Assessment of Incidents and Immediate Consequences of Electric Shocks among Nigerians

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Abstract: - This study investigates the frequency of electric shocks among Nigerians and the resulting effects on those affected. A survey tool and verbal questionnaire were utilised to arrive at reliable testimonials from both victims and witnesses of comparable incidents. This study reveals that Nigerians encounter electric shock on a daily basis, yet a significant fraction of these incidents remains unreported. Furthermore, a significant portion of the Nigerian population has limited understanding of electricity and shows indifference towards the potential consequences of electric shocks. The survey findings unearthed multiple instances of electric shock over a thirteen-week period, previously not sufficiently documented. This study undertook meticulous analysis and documentation of multiple instances of electric shock, providing a full report on the resulting consequences and their level of severity. Many of the individuals who are affected intentionally choose not to wear protective equipment, fully aware that their lack of expertise and contempt for safety measures may result in an electric shock. Nevertheless, they demonstrate a reluctance to seek assistance from proficient experts or adopt proactive efforts to avert such occurrences. This study additionally investigates sustainable preventative approaches and proposes strategies for educating the public on suitable safety precautions. This study aims to address a significant and comprehensive educational gap concerning the prevention of electric shock and its associated consequences. This topic, which is a longstanding worry in Nigeria, has not received sufficient attention thus far.

Key-Words: - **V**ictims and witnesses, electric shock, severity, safety, public

Received: April 2, 2024. Revised: September 9, 2024. Accepted: October 11, 2024. Available online: November 25, 2024.

1 Introduction

Annually, a substantial number of fatalities occur in Nigeria due to electricity-related incidents. One of the most fearsome fatalities of electricity-related accident is electrocution. Based on research, it is believed that there are cells in human body that comprise several ions of chlorine, sodium and potassium, and these ions are effective carriers of electrical current. This feature imparts the body with a high level of electrical conductivity [1]. Moreover, the human body can serve as a conductor because of its significant water content. If the human body, whether alive or deceased, acts as a conductor and makes contact with a closed electric circuit, an electric current will flow through the body's ions and water (and possibly blood). The passage of electric current results in electric shock, which may lead to mild or severe discomfort, health concerns, or even electrocution [2]. Annually, a substantial number of fatalities occur in Nigeria due to electricity-related incidents. Electrocution is one of the most frightening fatalities in electricity-related accidents [3]. Based on research, it is believed that there are cells in the human body that comprise several ions of chlorine, sodium, and potassium, and these ions are effective carriers of electrical current. This feature imparts the body with a high level of electrical conductivity [1]. Moreover, the human body can serve as a conductor because of its significant water content. If the human body, whether alive or deceased, acts as a conductor and makes contact with a closed electric circuit, an electric current will flow through the body's ions and water (and possibly blood). The passage of electric current results in electric shock, which may lead to mild or severe discomfort, health concerns, or even electrocution [2].

