KNOWLEDGE, ATTITUDE AND SAFETY PRACTICES OF AUTOMOBILE REPAIR ARTISANS TOWARDS OCCUPATIONAL HAZARDS.

(A SURVEY OF SELECTED ARTISANS IN UYO METROPOLIS

AKWA IBOM STATE)

BY:

AKOWE, JACOB AKOWE

MATRIC NO: NOU173000297

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DECLARATION

I, AKOWE, Jacob Akowe (with Matriculation number: NOU173000297) declare that this work is as a result of my research effort and that to the best of my knowledge, it has not been presented by any other person for the award of any degree except where due acknowledgements have been made.

Akowe, Jacob Akowe …… Date……

CERTIFICATION

This is to certify that this research project titles “knowledge, Attitude and Safety Practices of Automobile Repair Artisans Toward Occupational Hazards” was written by- AKOWE, JACOB AKOWE with matriculation number: NOU173000297 under my supervision.

Dr (Mrs) Grace Enomfon Akpan	……..	……..
(Project Supervisor)	Signature	Date
Prof Charity Okonkwo	……...	……
(Uyo Study Centre Director)	Signature	Date
……	……..	…….
(External Examiner)	Signature	Date

DEDICATION

This work is dedicated to Almighty God who gave me the grace to embark on this study

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ABSTRACT

This study aimed at assessing the knowledge, attitude and safety practices of automobile repair artisans toward occupational hazards (a study of selected artisans in Uyo metropolis). It was a cross-sectional study involving 100 artisans who were selected by simple random sampling technique. Self structured questionnaire was used as the instrument for data collection. Data was analysed using frequency tables, percentages and mean scores. The study revealed from the grand mean score of 3.5 that the artisans had adequate knowledge of occupational hazards. Their attitude to occupational hazards was very poor with grand mean score of 1.99. The occupational hazards among them were burns, cuts and bruises, low back pains, musculoskeletal pains, and tiredness. The use of log to support jack when working under a vehicle was their major safety practice. However, the safety practices with grand mean score of 2.41 was rated poor as many of them do not use personal safety equipment when working. Health education of the artisans and the regulation and enforcement of safety standards in the automotive repair sector were recommended.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The automobile repair artisans include mechanics, panel beaters (automobile body repairers), spray painters, auto electricians, welders, radiator repair technicians, brake master cylinder repairers, bumper repairers. They render repair, and maintenance services such as painting, welding, and general services (Abraham et al., 2015). They are exposed to physical (fire, extreme heat), mechanical, psychological, biological, and chemical agents in their workplaces that could be detrimental to their health and safety (Johnson & Motilewa, 2016). Automobile repair workers are exposed to poor work environments characterized by heat and noise, longer hours of work, awkward and strenuous working postures, and all forms of psychological stress that increase their risk of exposure to hazards (Vyas et al., 2011).

Ford and Tetrick (2011) described occupational hazards as 'aspects of one's occupation-specific context that increase the risk of injury'. Ana (2020) described occupational hazard as a thing or situation with the potential to harm a worker. Elenwo (2018) identified four types of hazards among automobile mechanics. There are Chemical hazards, biological hazards, mechanical and physical hazards. Ana (2020) also identified four types of occupational hazards. There are chemical, biological, physical, and ergonomic hazards.

Chemical hazards are exposure to a wide range of industrial chemicals including heavy metals, contained in brake fluids, degreasers, detergents, lubricants, metal cleaners, paints, fuel, and solvents resulting in various forms of chronic poisoning such as skin diseases, eye irritation, dizziness, and respiratory problems. Physical hazards refer to

exposures due to radiations like direct and reflected ultraviolet and infrared radiation (from welding operations), microwave and radiofrequency radiation (in heat-sealing of panels and upholstery, drying of trim base panels). It includes exposure to hand-arm vibration from power-driven hand tools, resulting in the development of White Finger Syndrome. It also includes exposure to excessive noise especially in car bodywork, during engine testing as well as exposure to excessive heat or cold, especially in open garages or during roadwork (ILO, 2016).

Biological hazards refer to hazards posed by bacteria, viruses, fungi, insects, reptiles, and other living organisms that can cause acute and chronic infections by entering the body either directly or through breaks in the skin. Mechanical hazards are hazards due to contact with sharp edges, contact with shearing devices, body parts caught between two surfaces (Ana, 2020). Psychosocial hazards include hazards due to the psychological stress of working for longer hours, physical assault and verbal abuse from customers in workplaces (Sambo et al., 2014; Oche et al., 2020). Ergonomic hazards are hazards due to improperly adjusted workstations and chairs, frequent lifting of heavy objects, poor postures, repetitive awkward movements, and using too much force frequently (Edet, 2019).

These exposures have an adverse health effect on the workers which could lead to preventable occupational diseases or work-related diseases such as occupational lung diseases, occupational cancers, occupational dermatoses, reproductive diseases, cardiovascular diseases, musculoskeletal injuries, noise-induced hearing loss, as well as psychological and neurological disorders (Friis, 2016). However, the common occupational health problems reported among automobile mechanics were musculoskeletal diseases, low back pains, dizziness, burns, bruises, cuts, headache (Monney et al., 2014; Thangaraj & Shireen, 2017;

Oche et al., 2020) as well as a higher prevalence of injuries to hands and upper extremities (Vyas et al., 2011).

Knowledge is referred to as justified true belief and it has three conditions which are: firstly, the truth condition requires that if one knows a proposition then that proposition must be true. If the proposition is not true, then that person does not know what he claims to know. The truth condition makes the difference between opinion and knowledge. Secondly, the belief condition requires that if one knows a proposition then he believes that proposition. Thirdly, the justification condition requires a practical way of justifying that the belief one has is true (Bolisani & Bratianu, 2018). According to Dombrawski et al. (2018) knowledge is classified into three kinds: firstly, experiential knowledge is the kind of knowledge acquired from the direct connection with the environment, through our sensory system, and then it is processed by the brain. Secondly, Skills is the knowledge about how to do something (know-how) and it is often called procedural knowledge as it has to do with performing a task following a given procedure or algorithm. Thirdly, Knowledge claim is what you know, or you think you know based on your direct understanding of the world, yourself, and others.

The automobile repair artisans need all of the above knowledge to function effectively in the performance of their jobs and also to cope with the hazards they face daily. However, some automobile repair artisans lack adequate knowledge and are ignorant about the occupational hazards they face in their work and workplaces (Elenwo, 2016; Sanda & Nugble, 2020). The lack of adequate knowledge of occupational hazards goes a long way in promoting the culture of unrestricted risky behaviours common among these artisans that endangers their health.

An attitude is “a relatively enduring organization of beliefs, feelings and behavioural tendencies towards socially significant objects, groups, events or symbols or a general feeling or evaluation positive or negative about some person, object or issue" (Hogg &Vaughan, 2018). It is also defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour" (Eagly & Chaiken, 1993 as cited in McLeod, 2018). Attitude has four functional areas, namely: knowledge, means to an end, ego defence, and value expressiveness (Hogg &Vaughan, 2018). Some automobile repair artisans have a care-free attitude toward occupational hazards saying that 'no matter what man must die or something must kill a man’. This philosophy is common among some mechanics who has thrown caution to the wind forgetting what Denton (2011) said that working in a motor vehicle workshop is a dangerous occupation. They do nothing to safe-guard themselves against occupational hazards saying that God will protect them from harm (Afolabi et al., 2020). But they fail to realize that it is their responsibility to use personal protective equipment and observe safety practices in the chosen occupation.

Safety refers to those activities that seek either to minimize or to eliminate hazardous conditions that can cause bodily injury (Encyclopaedia Britannica, 2017). Safety practices are the routine measures observed by automobile repair artisans to protect themselves against occupational hazards and it includes the use of personal protective equipment (PPE) among other safety precautions. The PPE are face shield/face mask, eye goggle, safety boot, hand gloves, safety helmet, and overalls. PPE when used properly affords some level of protection against exposure to occupational hazards. Despite the benefit of using PPE, there is a reported gap between awareness of PPE and its usage among automobile repair artisans (Thangaraj & Shireen, 2017).

