle with poor jack positioning	2.27	13 th	Low prevalence
11	Working without personal protective equipment	3.38	1 st	High prevalence
12	Exposure to heavy noise	3.11	7 th	High prevalence
13	Working in poorly organised workshop environment	3.09	9 th	High prevalence

Criterion Mean = 2.50

Table 2 presents the mean scores and ranking of workplace practices associated with OHHs in Ogbomoso, Oyo State. The results show that working without personal protective equipment ($M = 3.38$), exposure to exhaust fumes and gases ($M = 3.37$), and prolonged bending/squatting due to repair ($M = 3.21$) were the major workplace practices associated with OHHs. Conversely, working under lifted vehicles with poor jack positioning ($M = 2.27$), stepping/walking on oily/slippery floors ($M =$

2.43), and working under unsupported vehicles ($M = 2.46$) were among the least reported workplace practices associated with OHHs. Since all mean values were compared with a criterion mean of 2.50, items with mean scores above 2.50 were considered more prevalent.

Research Question Three: What safety behaviours are adopted by roadside automobile mechanics to prevent occupational health hazards in Ogbomoso, Oyo State, Nigeria?

Table 3: Mean Scores of Safety Behaviours Adopted by Roadside Automobile Mechanics to Prevent OHHs

N= 180

S/N	Safety Behaviours	Mean	Rank	Remarks
1	Regular servicing/maintenance of working tools	2.11	4 th	Low prevalence
2	Use of safety glasses/face shield/goggles	1.53	8 th	Low prevalence
3	Use of safety boots/rubber boots	1.23	11 th	Low prevalence
4	Use of overalls/apron	2.65	3 rd	High prevalence
5	Daily sweeping of work environment	3.10	2 nd	High prevalence
6	Use of helmet/head guard/head gear/cover	1.83	7 th	Low prevalence
7	Use of hand gloves/rubber gloves while working	1.28	10 th	Low prevalence
8	Use of ear plug/muff	1.06	13 th	Low prevalence
9	Daily disposal of wastes	3.20	1 st	High prevalence
10	Hand washing with soap and water after work	1.97	6 th	Low prevalence
11	Use of nose mask/mask respirator	1.98	5 th	Low prevalence
12	Safe lifting techniques	1.34	9 th	Low prevalence
13	Use of first aid box	1.08	12 th	Low prevalence

Criterion Mean = 2.50

Table 3 presents the mean scores and ranking on safety behaviours that are adopted by roadside automobile mechanics to prevent OHHs in Ogbomosho, Oyo State. The results show that the daily disposal of wastes (M = 3.20), daily sweeping of work environment (M = 3.10), and the use of overalls/apron (M = 2.65) were the major safety behaviour adopted by roadside automobile mechanics to prevent OHHs; while use of ear plug/muff (M = 1.06), use of first aid box (M = 1.08) and use of safety boots/rubber boots (M = 1.23) were among the least reported safety behaviours. Since all mean values were compared with a criterion mean of 2.50, items with mean scores above 2.50 were considered more prevalent.

Hypothesis One: There is no significant association between workplace practices and occupational health hazards among roadside automobile mechanics in Ogbomosho, Oyo State, Nigeria.

Table 4: Pearson (r) Correlation between Workplace Practices and OHHs among roadside automobile mechanics in Ogbomosho, Oyo State, Nigeria

Variables	N	Df	SD	r-cal value	r-crit. value	Level of Significance	Decision
Workplace Practices & Occupational Health Hazards	180	178	6.42 5.82	0.75	0.16	0.05	Ho Rejected

Table 4 revealed that the calculated r-value of 0.75 is greater than the critical r value of 0.16 with the degree of freedom 178 at 0.05 level of significance. Since ($r = .75$, $p < .05$), therefore, the null hypothesis is rejected; this implies that workplace practices had significant connections with OHHs among roadside automobile mechanics in Ogbomosho, Oyo State, Nigeria.

Hypothesis Two: There is no significant association between safety behaviours adopted and the prevention of occupational health hazards among roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria?

Table 5: Pearson (r) Correlation between Safety Behaviours Adopted and Prevention of OHHs among Roadside Automobile Mechanics in Oyo State, Nigeria

Variables	N	Df	SD	r-cal value	r-crit. value	Level of Significance	Decision
Safety Behaviours Adopted & Prevention of Occupational Health Hazards	180	178	3.31 3.24	0.13	0.16	0.05	Ho Accepted

Table 5 revealed that the calculated r-value of 0.13 is less than the critical r value of 0.16 with the degree of freedom 178 at 0.05 level of significance. Since ($r = .13$, $p > .05$), therefore, the null hypothesis is upheld and this implies that safety behaviours adopted have no significant association with the prevention of OHHs among roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria.