Electric shock frequently goes undetected until it becomes fatal. Also, improper and unskilled installation of electrical wiring in various settings such as industrial areas, offices, residential buildings, workplaces, high-rise buildings, commercial malls and stores, hostels, classrooms, and workshops, as well as malfunctioning electrical equipment, can lead to short-circuits, electric shocks, electrocution, and potentially even fires [9]. Lightning, although seemingly improbable, can cause an electrical shock when it travels through the ground and generates a ground current. This current can pass through the body of someone standing nearby and ultimately result in an electric shock (Fig. 1). Similarly, misusing electrical equipment and contacting exposed wires can lead to electric shock. Negligent use of electrical devices can result in electric shock, just as using them in close proximity to or submerged in water does. The fridge or freezer can induce an electric shock when it comes into contact with a wet human body. Electric shock can occur when there is inadvertent or intentional contact with live electrical equipment that has different voltage levels [9–11]. The duration of the contact and the voltage level involved often determine the degree of the resulting harm. Electric shock incidents have become a frequent and regular phenomenon in Nigeria, primarily due to public irresponsibility, utility company negligence, wire breakages, and acts of vandalism. However, a significant number of these incidents go unreported. Electric shock can lead to severe injuries or fatalities. Electrical characteristics, including current, voltage, resistance, and frequency, have a crucial role in determining the level of fatality experienced by victims. The main source of tissue damage in most electrical accidents is the generation of heat energy, which leads to the heating and coagulation of tissues. Tissues with more resistance, such as skin, bone, and fat, are more susceptible to experiencing an increase in temperature. On the other hand, tissues with lower resistances, such as neurons and blood vessels, have less impact. Entrance and exit wounds are the most prevalent types of injuries that occur in the body when an electrical circuit is fully connected [4]. Typically, human skin does not provide a reliable indication of the extent of internal heat injury. Therefore, people often underestimate the extent of tissue damage resulting from electric shock [12–14]. Both mild and fatal electric shocks have adverse consequences on the victim's health, and it is unpleasant to experience them, whether they are slight or fatal, over an extended length of time [15]. Low-voltage accidents are a common occurrence among children under the age of 10. These accidents occur due to their exposure to wet bodies and, at times, adults, as well as naked wires, outlets, sockets, faulty fridges and freezers, and faulty pressing irons, among other faulty home appliances. The presence of unstable alternating current in homes leads to serious injuries [16, 11]. When human skin is wet, its resistance decreases to less than 250 Ω, resulting in lower heat generation and diminished protective capacity [7, 17]. However, when the human skin is dry and exposed to low-voltage electric current, it exhibits a significantly higher resistance of approximately 100,000 Ω, in contrast to when the human skin is wet. Dry skin's lack of moisture increases its thermal resistance, causing it to generate more heat than wet skin, potentially resulting in skin burns. High voltages (38) cause an abrupt muscle contraction and can cause physical injury. An electric current can inflict damage on human body tissues, known as an electrical injury. Electrical injuries are classified into low- and high-voltage injuries. Low-voltage injuries occur when electrical systems operate at voltages below 600 V. Residential power in Nigeria commonly operates at a voltage of 220 V, but high-voltage injuries are associated with electrical systems that have a voltage exceeding 1000 V. Electrical injury is a frequent cause of death in residential houses, offices, commercial malls and stores, hostels, workshops, classrooms, and various other work environments. Electrical injury typically occurs when there is direct contact with an electric current and grounding [8, 11, 15, 20]. The body's tissues then convert electrical energy into heat energy. The injury's severity is assessed according to parameters that include voltage, type of current, current intensity, length and cause of the current, tissue resistance, contact area, and the particular circumstances of the incident. High voltage exposure typically results in more injury and potentially more severe consequences, as the electrical current exerts a strong force that propels the body away from the source. High-voltage exposure can cause electric arc burns on the human body [15, 18]. Electric arc burns are a type of burn that affects the skin. Extended exposure to alternating current with frequencies ranging from 15 to 150 Hz can lead to involuntary muscle contractions and excessive stimulation of peripheral nerves [7].

Fig. 1: A toddler sucking an extension socket

The thermal energy that the current generates when the body forms a closed circuit is the primary cause of tissue damage from electrical currents, such as electrothermal burns [19, 13]. Tissues with a greater electrical impedance, such as the skin, bone, and fat, have a tendency to generate heat and clots [20]. Conversely, tissues with less electrical resistance, such as neurons and blood vessels, facilitate the flow of electric current more readily [15]. However, other parameters such as surface area of contact, applied pressure, and moisture presence can influence resistance [21, 22]. The skin's electrical conductivity experiences significant fluctuations due to moisture, which subsequently impacts the flow of electric current and the generation of heat [7, 23]. It is important to note that the word "electric current" refers to the flow of electrons through a conductive material. Prolonged exposure to low-voltage alternating current sometimes leads to fatal injuries and is exceedingly common [24, 18]. Electrical injuries typically progress and intensify until the body's tissues become resistant to electric current passage. However, when a human body comes into contact with an electric arc, it has the capacity to inflict substantial harm. Electrical currents can cause injuries that result in skin burns of varying degrees. Electrical burns typically develop at the points of contact between human skin and electricity, as well as where the skin touches the ground. However, it is possible that the impact may not be immediately observable, and identifying the harm to the internal organs may prove challenging [3, 25].