In Nigeria and some developing countries, the automobile repair artisans belong to the unorganized, informal sector of the economy (Oche et al., 2020). And as such, there is no regulatory body to regulate the training and practice of these artisans which gives room to ignorance and negligence of safety practices. Again these artisans are not covered by any insurance scheme (workers compensation) compared to other Nigerians working in the organized formal sector of the economy and as such there are not entitled to any compensation in the advent of an accident. Furthermore, they are not provided any form of occupational health and safety services by the government. Therefore, the occupational health and safety of the artisans in the automobile repair industry cannot be taken for granted because about 1.9 million people die annually from exposure to several occupational risk factors which the automobile repair artisans also are not exempted (WHO/ILO, 2021). In the light of the foregoing, this research project is embarked upon to assess the knowledge, attitude, and safety practices of automobile repair artisans in Uyo, Akwa Ibom state.

1.2 Statement of Problem

The way and manner in which some automobile repair artisans carry out their jobs would often leave one to wonder if there are no occupational health hazards in their jobs. On several occasions, that the researcher has been to the Mechanic Village Uyo, it is not uncommon to find spray painters, bumper repairers, and welders actively working without any form of personal protective equipment (PPE) like eye goggle/ face shields, or respirators. The working environment is polluted and contaminated with used oil, grease, fillers, paints, soldering wires as well as gasoline used in washing engine parts. Some of these products contain lead and benzene which could endanger the health of anyone working in such an environment as there is no hygienic disposal of these wastes generated. There is high use of

analgesics and herbal products by these artisans to alleviate pains emanating from poor working postures and the lifting of heavy objects. The hawkers of these products frequently visit automobile workshops to promote their goods. The health consequences of the above situation pose a serious threat to the occupational health and safety of the artisans.

An automobile panel worker who was interviewed by the researcher narrated that whenever he engaged in serious welding without respirator that in the night he usually experienced chest pains and cough out black phlegm. But those signs are absent whenever he used a respirator. Similarly, a mechanic was also interviewed on the occupational hazards he faces daily narrated that one could be injured, develop skin rashes (if work clothes are not washed) and also suffer musculoskeletal pains. So this research work is undertaken to test whether or not the automobile repair artisans possessed the adequate knowledge, right attitude and observe good safety practices in the course of their works.

1.3 Significance of the Study

The findings of this study will be useful to students, researchers, and teachers of occupational health and safety in higher institutions of learning as it will make available information about occupational hazards among automobile repair artisans.

Public health educators will also benefit from the findings of this study as it will help them in the planning and designing of health education programmes that would cater for the health and safety needs of these artisans.

Furthermore, the findings will also benefit the automobile repair artisans themselves, the community of people served by these artisans, and the people trading around where automobile repair workshops are located as most often whenever car owners bring their

vehicles for repairs they stay with the artisans sometimes throughout the period of the repair thus exposing them and those trading around the workshop to some level of hazards being faced by the artisans. This can be realized through advocacy and the use of mass media to provide health education to the public. Being empowered, these stakeholders could take adequate precautionary and preventive measures to safeguard their health and safety.

Finally, it would also help the Government and policy makers in the automotive sector on the need to create enabling environment for the establishment of descent automobile repair workshops for the training of younger generations of artisans.

1.4 Objectives of the Study

This research project will investigate Knowledge, Attitude and Safety Practices among Automobile Repair Artisans towards Occupational Hazards (A survey of selected Artisans in Uyo). Specifically, it aims to:

i. Determine the level of knowledge of occupational hazards among automobile repair artisans in Uyo.
ii. Determine the attitude of automobile repair artisans toward occupational hazards in Uyo.
iii. Determine the various occupational hazards among automobile repair artisans in Uyo.
iv. Determine the safety practices that mitigate occupational hazards among automobile repair artisans in Uyo.

1.5 Research Questions

The following research questions were formulated to achieve the objectives of the study:

i. What is the level of knowledge of occupational hazards among automobile repair artisans in Uyo?
ii. What is the attitude of automobile repair artisans toward occupational hazards in Uyo?
iii. What are the occupational hazards among automobile repair artisans in Uyo?
iv. What are the safety practices that mitigate occupational hazards among automobile repair artisans in Uyo?

1.6 Delimitation of the Study

This research work is delimited to the knowledge, Attitude, and Safety Practices among Automobile Repair Artisans towards occupational hazards (A survey of selected Artisans in Uyo Metropolis).

1.7 Operational Definition of Terms

Hazard: A potential source of harm

Occupational Hazard: A hazard experienced in the workplace

Knowledge: Understanding of or information about a subject that you get by experience or study, either known by one or people generally.

Attitude: a settled way of thinking or feeling about something.

CHAPTER TWO

LITERATURE REVIEW

This chapter presents the conceptual review, empirical framework and theoretical framework

2.1 Conceptual Review

Here the definition of knowledge, attitude, occupational hazard and safety practices will be considered.

2.1.1 Concept of knowledge

According to Bolisani and Bratianu (2018) the frequently adopted concept of knowledge is that of "justified true belief" this definition incorporates three basic conditions, fact for which some authors call it *the tripartite account of knowledge*. These conditions are the following

- *The truth condition*: It requires that if one knows a proposition then that proposition must be true. If the proposition is not true, then that person does not know what he claims to know. The truth condition makes the difference between opinion and knowledge.
- *The belief condition*: That condition demands that if one knows a proposition then he believes that proposition.
- *The justification condition*: That condition requires a practical way of justifying that the belief one has is true.

2.1.1.1 Classification of knowledge

According to Dombrowski et al. (2013) there are three kinds of knowledge:

- *Experiential knowledge*: this is kind of knowledge acquired from the direct connection with the environment, through our sensory system, and then it is processed by the brain.
- *Skills*: this is knowledge about how to do something (know-how) and it is often called procedural knowledge as it has to do with performing a task in accordance with a given procedure or algorithm.
- *Knowledge claims*: Is what we know, or we think we know. We don't know how much we know since knowledge means both explicit knowledge and tacit knowledge, which means experience existing in our unconscious zone and manifesting especially as intuition. Explicit knowledge is something we learn in schools and reading books, or just listening to some professors or conference speakers.

2.1.2 Concept of attitude

An attitude is "a relatively enduring organization of beliefs, feelings and behavioural tendencies towards socially significant objects, groups, events or symbols" or a general feeling or evaluation positive or negative about some person, object or issue (Hogg &Vaughan, 2018). It is also defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavor" (Eagly & Chaiken, 1993 as cited in McLeod, 2018).

Attitude is made of the following components

- Thoughts and ideas (cognitive component)
- Clusters of feelings, likes and dislikes (affective component)
- Behavioural intentions.

2.1.2.1 Functions of attitude

According to Katz (1960) as cited in Hogg and Vaughan, (2018) outline four functional areas:

- Knowledge
- Instrumentality (means to an end or goal)
- Ego-defence (protecting one's self-esteem)
- Value-expressiveness (allowing people to display values that uniquely identify and define them)

2.1.3 Conceptual framework of Occupational Hazard

Ford and Tetrick (2011) described occupational hazards as 'aspects of one's occupation-specific context that increase the risk of injury'. Ana (2020) described occupational hazard as a thing or situation with the potential to harm a worker.

2.1.3.1 Types of Occupational Hazards

Elenwo (2018) identified four types of hazards among automobile mechanics namely: Chemical hazards, biological hazards, mechanical and physical hazards. Ana (2020) also identified four types of hazards (chemical, biological, physical and ergonomic hazards):

1. **Chemical hazards**

   This is exposure to a wide range of industrial chemicals including heavy metals, contained in brake fluids, degreasers, detergents, lubricants, metal cleaners, paints, fuel, and solvents resulting in various forms of chronic poisoning such as skin diseases, eye irritation, dizziness, and respiratory problems. These chemicals could be solid, liquid or gaseous which can enter human body through inhalation, absorption through the skin or by ingestion (ILO, 2016).