Discussion of Findings

The findings in Table 1 indicates that body pains ($M = 1.86$), fatigue ($M = 1.72$), injury to body parts ($M = 1.64$), wounds ($M = 1.62$), burns ($M = 1.58$), scald injuries ($M = 1.57$), skin problems ($M = 1.56$), slip and fall ($M = 1.55$), and eye irritation ($M = 1.53$) ranked first to ninth respectively and are the most common OHHs experienced by roadside automobile mechanics in Ogbomoso, Oyo State, Nigeria. The least reported hazard was electrical shock ($M = 1.30$). This finding is consistent with Oche et al. (2020), who reported that many roadside automobile mechanics experienced work-related injuries such as bruises (89.5%), cuts and punctures (80%), and burns (61%). Similarly, Akowe (2023) found that roadside mechanics commonly reported burns, cuts, bruises, fatigue, and low back pain as prevalent occupational hazards. Saliu et al. (2015) also affirmed that musculoskeletal disorders are among the most frequently reported occupational health problems among roadside mechanics in Nigeria.

The results in Table 2 revealed that working without personal protective equipment ($M = 3.38$), exposure to exhaust fumes and gases ($M = 3.37$), prolonged bending/squatting during repair ($M = 3.21$), washing hands with petrol ($M = 3.18$), sucking petrol through tubes ($M = 3.14$), lifting heavy objects ($M = 3.12$), exposure to excessive noise ($M = 3.11$), pulling/pushing heavy objects ($M = 3.10$), working in poorly organized workshops ($M = 3.09$), and mishandling power tools ($M = 2.72$) were the major workplace practices associated with OHHs among roadside automobile mechanics. The least reported practice was working under lifted vehicles with poor jack positioning ($M = 2.27$). The findings in the Table 4 further revealed that workplace practices were significantly correlated with OHHs among roadside automobile mechanics in Ogbomoso, Oyo State. This suggests that engagement in unsafe work practices increases vulnerability to OHHs. This finding aligns with Tamene et al. (2020), who identified force exertion, repetitive tasks, manual

handling of heavy loads, stress, and lack of training as major contributors to work-related musculoskeletal disorders among roadside automobile mechanics. Peterson (2014) also noted that working under vehicles, using heavy power tools, and prolonged muscular strain expose mechanics to occupational hazards.

Table 3 shows that daily disposal of waste ($M = 3.20$), regular sweeping of the work environment ($M = 3.10$), and wearing of overalls/apron ($M = 2.65$) were the most common safety behaviours adopted by roadside automobile mechanics to prevent OHHs. The implication of this finding is that only basic environmental hygiene practices were commonly adopted, alongside the limited use of protective clothing such as overalls. Other essential safety practices such as regular servicing of tools, use of safety goggles, safety boots, helmets, gloves, ear protection, proper lifting techniques, and use of first aid kits were not adequately prioritised. Furthermore, Table 5 revealed that safety behaviours had no significant relationship with the prevention of OHHs among roadside automobile mechanics. This suggests that the low level of adoption of safety practices may have contributed to the lack of significant association. This finding is supported by Akowe (2023), who reported that roadside automobile mechanics rarely use safety devices during work, resulting in poor safety practices. Similarly, Ozomata et al. (2021) found that only 21.7% of roadside automobile mechanics demonstrated good safety practices. Alli (2008) also noted that a significant proportion of workers do not consistently use PPE despite its protective benefits.

Conclusion

Based on the findings of this study, the following conclusions were drawn:

1. Occupational health hazards were common among roadside automobile mechanics.

2. Workplace practices have significant association with occupational health hazards among roadside automobile mechanics in Ogbomoso. It implies that certain workplace practices exposed roadside automobile mechanics to occupational health hazards.
3. Safety behaviours adopted have no significant association with the prevention of occupational health hazards among roadside automobile mechanics in Ogbomoso. It implies that there was low utilisation of safety behaviours among roadside automobile mechanics and this hinders the prevention of occupational health hazards.

Recommendations

Based on the conclusion of the study, it is hereby recommended that:

1. Health educators and allied health professionals should conduct a series of awareness campaigns to educate roadside automobile mechanics on the prevention of occupational health hazards.
2. Health educators should organise training programmes for roadside automobile mechanics on safe work procedures to reduce risky practices and thereby promote health.
3. Health educators should organise sensitisation programmes to promote the proper, adequate, and consistent use of appropriate safety measures among roadside automobile mechanics.

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