However, the engineering profession recognizes the potential risks associated with electric shock, which impact both professionals and clients. Therefore, they are making significant efforts to ensure the safety of all individuals. Engineering professionals utilize a range of protective equipment, including rubber gloves, plastic helmets, insulated tools, screwdrivers, pliers, spanners, safety goggles, and overshoes, to minimize and prevent the impact of electric shock. Engineers employ various devices such as breakers, earthing (grounding), insulated pipes, residual current devices (RCD), PVC pipes, and fuses to provide a high level of protection to their clients.

In contemporary Nigeria, incidents of electric shock occur frequently and in many locations as a result of negligence and/or a lack of awareness regarding its health consequences. Individuals often disregard safety regulations and protocols while performing work on public or private power utilities, jeopardizing their well-being [26]. If electric shocks occur, they are frequently unreported or considered routine, unless they result in fatalities. When an electric shock becomes lethal, it can result in either the amputation of a body part or immediate death. Similarly, an electric shock significantly impacts certain organs of the body, even if the victim is not immediately aware of it. However, this can have severe and potentially life-threatening consequences in the future. Nevertheless, the occurrence of such incidents remains inadequately documented, despite the potentially lethal consequences of electric shock on the human body. The goal of this study is to investigate and report electric shock occurrences in Nigeria.

2. Methodology

This section describes in detail the research focus and the methods adopted for carrying out the research, which are presented in subsections.

2.1 Research Design

Study Type: This study employs a cross-sectional design to assess incidents and immediate consequences of electric shocks among Nigerians.

Data Collection Method: A structured survey questionnaire was utilized to gather data from participants.

Duration: The survey spanned 13 weeks to ensure comprehensive data collection.

2.2 Participants

Sample Size: The study encompassed a total of 1984 participants.

Inclusion Criteria: Participants included individuals familiar with electric shock incidents.

Demographic Breakdown: Participants were classified based on age group, gender, and current occupation.

2.3 Data Collection

Survey Instrument: A structured questionnaire was designed to collect data on participants' biodata, experiences with electric shock, and immediate consequences.

Distribution: Surveys were distributed electronically and in-person to ensure broad participation.

Anonymity: Responses were kept anonymous to encourage candid feedback.

2.4 Data Analysis

Quantitative Analysis: Statistical methods were employed to analyse demographic data and quantify participants' experiences and attitudes towards electric shocks using Microsoft Excel application [27].

Qualitative Analysis: Thematic analysis was used to find recurring incidents and insights in the open-ended responses.

3. Results and Discussion

3.1 Biodata of Respondents

3.1.1 Demographic Breakdown of Individuals Familiar with Electric Shock

We classified the participants in this study based on their age group, gender, and current occupation. The survey spanned 13 weeks and included a total of 1,984 participants. Roughly half of the participants were between the ages of 18 and 40. These individuals were students enrolled in secondary schools, universities, colleges, or technical institutes, as well as employees in both formal and informal sectors. The survey also included individuals employed in occupations related to or reliant on electricity [19], as well as those who were unemployed or not engaged in these specific industries. These individuals made up the remaining 50% of the participants. However, the majority were male, as shown in Table 1.

In this study, a larger percentage of participants were individuals residing in residential areas and students living in on-campus or off-campus dormitories. Additionally, the study included individuals working in offices, workshops, stores, or stalls. The data collected and analyzed revealed that approximately 83% of participants reported firsthand experiences of electric shock due to direct contact with live wires, faulty or exposed wiring, electrical outlets, damaged cords, mishandling of electrical equipment or wires, or while providing services. In contrast, around 15% of participants had only observed others being electrically shocked at some point in their lives. A significant percentage of individuals had experienced shocks on multiple occasions, indicating a recurring issue. Furthermore, the majority were fully aware of the potential consequences of electric shock.

Participants suggested that electrical injuries may present as dermal burns (as shown in Fig. 2), sensory loss or muscle weakness, cardiovascular problems, respiratory insufficiency, paralysis, or psychological effects (Table 1) [15]. Some individuals experienced shocks in various locations, such as their homes, dormitories, workshops, market stalls, retail establishments, swimming pools, offices, kitchens, or bathrooms (Fig. 3) [28]. Due to their occupations and participation in activities like climbing utility poles, addressing electrical issues, climbing trees, and performing maintenance and repairs without safety equipment, teenagers, young adults [6], and adults are more likely to be exposed to electricity. Adolescents who frequently sustain injuries while engaging in risky outdoor activities, such as climbing electric poles or exploring hazardous areas, often suffer accidents primarily due to contact with electrical lines, appliances, or equipment [25].