2. **Physical hazards**: This is exposure to radiations like direct and reflected ultraviolet and infrared radiation (from welding operations), microwave and radiofrequency radiation (in heat-sealing of panels and upholstery, drying of trim base panels). It includes exposure to hand-arm vibration from power-driven hand tools, resulting in development of White Finger Syndrome. It also include exposure to excessive noise, especially in car body work, engine testing as well as exposure to excessive heat or cold, especially in open garages or during roadwork (ILO, 2016).

3. **Biological Hazards**

   These include bacteria, viruses, fungi, insects, reptiles and other living organisms that can cause acute and chronic infections by entering the body either directly or through breaks in the skin. The automobile repair artisans are exposed to mosquito and snake bites because some of them work in an unhygienic environment (Ana, 2020).

4. **Ergonomic hazards**

   These are hazards due to improperly adjusted workstations and chairs, frequent lifting of heavy objects, poor postures, repetitive awkward movements and using too much force frequently (Edet, 2019)

5 Psychosocial hazards

This includes hazard due to psychological stress of working for longer hours (Oche et al., 2020) and danger of violence in the workplace from colleagues and verbal abuse from aggrieved customers (ILO, 2016).

6 Mechanical hazards

These are hazards due to contact with sharp edges, contact with shearing devices, body part caught between two surfaces (Ana, 2020).

2.1.4 Safety practices

In this section the researcher will discuss the concept of safety and safety practices in automobile repair works.

Safety refers to those activities that seek either to minimize or to eliminate hazardous conditions that can cause bodily injury (Encyclopaedia Britannica, 2017).

The following safety practices are important in mechanic workshop safety:

- Wear proper clothing: it is advisable to wear fitted clothing (overall) that does not restrict movement. Jewelries (necklace, chains, bracelets, and earrings should never be

worn when working with mechanical equipment of any kind or when working with automobiles as it can be caught in between moving object and cause injuries.

- Wear safety gears (PPE) to protect against drips, spills and splatter which are common occurrences in automobile workshops. Wear protective eye gear to prevent injury to the eyes and leather gloves should be worn when working with sharp or hot materials. Spray painters should wear painter's mask to decrease the chance of inhalation injury during car body painting. And welder's helmet/mask must be worn during welding to protect the eyes against the damaging effect of ultraviolet rays on the eyes. Simple inhalation mask should be worn during sanding and cleaning tasks.
- Use the proper lifts- when working under a car, do not depend on the Jack alone to suspend it, use axle stand in addition.

  When moving heavy load, never try to lift anything beyond your capacity- get a mate to assist. Where possible use an engine crane, transmission jack or trolley jack

  (Denton, 2011).

Denton (2011) also recommended that the following should be provided:

- Fire extinguisher incase of fire outbreak.
- Adequate toilet, washing facilities and drinking water
- First aid facilities
- Adequate ventilation and good lighting
- Clean working environment by observing proper disposal of waste.

UTI (2020) stated the following safety rules should be followed by welders:

- Protect yourself from fumes and gases by wearing a respirator to protect against breathing in harmful substances
- Welders must wear flame-resistant clothing
- Wear the right PPE (safety glasses/face shields and safety helmets, hand gloves, leather

  Shoes / safety shoes)
- Keep the working environment clean of anything that could catch fire from welding spark.

2.2 Empirical Review

This section presents reviews of various literature related to this study.

2.2.1 Knowledge of occupational hazards

Elemile et al. (2019) carried out a study on knowledge and socio-demographic determinants of occupational hazard prevention among automobile mechanics in Akure South Local Gorvernment, Ondo State, Nigeria. The objective of the study was to assess the knowledge and socio-demographic determinants on occupational hazard prevention among automobile mechanics in Akure South Local Gorvernment, Ondo State. It was a descriptive cross sectional design. Stratified random sampling technique was used in selecting 231 respondents. Data collection was done using self administered questionnaire and data was analyzed using descriptive statistics. The age range of the respondents was 20 – 50 years and majority had over 15 years of working experience. Findings revealed that (62%) of the respondents had fair knowledge of occupational hazards while (38%) of the respondents had poor knowledge. in their study discovered that majority of the mechanics had fair knowledge

about occupational hazards. Significant relationship was found between years of experience, knowledge about occupational hazard prevention and occupational hazard prevention among respondents. The study recommended that the government should collaborate with the leaders of automobile mechanic associations to develop training and programme that enhance the knowledge of occupational hazards and their prevention.

Oche et al. (2020) also carried out a study on determinants of occupational health hazards among roadside mechanics in Sokoto metropolis, Nigeria. The aim of the study was to identify the determinants of occupational health hazards among roadside automobile mechanics in Sokoto metropolis. It was a descriptive, cross sectional study and a two stage sampling technique was used to select the 205 respondents. Data was collected using a semi-structured interviewer-administered questionnaire. Data was analyzed using IBM SPSS version 25. The ages of the respondents ranges from 15 to 56 years. 95 (46.8%) of them were single, only 1 (0.5%) was separated, divorced or cohabiting. More than three-quarters, 87 (73.7%) of the general repair/engine mechanics had adequate knowledge of work place hazards compared to 33 (39.3%) of body works/electrical and other mechanics. Conclusion was drawn that though most of the auto-mechanics had good knowledge of workplace hazards they did not adhere to safety practices in the work place. The study recommended continuous health education to be provided to the mechanics associations.

2.2.2 Attitude to occupational hazards

Abiodun et al. (2018) carried out a research on assessment of the knowledge, attitudes and perception of potential occupational hazards by automobile workers in Makurdi, Benue State, Nigeria. The objective of the study was to assess the knowledge and perception of Automobile workers on the occupational hazards in their workplaces and to identify their

attitudes and safety practices towards protecting themselves from these hazards. It was a descriptive, cross sectional study and stratified sampling technique was used to select 117 respondents. Data collection was done through the use of questionnaire, out of the 117 questionnaires distributed only 105 were retrieved. Data analysis was done using descriptive statistics of frequencies, percentages, and pie charts. Inferential statistics of Chi-square was used to test for significant associations between socio-demographic variables and the practices of the automobile workers, and their perception on the chemicals hydrocarbons frequently used in general. 50 of the respondents were automobile spray painters while 55 were mechanics. The age range of the respondents was 19 – 72. Most of the respondents 81 (77.1%) were married, 18 (17.1%) were single and 6 (5.8%) were separated. 66 (62.9%) were Christians and 39 (37.1%) were Muslims. 62 (60%) had primary education, 51 (48.6%) had no formal education, 30 (28.6%) had secondary school certificates, 9 (8.6%) had Diploma while 3 (2.9%) had first degree. Their attitudes towards occupational health hazards are also rated very poor (below 30%). The study suggested regular training on safety guidelines and enforcement of standard/universal safety practices by automobile workers so as to reduce potential occupational hazards.

2.2.3 Occupational hazards among automobile repair artisans

Elenwo (2018) carried out a research on occupational hazards and risks of automobile mechanics in Port Harcourt Metropolis, River state, Nigeria. The study examined the occupational hazards and risks of automobile mechanics in Port Harcourt. It was a cross sectional study and simple random sampling technique was used to select 400 respondents. Data collection was done with close-ended questionnaires. Out of the 400 questionnaires distributed only 342 were filled and returned. Data analysis was done using descriptive

statistics and relevant statistical tools such as simple percentages, frequency charts, means and standard deviation at 0.005 level of significance. About 42.1% were between 21- 30 years, 37.7% were between 31-40 years and 7.6% were more than 40 years. 116 (33.9%) were Yorubas, 81 (23.6%) were Igbos, 27 (7.9%) were Hausas and 118 (34.5%) were from other tribes in Nigeria. 41 (11.9%) of the respondents had no education, 98 (28.7%) had primary education, 195 (57%) had secondary education while 8 (2.3%) had tertiary education. 225 (65.8%) of the respondents worked between 6-10 hours daily. The most common hazards identified were chemical hazard (43%) and physical hazard (7%), mechanical hazards (33%), biological hazards (17%). The most prevalent job related illness was back pain (18%) followed by fatigue (16%) and burns (16%), headache (15%) as well as dizziness (13%). It was concluded that the automobile artisans performed their jobs in a crude way which endanger their health and safety. The study recommended training and health education on adequate safety practices to reduce exposure to hazards.

Thangaraj and Shireen, (2017) conducted a research on occupational health hazards among automobile mechanics working in an urban area of Bangalore, India. The objective of the study was to assess the occupational health hazards among roadside automobile mechanics in an urban area of Bangalore and to assess the awareness of personal protective equipment among automobile mechanics. It was cross sectional study involving 150 automobile mechanics who were selected using simple random sampling technique. Data was collected using semi-structured questionnaires. Data was analyzed using SPSS 21 software. The respondents were all males. 56 (37.33%) belonged to the age group 20 - 30 years, 46 (30.66%) belonged to 30 - 40 years. 27 (18%) were above 40 years while 21 (14%) were below 20 years. 132 (88%) were Muslims while 18 (12%) were Hindus. 43 (28.6%) were unmarried, 99

(66%) were married, 6 (4%) were divorced and 2 (1.3%) were widowers. 88 (58.6%) of the respondents worked more than 8 hours per day. 45 (30%) had work experience of 10 – 20 years. 113 (75.3%) reported that their work was physically hard, 122 (81.3%) reported lifting heavy weight, 76 (50.6%) said their work was dangerous. 93 (62%) reported job related health problem of musculoskeletal diseases, 87 (58%) reported cuts and injuries, 72 (48%) reported stress while 39 (26%) reported sleep disorders. 131 (87.3%) knew about eye goggles while 120 (80%) knew hand gloves as personal protective equipment. The study concluded that there is gap between awareness and usage of personal protective equipment. It suggested health education on workplace hazards and prevention.

Saliu et al. (2015) also conducted a study on comparative assessment of blood lead levels of automobile technicians in organized and roadside garages in Lagos, Nigeria. The aim of the study was to determine and compare the blood lead levels of automobile technicians in roadside and organised garages in Lagos State. It was a comparative cross-sectional study. 353 automobile technicians were selected through multistage sampling technique. Data was collected through the use of pretested, interviewer administered questionnaires, venous blood samples were collected by phlebotomists. The blood samples were analysed for lead content by means of a graphite-furnace electrothermal atomic absorption spectrophotomer at the Department of Chemistry laboratory, University of Lagos. Data analysis was done using Statistical Package for Social Sciences (SPSS) version 17.0. Descriptive statistics was used for data presentation. 172 males from roadside automobile technicians and 179 males and 2 females from organized automobile garages. Their mean ages were 44.60 ± 10.52 and 41.80 ± 8.6 years for the roadside and the organized garages respectively. 172 (100%) of the technicians from the roadside group were males while 179 (98.9%) were males and 2 (1.1%)

were females for the organised group. 7 (4.1%) and 26 (14.4%) of the respondents were single. 159 ((92.4%) and 155 (85.6%) were married, while 6 (3.4%) and 0 (0.0) were divorced from the roadside and organised groups respectively. 9 (5.2%) and 2 (1.1%) had no education, 115 (66.9%) and 4 (2.2%) had primary education, 46 (26.7%) and 85 (47%) had secondary/Technical education while 2 (1,2%) and 48 (26.5%) schooled beyond secondary level from the roadside and organised groups respectively. The median blood lead level was 43.5µg/dl and 66.0µg/dl for the roadside and organised groups respectively. This blood lead levels is higher than the permissible blood lead level of 25 - ≤40µg/dl. The study also discovered that there was statistically significant association between high blood lead levels and abnormal discolouration of the oral mucosa in the organised group. The study concluded that there is high prevalence of elevated blood lead levels among roadside and organised automobile technicians in Lagos. It recommended provision of health education services to the technicians and encouragement of use of personal protective equipment as well as enforcement of ban of the importation of leaded fuel.

2.2.4 Safety Practices among Automobile Repair Artisans

Afolabi et al. (2021) carried out a study on occupational risk perception and the use of personal protective equipment (PPE): A study among informal automobile artisans in Osun State, Nigeria. The study examined factors that predict PPE usage, particularly their occupational risk perception. It was cross-sectional study and multi-stage sampling technique was used to select 632 automobile artisans (mechanics, Panel beaters, painters and vulcanizers). Data collection was done through semi-structured questionnaires. Data analysis was done using statistical software Stata 14 package and descriptive statistics was used for data presentation. 62 (9.8%) of the respondents were < 20 years of age, 229 (36.2%) were

between 20 – 30 years, 167 (26.4%) were between 31 – 41 years and 174 (27.5%) were above 42 years. 11 (1.7%) had no formal education, 176 (27.8%) had primary, 421 (66.6%) had secondary while 24 (3.8%) had post secondary education. 433 (68.5%) were married while 198 (31.4%) were not married. 116 (18.4%) were apprentice while 516 (81.6%) were masters. 75 (14.3%) had less than 5 years of experience, 234 (44.7%) had 10 – 15 years of experience, 131 (25%) had 16 – 25 years of experience while 84 (16%) had above 25 years of experience. They discovered that out of 264 (41.7%) of the respondents that possessed gloves only 85 (32.2%) regularly used it, 41 (15.5%) sometimes used it, while 138 (52.7%) rarely used it. 544 (86.2%) possessed overall clothing but only 349 (65.4%) used it regularly, 79 (14.8%) sometimes used it, while 106 (19.9%) rarely used it. 213 (33.9%) possessed foot protection but only 73 (34.8%) used it regularly, 38 (18.6%) sometimes used it, while 98 (46.7%) rarely used it. 109 (17.3%) possessed eye goggle, but 54 (54.0%) used it regularly, 13 (13%) sometimes used it, while 33 (33%) rarely used it. 20 (3.2%) possessed welding helmet, but nobody used it regularly, 8 (47.1%) used it sometimes, while 9 (52.9%) rarely used it. The study inferred that artisans' perception of occupational risk is associated with the use of PPE adding that artisans who were very worried about contracting work-related injuries/illnesses were more likely to use PPE regularly than those who did not worry about this. Also, artisans who perceived work-related injuries/illnesses as preventable were more likely to use PPE regularly than those who do not believe in the preventability of these health problems. They recommended frequent training and seminar that would increase the awareness of artisans on occupational hazards.

Rabina et al. (2021) also carried out a research on occupational health hazards and use of personal protective equipment among auto mechanics in Kathmandu Metropolitan city,

Nepal. The main objective of the study was to assess knowledge of occupational hazards and the use of safety measures among automobile repair artisans in Kathmandu metropolitan city. It was cross-sectional study that involved 400 auto mechanics who were randomly selected using lottery method. Data collection instrument was a semi-structured questionnaire. Data analysis was carried out using SPSS version 20. 109 (27.2%) of the respondents were less than 20 years, 143 (35.8%) were between 20 – 30 years, 90 (22.5%) were 30 – 40 years, 50 (12.5%) were 40- 50 years, while 8 (2.0%) were above 50 years. 306 (76.5%) were Hindus, 33 (8.2%) were Buddhists, 12 (3%) were Christians, 41 (10.3%) were Kirats, while Muslims were 8 (2%). 17 (4.2%) were illiterates, 42 (10.5%) were literates, 226 (56.5%) had primary education, 107 (26.8%) had Secondary education, while 8 (2%) had University education. 183 (45.8%) had less than 5 years work experience, 71 (17.7%) had 6 – 10 years work experience while 146 (36.5%) had over 11 years work experience. 178 (45.5%) of them worked less than 8 hours daily, while 222 (55.5%) worked over 8 hours daily. More than half of the respondents (53.5%) used safety equipment while mask and safety boots were most commonly used protective equipment. 98.5% of the garages had dry/slip resistance floor, 94.8% had adequate illumination while 95.5% had adequate ventilation. The study concluded that there was gap between knowledge on PPE and its use. They recommended strict rules and regulations on the use of PPE.