Electrical, mechanical, and agricultural equipment, along with exposed or live wires, poor wire connections, and improper grounding, are the primary causes of shocks in workshops, stores, or stalls. Residential electrical injuries result from various causes, including defective wire connections, inadequate grounding, exposed wires, contact with wet surfaces, electrical overload, damaged cords, malfunctioning pressing irons, faulty refrigerators and freezers, moisture exposure, damaged outlets and switches, and malfunctioning electrical equipment (Fig. 4). Electric shocks commonly experienced in residential settings typically involve low-voltage alternating current, which is rarely lethal and usually does not cause visible burns (Table 2). However, these shocks can lead to cardiac dysrhythmias, as documented in [29, 30].

Table 1: Demography of 1,984 participants

Respondents	**No of Participants**	**%**
Age		
16-25	996	50.2
26-40	488	24.6
41-50	256	12.9
Above 50	244	12.3
Gender		
Female	623	31.55
Male	1354	68.25
Current job		
Working with electricity	1260	63.5
Work related to electricity	361	18.2
Not working with electricity	230	11.6
Unemployed	107	5.4
Unspecified	26	1.3

Defective sockets, broken extension cords, overloading, malfunctioning electric kettles, and damaged outlets are typically the primary causes of electrical injuries in office settings. However, students residing in hostels often approach power concerns with a lack of seriousness and are generally indifferent toward the maintenance of their dormitory connections. Electric shocks in hostels and dormitories can be caused by various factors, such as exposed wires, overloading (Fig. 5), defective electrical appliances—including stoves, kettles, jugs, or irons—improper wire connections, broken electrical outlets and cords, and contact with water or moisture (Table 2).

The responses analyzed in Table 2 revealed that the most commonly reported consequences of electric shock, whether from personal experience or observation, are ranked in descending order as follows: mild, no severe bodily injury, slightly severe, somewhat severe, quite severe, very severe bodily injury or skin burns, or electrocution. Only participants who observed electrocution incidents [2] reported these, making them indirect encounters. These incidents accounted for 1.2% of the total, whereas 0.5% of the participants were unable to report the outcome but attributed the electrocution to excessive voltage.

Table 2: Electric shock reported in 13 weeks

No of shocks per person	**No of person**	**%**
1	863	43.5
2	609	30.7
3	271	13.7
4	129	6.5
5	72	3.6
6-10	40	2.0
Places of shock incident: Responses (> 1)		
Residential home 615.04	1019	31
Hostel 376.96	639	19
Workshop/Store/Stall 257.92	423	13
Bathroom 138.88	225	7
Swimming pool 19.84	38	1
Outdoor 119.04	211	6
Kitchen 277.76	457	14
Office 178.56	279	9
Awareness of consequences of electric shock		
Not big a deal	650	6
No immediate effect	978	9
Skin burns	1339	13
Cardiovascular issues	1012	9
Electrocution	1875	17
Numbness/Weakness	1342	13
Paralysis	1212	11
Psychological effect	1607	15
Respiratory failure	786	7
Causes of electric shock Workshop/store/stall related		
Electrical equipment	1200	37
Mechanical equipment	121	4
Agricultural equipment	43	1
Other equipment	79	2
Improper grounding	237	7
Naked wire	658	20
Faulty wire connection	835	26
Live wire	112	3
Residence related		
Damaged cords	1356	16.6
Faulty wire connection	1284	15.7
Naked wire	1211	14.8
Wet body	785	9.6
Improper grounding	243	3
Moisture and water	578	7.1
Faulty fridge/freezer	127	1.6
Faulty pressing iron	71	0.8
Faulty fan	39	0.4
Electric cooker	682	8.3
Electric boiling ring	212	2.6
Damaged outlets/switches/overloading	967	11.8
Electric kettle/jug	634	7.7
Office related		
Faulty socket/extension	1256	44
Faulty electric jug	653	23
Faulty electrical outlet	921	33

Hostel related		
Naked wires	1225	15.5
Faulty wire connections	1121	14.2
Faulty electrical outlet	1090	13.8
Damages cords	1003	12.7
Electric cooker	923	11.7
Electric kettle/jug	651	8.2
Faulty pressing iron	717	9.1
Improper grounding	538	6.8
Wet body/water/moisture	631	8
Voltage		
180 -220 V	1546	83.5
220 -240 V	117	6.3
240 – 400 V	92	5
400 – 1000 V	43	2.3
Above 1000 V	37	2
Uncertain	16	0.9
Personal/Second-hand Experience		
Mild	1284	36.1
Not severe/No bodily injury	763	21.5
Slightly severe	541	15.2
Somehow severe	411	11.6
Quite severe	215	6.1
Very severe	163	4.6
Bodily injury	112	3.2
Electrocution	43	1.2
Uncertain	21	0.5

Fig. 2: Skin burns from electric shock [31]

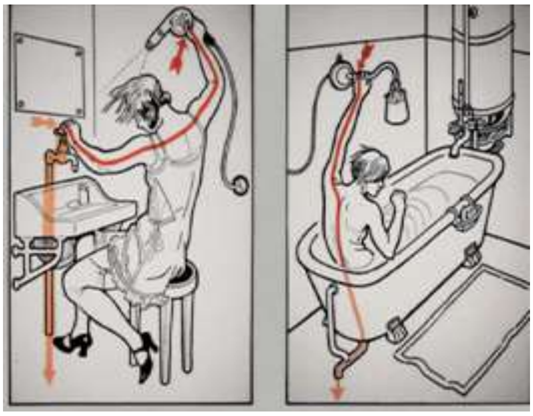

Fig.3: Shock incident in the bathroom [5]

Fig. 4: Electric shock from electrical equipment

Fig. 5: Shock from overload

3.2 Chi-Square Test

The age and gender, number of shocks per victim and the place where the shocks happened, the awareness of the consequences of electric shocks and work-related electric shocks, office-related and residence-related electric shocks, and residence-related and hostel-related electric shocks were statistically analysed and reported in Table 3. Chi-Square test was used to determine if significant relationships exist between the categories of respondents and their responses (37). A constant significance value, 0.05 was used throughout the investigation but their degrees of freedom (DF) vary. For the age and gender category, the DF is 6, the calculated value is 15.074, and the tabulated value is 12.592. The DF for the age and occupation category is 12, the calculated value is 101.626, and the tabulated value is 21.026. The DF for the number of shocks per victim and places where the shock happened is 35, the calculated value is 149.257, and the tabulated value is 49.802. The DF for the victims' awareness of the consequences of electric shocks and work-related electric shocks is 56, the calculated value is 333.11, and the tabulated value is 74.468. The DF for the office-related and residence-related electric shocks is 96, the calculated value is 302.420, and the tabulated value is 119.100. The DF for the residence-related and hostel-related category is 46, the calculated value is 217.981, and the tabulated value is 83.675. In all the cases, the calculated values (also known as critical values) exceed the tabulated values indicating the rejection of the null hypothesis and acceptance of the alternative hypothesis. This demonstrates that a significant relationship exists between each of the cases studied.

Table 3: Analysis of Relationships

Relationships	DF	Significance Level (α)	Calculated Value	Tabulated Value
Age/Gender	6	0.05	15.074	12.592
Age and Occupation	12	0.05	101.626	21.026
Number of Shock per Victim and Location of Shocks	35	0.05	149.257	49.802
Awareness of consequences of electric shock and work-related electric shock	56	0.05	333.111	74.468
Office related and residence related shocks	96	0.05	302.420	119.1
Residence-Related and Hostel-Related Shocks	46	0.05	217.981	83.675

3.3 Repairs: Occupation and Education Influence

Experts and individuals with specialized knowledge have documented numerous instances of rectifying electrical malfunctions. The findings of this survey revealed that approximately 39% of participants independently resolved electrical malfunctions without consulting experts, while around 24% typically sought professional assistance. Electricians, technicians, and engineers showed the knowledge and technical skills they possess through training related to electrical systems by finding and repairing electrical malfunctions. Welders, mechanics and several other machine operators depend on their essential electrical knowledge to perform basic electrical repairs while those in offices, stalls, residential homes, and hostels that do not have technical skills depend on technicians or processional electricians for repairs. The study found that participants' education, occupation, and training significantly influenced their attitudes toward handling electrical issues, repairing electrical equipment, and using electrical devices. Approximately 17% of respondents possess a high level of expertise in electrical matters and can independently address electrical faults. In contrast, about 20% have no prior experience with electricity and consistently express apprehension about anything related to it (Fig. 6).