Monney et al. (2014) also carried out a research on occupational health and safety practices among vehicle repair artisan in an urban area in Ghana. The aim of the study was to assess the extent of work-related injuries and illnesses, access to first aid, use of personal protective equipment (PPE), fire safety measures and hand hygiene practices among vehicle repair artisans. The study was carried out in Manpong-Ashanti Township. It was cross-

sectional study that involved 100 vehicle repair artisans who were selected by simple random sampling. Data collection was with the use of semi-structured questionnaires, extensive field observations and key informant interviews. Data analysis was done with Minitab version 16 using descriptive statistics such as frequency and percentages. All the respondents were males. 2% of the respondents were less than 18 years, 21% were between 18 – 25 years, 36% were between 25 – 35 years, and 34% were between 35 – 45 years while 7% were between 45 – 60 years. 13% had no education, 31% had primary education, and 35% had basic School education, while 21% had O' level. 32% were single, 63% were married, 2% were divorced while 3% were widowed. 64% of the respondents had sustained work related physical injuries. Physical injury is more prevalent mechanics (85%), followed by electricians (75%), automobile interior designers (63%), spray painters (50%) and welders (46%). The most reported work-related illness includes musculoskeletal disorders, dizziness and headache. Only 27% of the artisans were observed using PPE though not all used full complement of the required PPE for their job. 98% frequently washed their hands at the work place and 2% did not wash their hands at their work place. The study recommended intensive education on the usefulness of protective equipment.

2.3 Theoretical framework

The two theories backing this study are the health belief model and theory of planned behaviour.

2.3.1 Health Belief model (HBM)

According to Irinoye et al. (2018) the theory was developed by Irwin Rosenstock in 1966. It is identified as one of the earliest and most influential models in health promotion. The theory

states that individuals must have a desire to avoid an illness (value) and believe that participating in a certain behavior will prevent the illness from happening (expectancy). Hence the model is often referred to as a "value expectancy theory". Initially, the theory relies on the concepts of perceived susceptibility, perceived severity, perceived benefits, and perceived barriers.

- Perceived susceptibility pertains to an individual's belief regarding the chance of contracting a medical disease or illness.
- Perceived severity has to do with an individual's feeling of the seriousness of contracting the disease.
- Perceived benefits relate to an individual's belief about how effective the plan is at reducing the disease. It also includes non health related benefits such as financial concerns and pleasing family members.
- Perceived barriers include cost, pain, danger of the treatment and time constraints. (Hochbaum, 1958; Rosenstock, 1966)

However, in the 1970s and 1980s, Becker and colleagues modified the HBM to include people's responses to symptoms and illness and compliance with medical directives. This is the construct of cues to action which involves triggers that motivate the individual to take action to instigate preventive health such as information sought/provided; personal experiences. They expanded the model to include illness behaviors, preventive health, health screening, health motivation, perceived control, perceived threat and self-efficacy (ability to adopt the desired behavior). (Becker & Maiman, 1975)

This theory of Health belief model is relevant to this research work because if automobile repair artisans know that they are susceptible to occupational hazards that could affect their

lives, monies and occupations, they will change their attitudes and improve on their safety practices so as to avert or minimize exposures to occupational hazards.

2.3.2 Theory of Reasoned Action (TRA)

The Theory of Reasoned Action was developed by Martin Fishbein and Icek Ajzen in 1975. It was developed to understand the relationship between attitudes and behaviour and to allow for consideration of factors outside of an individual's control. The theory considers the individual and the influences of those around him/her. It takes into consideration the person's own beliefs about the consequences of his/her action(s) along the belief about how others within the same social network would approve, or disapprove, of the action. There are three constructs considered in this theory.

a. Behavioural intention - this is a function of the person's attitude about the behavior.
b. Attitude – in this construct, voluntary behavior is predicted by one's attitude toward the behavior and what important people would think if the behavior was not performed.
c. Subjective norms - these are the perceived expectations of key individuals such as significant others, family members, experts and co-workers (Fishbein & Azjen, 1975).

This theory is relevant to this study in that automobile repair artisans could change their attitude and improve on their safety practices because of the influence of family members, regulatory agencies the impact of occupational hazards would be drastically reduced among automobile repair artisans

2.4 Summary of Literature Review

In this chapter occupational hazard was defined and classified, the concepts of knowledge. Attitude and safety practices were discussed. Empirical studies on knowledge of occupational hazards, attitude and safety practices of automobile repair artisans were reviewed. And two theories related to the study were discussed- there are health belief model and theory of reasoned action.

CHAPTER THREE

METHODOLOGY

This chapter presents the research methodology under the following: Study Area, Study Design, Study Population, Sample/ Sampling Technique, Study Instruments, Reliability and Validity of measurement or data, Data collection, Data Analysis, and Ethical approval.

3.1 Study Area

The study area was Uyo metropolis located on latitude 5.03N and longitude 7.91E. Uyo is the headquarters of Akwa Ibom State. The city is endowed with good access roads; it has a University (University of Uyo), Hotels, an Olympic size International Stadium, Ibom Tropicana and Entertainment Centre, Many Filling Stations and many other Business Ventures. The major occupation of the people in Uyo is civil service, and trading.

3.2 Study Design

The research design used in this project was cross-sectional study. It is also known as one-shot or status studies and this design is used for studies for finding out the prevalence of a phenomenon, situation, problem, attitude or issue, by sampling a cross-section of the population. It is useful to capture an overall ‘picture’ as at the time of the study (Kumar, 2011). The study determined the Knowledge, attitude and safety practices (independent variables) of automobile repair artisans toward occupational hazards (dependent variable) - A survey of selected artisans in Uyo Metropolis, Uyo Local Government Area, Akwa Ibom State.

3.3 Study Population

The study population was all automobile repair artisans in Uyo metropolis

3.4 Sample and Sampling Technique

The sample for the study was 100 respondents being picked through simple random sampling technique.

3.5 Study instrument

The instrument for data collection was self-structured questionnaires divided into five sections: section A contains information on socio-demographic data of the respondents like age, sex, position, occupation, educational status, marital status and years of experience while section B, C, D, and E contains information related to the various research questions.

3.6 Validity and Reliability of measurements or data

The questionnaire was submitted to the project supervisor and other experts in public health to ascertain its content validity.

3.7 Method of Data collection

The researcher distributed the questionnaires personally to the respondents after obtaining their consent to participate in the study.

3.8 Method of Data Analysis

The data collected were presented using frequency tables and percentages of frequencies worked out for the socio-demographic data while data related to the research questions were analysed using calculated mean scores.

3.9 Ethical Approval

The approval to conduct this research project was given by the National Open University of Nigeria. Participation in the study by the respondents was on voluntary basis and by informed consent. The respondents were informed that all information obtained from this study would be treated with confidentiality and only used for academic purpose.

CHAPTER FOUR

RESULT

The chapter present analysis of the various data collected in the study. One hundred questionnaires were constructed and administered on the respondents. All the questionnaires were correctly filled and returned by the respondents showing 100% response.