Occupational electric shocks are infrequent due to the limited exposure to high levels of electric shock [32, 36]. The survey provides evidence that artisans, such as miners, electricians, automobile electrical technicians, welders, construction workers, and factory workers, are more susceptible to electric shock. While most reports of their shock experiences are mild, a few cases involved severe, very severe, or even fatal electric shocks (Table 2). This finding aligns with existing literature. Additionally, students are at risk of electric shock when using boiling rings, electric cookers, exposed wires, faulty sockets, and extension cords (Table 2) [33], as well as improperly connected wires in dormitories [34, 35], especially in environments with moisture and poor grounding.

According to the survey, non-engineering students are more susceptible to and experience electric shocks at a higher rate than engineering students and artisans (Fig. 7).

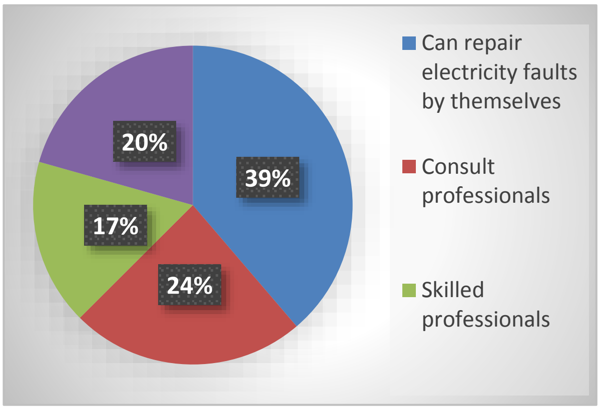

Fig. 6: Category of persons handling electricity repairs

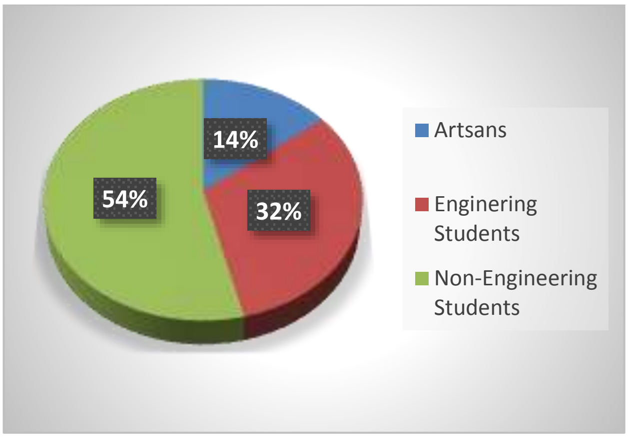

Fig. 7: Comparison between artisans and student

3.4 Effects of Electric Shock and Rescue Measures

As shown in Fig. 8, the majority of participants reported that they were not rescued after experiencing electric shock, except through self-help. They managed to rescue themselves by disconnecting or removing the point of contact from the electrical source. A few others received assistance from neighbors, co-workers, customers, or passersby. Many a times, the victims turned off the power source and if they couldn't, their neighbors would rescue them by using a non-conductive object. As reported in Fig. 9, 10% of electric shock victims received first aid treatment, 31% did not receive any, 5% were taken to the hospital for treatment, 38% were not taken to the hospital nor went on their own, and 16% used their mobile phones to record the incident for social media views. However, some good Samaritans checked the responsiveness of victims by tapping them but if they do not respond, they will seek medical assistance immediately. Some victims resort to self-treatment after the incident due to the high cost of medical care in Nigeria. They used iodine to clean and disinfect the burns, and gelucid to treat the burns. Some superstitiously believe that their blood have been drained during the period of the electric shock and resort to drinking evaporated milk to restore the lost blood. According to the results, a significant number of participants neglected to wear protective gear while working or conducting repairs (Fig. 10).