4.1 Presentation and Analysis of data

Table 1: Socio-demographic data of respondents

Variable	**Frequency**	**Percentage (%)**
Sex:		
Male	100	100
Female	0	0
Position:		
Apprentice	38	38
Master	62	62
Age (in years)		
10 – 19	7	7
20 - 29	47	47
30 – 39	24	24
40 – 49	20	20
50 and above	2	2

Marital status		
Single	74	74
Married	26	26
Divorced	0	0
Widowed	0	0
Occupation		
Mechanic	48	48
Panel worker	12	12
Spray painter	14	14
Auto electrician	12	12
AC repairer	3	3
Blacksmith	1	1
Plastic soldering	1	1
Radiator washer	2	2
Electric welder	5	5
Power steering repairer	1	1
Carburetor technician	1	1
Educational level		
FLSC	29	29
SSC	69	69
Diploma	0	0
NCE	0	0
1st Degree	1	1
Non	1	1

Years of experience		
1 – 9	60	60
10 – 19	27	27
20 – 29	12	12
30 – 39	1	1
40 and above	0	0

From Table 1 above it show that 100 (100%) of the respondents were all males. 38 (38%) were apprentices while 62 (62%) were masters. 7 (7%) were between 10 – 19 years, 47 (47%) were between 20 – 29 years. 24 (24%) were between 30 – 39 years and 20 (20%) were between 40 – 49 years while 2 (2%) were 50 years and above. On marital status 74 (74%) of the respondents were single while 26 (26%) were married. 48 (48%) of the respondents were Mechanics, 12 (12%) were panel workers, 14 (14%) were spray painters, auto electricians were 12 (12%), car air conditioner repairers were 3 (3%), Blacksmith was 1 (1%), Plastic soldering was 1 (1%), Radiator washers were 2 (2%), electric welders were 5 (5%), power steering repairer was 1 (1%) while carburetor was 1 (1%). The educational level of the respondents showed that 29 (29%) had first school certificate, 69 (69%) had senior school certificate, 1 (1%) had first degree and 1 (1%) had no formal education. On years of experience, 60 (60%) had 1 - 9 years, 27 (27%) had 10 – 19 years, 12 (12%) had 20 – 29 years, while 1 (1%) had 30 – 39 years of experience.

Research question 1

What is the level of knowledge of occupational hazards among automobile repair artisans in Uyo?

Section B

Table 2: Level of knowledge of occupational hazards among automobile repair artisans

		SA **4**	**A** 3	**D** **2**	**SD** **1**	**Mean** **(X)**	**Remark**
1	Working without personal protective equipment expose you to hazards	72	18	0	10	3.52	Agree
2	Eating with unwashed dirty hands in the workshop is harmful to health	88	6	0	6	3.76	Agree
3	Sucking fuel with mouth is harmful	67	10	0	23	3.21	Agree
4	Washing hands with fuel to remove grease /paint and used engine oil is dangerous	30	14	2	54	2.20	Disagree
5	Inhaling exhaust/welding fumes is hazardous	88	8	1	3	3.81	Agree
6	Inhaling exhaust/welding fumes is hazardous	91	4	1	4	3.82	Agree
7	Welding flash light is hazardous to the eyes	91	6	0	3	3.85	Agree
8	Noisy Working environment can cause hearing loss	72	17	1	10	3.51	Agree
9	Flooded working environment is hazardous	62	32	1	5	3.51	Agree
10	Lifting heavy object manually can cause low back pains	87	10	1	2	3.82	Agree

Grand mean = 3.5

Data from Table 2 reveal that welding flash light is hazardous to the eyes with the highest mean score of 3.85, followed by the statements lifting heavy object manually can cause low

back pains and inhaling exhaust/welding fumes is hazardous which has the same mean score of 3.82. However, the statement inhaling exhaust/welding fumes is hazardous has mean score of 3.81, followed by the statement eating with unwashed dirty hands in the workshop is harmful to health with mean score of 3.76. The statement working without personal protective equipment expose you to hazards has mean of 3.52 followed by noisy working environment can cause hearing loss and flooded working environment is hazardous with mean score of 3.51 respectively. The statement sucking fuel with mouth is harmful has mean score of 3.21 while the statement washing hands with fuel to remove grease /paint and used engine oil is dangerous has mean score of 2.20. The grand mean score is 3.5

Research question 2

What is the attitude of automobile repair artisans toward occupational hazards in Uyo?

Section C

Table 3: Attitude to occupational hazards among automobile repair artisans in Uyo

		SA 4	**A** 3	**D 2**	**SD 1**	**Mean (X)**	**Remark**
1	My work is risky and hazardous	82	12	0	6	3.70	Agree
2	I am scared doing my work because of hazards	2	4	1	93	1.15	Disagree
3	I like observing precautionary measures while doing my work	75	18	0	7	3.61	Agree
4	I like wearing overall while doing my work	30	8	2	60	2.08	Disagree
5	I like wearing safety shoe while working	20	9	2	69	1.80	Disagree
6	I like wearing hand gloves while working	9	6	1	84	1.40	Disagree
7	I like wearing goggle while working	10	4	0	86	1.38	Disagree
8	I like using face mask/respirator while working	15	9	3	73	1.66	Disagree
9	I like wearing safety helmet while working	3	2	4	91	1.17	Disagree

The grand mean = 1.99

The data from Table 3 above shows that the statement my work is risky and hazardous has mean score of 3.70 followed by I like observing precautionary measures while doing my work with the mean score of 3.61. However, the statement I like wearing overall while doing my work has mean score of 2.08 followed by I like wearing safety shoe while working with mean score of 1.80. Statement No. 8 I like using face mask/respirator while working has mean score of 1.66 followed by statement I like wearing hand gloves while working with mean score of

1.40. The statement I like wearing goggle while working has mean score of 1.38. While the statements I am scared doing my work because of hazards and I like wearing safety helmet while working has mean score of 1.15 and 1.17 respectively. The grand mean score is 1.99.

Research question 3

What are the occupational hazards among automobile repair artisans in Uyo?

Section D

Table 4: Occupational hazards among automobile repair artisans in Uyo

		SA 4	**A** 3	**D 2**	**SD 1**	**Mean (X)**	**Remark**
1	I suffered burns, cut, bruises because of my work	75	10	1	14	3.46	Agree
2	I experience low back pain due to my work	66	17	0	17	3.32	Agree
3	I have skin rashes because of my work	21	20	1	58	2.04	Disagree
4	I developed eye problem because of my work	21	6	1	72	1.76	Disagree
5	I have hearing problem because of my work	4	6	1	89	1.25	Disagree
6	I have respiratory problem because of my work	10	12	2	76	1.56	Disagree
7	I have musculoskeletal pains because of my work	58	17	2	39	3.26	Agree
8	I have headache after my daily work	43	23	0	34	2.75	Agree
9	I feel dizzy because of my work	29	17	0	54	2.21	Disagree
10	I always feel tired because of my work	47	32	1	20	3.06	Agree
11	Mosquitoes bite me because of my work environment	45	10	1	44	2.56	Agree

Grand mean = 2.47

Data from Table 4 above shows that the statement I suffered burns, cut, bruises because of my work has mean score of 3.46 followed by the statement I experience low back pain due to my work with mean score of 3.32. The statement I have musculoskeletal pains because of my work has mean score of 3.26 followed by I always feel tired because of my work with mean score of 3.06. The statement I have headache after my daily work has mean score of 2.75 followed by Mosquitoes bite me because of my work environment with mean score of 2.56. However, the statement I feel dizzy because of my work has mean score of 2.21followed by I have skin rashes because of my work with mean score of 2.04. While I developed eye problem because of my work has mean score of 1.76, I have respiratory problem because of my work has mean score of 1.56 followed by I have hearing problem because of my work with mean score of 1.25. The grand mean score is 2.47.

Research question 4

What are the safety practices that mitigate occupational hazards among automobile repair artisans in Uyo?

Section E

Table 5: Safety practices among automobile repair artisans in Uyo

		SA 4	**A** 3	**D 2**	**SD 1**	**Mean (X)**	**Remark**
1	I clean my work environment daily	99	1	0	0	3.99	Agree
2	I wash my work clothing regularly	87	13	0	0	3.87	Agree
3	I wash my hands with soap and water after each work	90	9	1	0	3.89	Agree
4	I lift heavy objects with mechanical device	38	9	0	53	2.32	Disagree
5	I use fuel siphon pump to draw fuel	10	3	0	87	1.36	Disagree
6	I use log to support jack when working under a vehicle	100	0	0	0	4.00	Agree
7	I wear overall while doing my work	37	4	1	58	2.20	Disagree
8	I wear safety shoe while working	25	5	1	69	1.86	Disagree
9	I wear hand gloves while working	11	8	1	80	1.50	Disagree
10	I wear goggle while working	8	3	2	87	1.32	Disagree
11	I use face mask/respirator while working	10	8	0	82	1.46	Disagree
12	I wear safety helmet while working	6	4	0	90	1.26	Disagree

Grand mean = 2.41

Data from Table 5 above shows that the statement I use log to support jack when working under a vehicle has the highest mean score of 4.00 followed by I clean my work environment daily with mean score of 3.99. I wash my hands with soap and water after each work has mean score of 3.89 followed by I wash my work clothing regularly with mean score of 3.87.