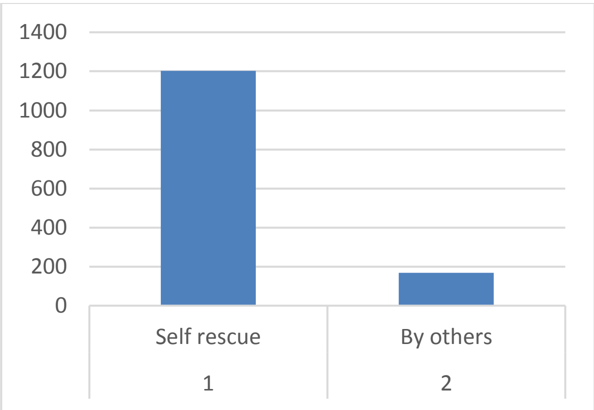

Fig. 8: How victims were rescued

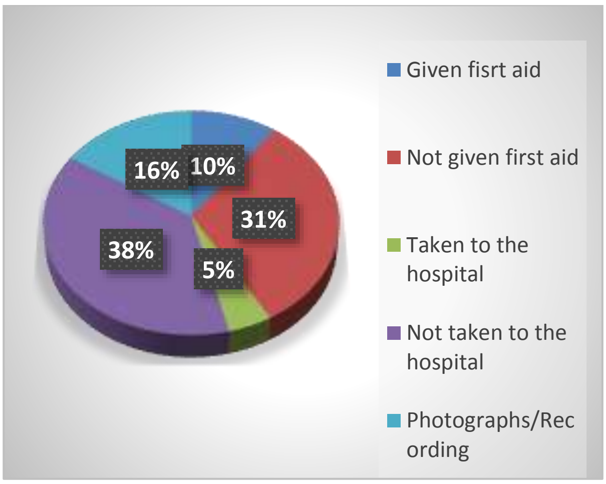

Fig. 9: Treatment culture

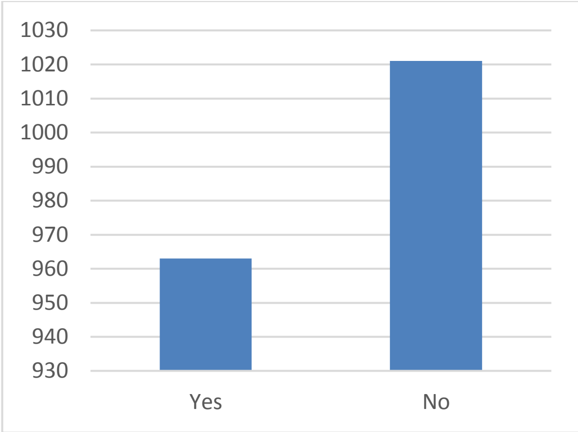

Fig. 10: Culture of protective gears

As presented in Fig. 11, a large number of individuals criticized people's attitudes toward prevention. No significant preventive actions were implemented to address future incidents. While some participants acknowledged the use of preventive measures, others were uncertain about their implementation. Fig. 12 clearly illustrates that the majority of electric shock accidents result from human error. Additionally, it is important not to overlook ignorance as a significant contributing factor to electric shock incidents. Similarly, electrical breakdowns pose a setback due to their sudden occurrence.