However, the statement I lift heavy objects with mechanical device has mean score of 2.32 followed by I wear overall while doing my work with mean score of 2.20. I wear safety shoe while working has mean score of 1.89 while I wear hand gloves while working has mean score of 1.50. I use face mask/respirator while working has mean score of 1.46 while I wear goggle while working has mean score of 1.32 as well as I wear safety helmet while working with mean score of 1.26. The grand mean is 2.41.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATION

This chapter presents discussion of findings in relation to other studies, summary, conclusion and recommendations

5.1 Discussion of findings

5.1.1 What is the level of knowledge of occupational hazards among automobile repair artisans in Uyo?

From the result of data analysis shown in Table 2, this study has revealed that automobile repair artisans in Uyo had positive and good knowledge of occupational hazards as the grand mean score is 3.5. This finding support the work of Oche et al. (2020) conducted in Sokoto, Northern Nigeria where 73.7% of the mechanics had adequate knowledge of workplace hazards.

5.1.2 What is the attitude of automobile repair artisans toward occupational hazards in Uyo?

Data from Table 3 revealed that the automobile repair artisans in Uyo had poor and negative attitude toward occupational hazards as the grand mean score was 1.99. This also supported the findings of Abiodun et al. (2018) where the attitude of automobile repair workers in Makurdi was rated very poor toward occupational hazards.

5.1.3 What are the occupational hazards among automobile repair artisans in Uyo?

Data from Table 4 revealed that the most common occupational hazards among automobile repairers in Uyo were burns, cuts and bruises, musculoskeletal pains, tiredness, headache, and mosquitoes bite. This finding is in agreement with the findings of Thangaraj and Shireen (2017), Elenwo (2018) where the same hazards were discovered among automobile repair artisans. The above finding might be attributed to the fact that the artisans lack modern workshop, equipment and tools as majority work under the sun and with manual tools.

5.1.4 What are the safety practices that mitigate occupational hazards among automobile repair artisans in Uyo?

Data from Table 5 revealed that the safety practices of automobile repair artisans in Uyo includes using log to support jack when working under a vehicle with mean score of 4.00, followed by cleaning of work environment daily and washing of work clothes with mean scores of 3.99 and 3.87 respectively. The most commonly used personal protective equipment (PPE) by automobile repair artisans in Uyo was overall with mean score of 2.20. The study also reported high level of lack of usage of PPE by these artisans; this was supported by the finding of Thangaraj and Shireen (2017) in a study on occupational hazards among automobile mechanics in urban area of Bangalore, India where there was reported gap between awareness and usage of PPE.

Looking at the grand mean score of 2.4, the safety practices of artisans in Uyo is poor since majority of them don’t use PPE while working. This poor attitude may be

attributed to low level of education among these artisans as 29% and 69% had only Primary school certificate and senior school certificate respectively.

5.2 Limitation of the Study

The findings discovered in this study were based on the information given by the respondents.

5.3 Summary

This study focused on the knowledge, attitude and safety practices of automobile repair artisans toward occupational safety (a study of selected artisans in Uyo metropolis). It was a cross sectional study that made use of questionnaires as the instrument for data collection, data were analysed using frequency table, percentages and mean scores. The study revealed that the automobile artisans in Uyo had adequate knowledge of occupational hazards, very poor attitude to occupational hazards. The occupational hazards among these artisans were burns, cuts and bruises. Their major safety practice was the use of log to support Jack when working under a vehicle.

5.4 Conclusion

The study revealed high knowledge of occupational hazards among the automobile artisans in Uyo. But paradoxically, they exhibited very poor attitude and poor safety practices toward occupational hazards. The need for urgent intervention programmes like health education and distribution of safety kits cannot be overemphasized to avert the calamitous consequences of these discoveries.

5.5 Recommendations

The following recommendations were made by the researcher:

- Health education should be organised by the Government using both English language and local dialects to enlighten the automobile repair artisans on the occupational hazards in the automotive sector.
- The government should create a department of occupational health and safety with the legal backing to regulate and enforce safety standards in the automotive sector.
- The Government should build an ultramodern mechanic village equipped with the state of art equipment and tools necessary for the repairs and maintenance of modern cars.
- The government should establish a training institute for the training and re-retraining of the automobile repair artisans in occupational health and safety.

REFERENCES

Abraham, E. G., Megbelayin, E. O., & Akpan, S. I. (2015). Awareness and use of protective eye Devices among auto mechanic technicians and auto spare parts traders in Uyo, Nigeria. *International Journal of Medical Science and Public Health.*

Abiodun, O. P., Aturaka, S. O., Oladapo, O., Nwofe, J., Abiola, A., Olushola, O., Teniola, O. (2018). Assessment of the knowledge, attitude and perception of potential occupational hazards by automobile workers in Makurdi, Benue state Nigeria. *American Journal of Health Research* vol. 6 No.2 pp 37-43. DOI: 10.11648/j.ajhr.20180602.11

Afolabi, F. J., de Beer, P., & Haafkens, J. A. ((2020). Can occupational safety and health problems be prevented or not? Exploring the perception of informal automobile artisansin Nigeria. Elsevier.

Afolabi, F. J., de Beer, P., & Haafkens, J. A. ((2021). Occupational risk perception and the use of personal protective equipment (PPE): A study among informal automobile artisans in Osun State, Nigeria. Sage DOI:10:1177/2158244021994585

Ahmed, Z. A. M., Dosoki, M. I. & Nasr, S. A. A. (2012). Occupational hazards in fish industry. *World Journal of Fish and Marine Science,* 4(2), 201 – 210.

Akter, S., Rahman, M. M., Mandal, S., & Nahar, N. (2016). Musculoskeletal symptoms and Physical risk factors among automobile mechanics in Dhaka, Bangladesh. *South East Asia Journal of Public Health*. DOI: http://dx.doi.org/10.3329/seajph.v6i1.30338

Amah, U. K., Madu, N. K., Ahaneku, J. E., Ahaneku, G. I., Onah, C. E., Onuegbu, J. A., Olisekodiaka, J. M., Okwara, J. E., Dioka, C. E., & Meludu, S. C. (2014). Evaluation of nephrotoxic effect of lead exposure among automobile repairers in Nnewi metropolis. *International Journal of Research in Medical Sciences 2:1107-11* DOI: 10.5455/2320-6012.ijrms20140893

Amfo-Out, R., & Agyemang, J. K. (2016). Occupational health and safety practices among the informal sector auto mechanics. *Applied Research Journal* 1(4): 59- 69

Ana, G. R. E. E. (2020). *Occupational health (PHS817).* Abuja: NOUN Press

Becker, M.H. and Maiman, L.A. (1975). Socio-behavioural determinants of compliance with health and medical care recommendations. Medical Care xiii, 10 – 24.

Bolisani, E., & Bratianu, C. (2018). The elusive definition of knowledge. In Bolisani, E. and Bratianu, C. (2018). Emergent knowledge strategies: Strategic thinking in knowledge management (pp. 1-22). Cham: Springer International Publishing. DOI: 10.1007/978-3-319-60656_1

Britannica, T. Editors of Encyclopaedia (2017). safety. Encyclopedia Britannica. https://www.britannica.com/topic/safety-condition (accessed on 10/11/2021)

Chauhan, A., Anand, T., Kishore, J., Danielsen, T. E., & Ingle, G. E. (2014). Occupational hazard exposure and general health profile of welders in rural Delhi, India. *Indian Journal of Occupational and Environmental Medicine*

Denton, T. (2011). *Automobile mechanical and electrical systems*. Elsevier

Dombrowski, E., Rotenberg, L., & Bick, M. (2013). *Theory of knowledge*. Oxford University. Press, Oxford.

Edet, U. (2019). Occupational hazards: Examples and prevention measures http://HSEWatch.com. Accessed on 22nd September, 2021.

Elenwo, E. I. (2018). Occupational hazards and risks of automobile mechanics in Port Harcourt Metropolis, River state, Nigeria. *International Journal of Health, Safety and Environments Vol. 4(01) 156- 167*

Elemile, M. G., Kio, J. O., Abolarin, I. O., & Makanjuola, O. J. (2019). Knowledge and socio-Demographic determinants of occupational hazard prevention among automobile mechanics in Akure south Local Government, Ondo State, Nigeria. *Research Journal of Health Sciences. Vol 7(3)*

Fishbein, M. and Ajzen, I. (1975*). Belief*, attitudes, intentions and behavior: An introduction to theory and research. Mento Park CA: Addison – Wesley.

Ford, M.T., & Tetrick, L.E. (2011). Relations among occupational hazards, attitudes and safety performance. *Journal of Occupational Health Psychology, 16(1), 48 – 66.*

Friis, R. H. (2016). *Occupational health and safety* for the 21st century.

Goetsch, D. L. (2011). Occupational safety and health for technologists, engineers, and managers 7th edition. New York: Prentice Hall

Hochbaum, G. (1958). Public Participation in Medical Screening Programs: A Sociopsychological Study. Public Health Service Publication no. 572.

Hogg, M. A., & Vaughan, G. M. (2018). *Social psychology*. 8th edition, New York: Pearson

ILO (2016). Occupational safety and health management system. Egypt

Irinoye, O. O., Edet, O., Joseph-Shehu, E., & Ejidokun, A. (2018). *Public-community health nursing 1* (NSC 316). Abuja: NOUN Press

Johnson, O. E., & Motilewa, O. O. (2016). Knowledge and use of personal protective

equipment among auto technicians in Uyo, Nigeria. *British Journal of Education, Society & Behavioural Science, 15(1), 1-8.*

Kumar, R. (2011). *Research methodology, a step-by-step guide for beginners* 3rd edition. New Delhi: Sage

McLeod, S. A. (2018). Attitudes and behavior. Retrieved from http://www.simplypschology.org/attitudees.html (Accessed on 11/10/2021).

Monney, I., Bismark, D., Isaac, O., & Kuffour, R. A. (2014). Occupational health and safety practices among vehicle repair artisans in an urban area of Ghana. *Journal of Environmental and Occupational Science. Vol (3)3*
DOI: 10.5455/jeos.20140528072614 .

Oche, M. O., Okafoagu, C. N., Oladigbolu, R. A., Ismail, R., Ango, T. J., Hashimu, A. B., & Ijapa, A. (2020). Determinants of occupational health hazards among roadside automobile mechanics in Sokoto metropolis. *Annals of African Medicine*

Rabina, K., Indira, P., & Gautam, L. (2021). Occupational health hazards and use of personal protective equipment among auto mechanics in Kathmandu metropolitan city, Nepal. *International Journal of Occupational Safety and Health*, Volume 11, No.1, 16 – 24.

Rosenstock, I. M. (1966). Why people use health services. Milbank Memorial Fund Quarterly, 44(3), 94-124.

Sambo, M. N., Idris, S. H., Shamang, A. (2014). Determinants of occupational health hazards among roadside automobile mechanics in Zaria, North western Nigeria. *Bo Medical journal Vol 9 No 1*

Sanda, M., & Nugble, J. (2020). *Welders' knowledge of personal protective equipment usage and occupational hazards awareness in the Ghana informal auto-mechanic industrial sector*. Springer Nature Switzerland AG

Saliu, A., Adebayo, O., Kofoworola, O., Babatunde, O., & Ismail, A. (2015). Comparative assessment of lead blood levels of automobile technicians in organized and roadside garage in Lagos, Nigeria. *Journal of Environmental and Public Health* http://dx.doi.org/10.1155/2015/976563

Thangaraj, S., & Shireen, N. (2017). Occupational health hazards among automobile mechanics working in an urban area of Bangalore – a cross sectional study. *International Journal of Medical Science and Public Health vol.6*

UTI (2020). Welding Safety Tips and Guidelines for 2020 (uti.edu)

Vyas, H., Das, S., & Mehta, S. (2011). Occupational injuries in automobile repair. *Industrial Health. 49, 642- 651*

WHO & ILO (2021). WHO/ILO Joint estimates of the Work-related burden of disease and Injury, 2000–2016: Global monitoring report. Geneva: World Health Organization and the International Labour Organization

APPENDIX

CONSENT FORM

Dear Respondent,

I am an undergraduate student of the National Open University of Nigeria, Uyo Study centre. I am conducting a study on the knowledge, attitude and safety practices of automobile repair artisans towards occupational hazards. This research work is solely for academic purpose and I solicit that you feel free to express your opinion on each of the items in the questionnaire. Be assured that your response will be treated with confidentiality.

Thank you for your co-operation.

Yours sincerely,

Akowe, Jacob Akowe

(Researcher)

RESEARCH QUESTIONNAIRE

Instruction: please read carefully and respond to the following statement by ticking (√) your position. **SA** = StronglyAgree, **A**= Agree .**D**= Disagree, S**D=** Strongly Disagree

SECTION A: SOCIO-DEMOGRAPHIC DATA

Sex: M /F **Age:** 10-19yrs, 20-29yrs, 30-39yrs, 40-49yrs, 50yrs and above

Marital status: single/married/divorced/widowed

Occupation: (a)Mechanic (b) panel worker (c) spray painter (d) auto electrician (e) others…….(specify)

Level of Education: FSLC/O'LEVEL/NCE/DIPLOMA/1ST DEGREE/MASTERS

Years of experience: 1-9yrs, 10-19yrs, 20-29yrs, 30-39yrs, 40yrs and above

SECTION B

Assessment of level of knowledge of occupational hazards

		SA **4**	**A** 3	**D** **2**	**SD** **1**
1	Working without personal protective equipment expose you to hazards				
2	Eating with unwashed dirty hands in the workshop is harmful to health				
3	Sucking fuel with mouth is harmful				
4	Washing hands with fuel to remove grease /paint and used engine oil is dangerous				
5	Inhaling exhaust/welding fumes is hazardous				
6	Inhaling exhaust/welding fumes is hazardous				
7	Welding flash light is hazardous to the eyes				
8	Noisy Working environment can cause hearing loss				
9	Flooded working environment is hazardous				
10	Lifting heavy object manually can cause low back pains				

SECTION C:

Assessment of attitude toward occupational hazards

		SA **4**	**A** 3	**D** **2**	**SD** **1**
1	My work is risky and hazardous				
2	I am scared doing my work because of hazards				
3	I like observing precautionary measures while doing my work				
4	I like wearing overall while doing my work				
5	I like wearing safety shoe while working				
6	I like wearing hand gloves while working				
7	I like wearing goggle while working				
8	I like using face mask/respirator while working				
9	I like wearing safety helmet while working				

SECTION D

Assessment of occupational hazards

		SA **4**	**A** 3	**D** **2**	**SD** **1**
1	I suffered burns, cut, bruises because of my work				
2	I experience low back pain due to my work				
3	I have skin rashes because of my work				
4	I developed eye problem because of my work				
5	I have hearing problem because of my work				
6	I have respiratory problem because of my work				
7	I have musculoskeletal pains because of my work				
8	I have headache after my daily work				
9	I feel dizzy because of my work				
10	I always feel tired because of my work				
11	Mosquitoes bite me because of my work environment				

SECTION E

Assessment of safety practices

		SA **4**	**A** 3	**D** **2**	**SD** **1**
1	I clean my work environment daily				
2	I wash my work clothing regularly				
3	I wash my hands with soap and water after each work				
4	I lift heavy objects with mechanical device				
5	I use fuel siphon pump to draw fuel				
6	I use log to support jack when working under a vehicle				
7	I wear overall while doing my work				
8	I wear safety shoe while working				
9	I wear hand gloves while working				
10	I wear goggle while working				
11	I use face mask/respirator while working				
12	I wear safety helmet while working				