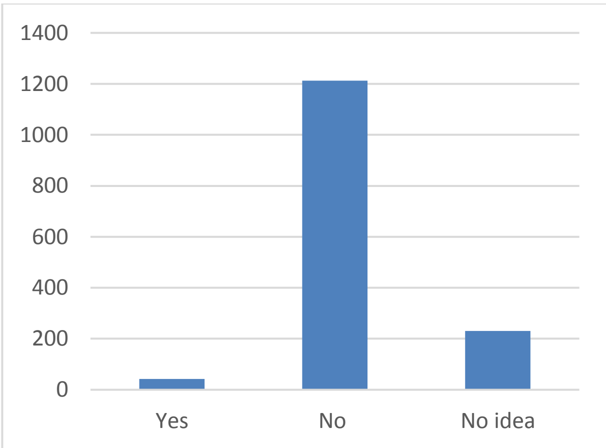

Fig. 11: Preventive measures

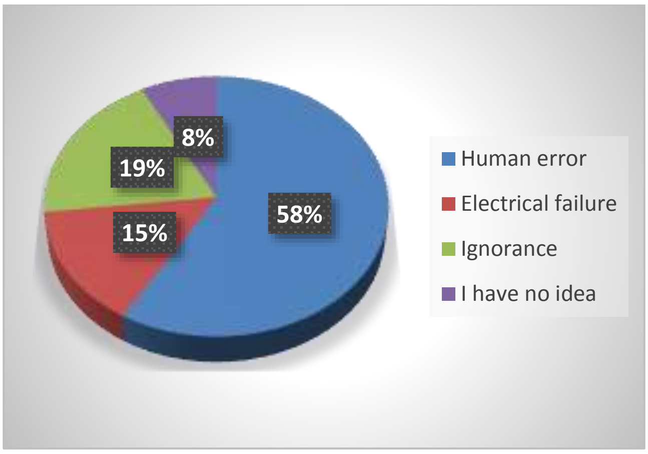

Fig. 12: Human error/ignorance of electicity users

4 Conclusion

Accurately assessing the actual occurrence of electrical accidents is difficult due to a lack of proper reporting. This study investigates the incidence of electric shock among Nigerians, with the objective of highlighting and addressing these occurrences. Young individuals, particularly those aged 18 to 40, residing in hostels, dorms, residential homes, and workplaces, predominantly experience electric shock incidents. Electric shock is a common occurrence among Nigerians, whether or not they are working with electricity. This study has demonstrated that the Nigerian populace lacks sufficient understanding of electricity and is indifferent to the potential consequences of electric shocks. Most individuals examined show a lack of seriousness in handling electricity-related matters. They do not use protective devices and are fully aware that their lack of knowledge and carelessness may lead to electric shock incidents. However, they are often unwilling to seek assistance from skilled professionals or take proactive measures to prevent future incidents.

Before initiating any measures, emergency personnel must evaluate the safety of a disaster area for potential electrical hazards, such as downed high-voltage power lines. They should refrain from continuing until the area is officially declared safe, which may require the electrical lines to be de-energized. It is advisable for all patients, regardless of their symptoms, to obtain an electrocardiogram (ECG). A medical examination is necessary following incidents where patients have been exposed to high voltage or lightning, have extensive surface burns, or where there is suspicion of deep tissue injury. We also recommend this when observation or hospital admission may be necessary.

Consistently wearing protective gear significantly reduces the risk of injury. To prevent electric shock, safety must be prioritized in both residential and workplace settings. Regular inspections and maintenance, careful management of electrical loads to prevent overloading, the use of protective equipment, proper grounding or insulation of equipment and appliances, proper wiring and outlet covers can all help achieve this. Hiring qualified professionals for installation and maintenance, using appropriate circuit breakers and fuses, installation of ground faults circuit interrupters that can detect ground faults and shut off the power source, working on dry ground, desisting on working on a wet surface or with a wet hand or body can prevent shock significantly. Similarly, unplugging appliances when not in use, regularly checking for damaged cords, avoiding doing repairs yourself if you lack the knowledge, and turning off the power source before working are all preventive measures that will help a great deal. It is imperative that every Nigerian is educated on proper safety protocols and encouraged to follow safe procedures when handling electrical appliances. Lastly, the federal government of Nigeria should make and enforce laws that prohibit building houses or shops under high-voltage cables.

This study, therefore, recommends an increase in awareness among the general public, government and private sector officials, as well as students and individuals, about the importance of taking electricity-related incidents seriously. It emphasizes the need for mobile emergency services to be readily available for anyone who experiences an electric shock, as well as the importance of providing proper treatment at a reduced cost.

Acknowledgement:
The authors acknowledge all the participants who spared their time to respond to the questionnaire and interview.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

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The authors equally contributed in the present research, at all stages from the formulation of the problem to the final findings and solution

Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

No funding was received for conducting this study. The authors received no financial support for the research, authorship, and/or publication of this article.

Conflict of Interest

The authors have no conflicts of interest to declare that are relevant to the content of this article. We declare that we have no significant conflict/competing interests including financial or non-financial, professional, or personal interests interfering with the full and objective presentation of the work described in the manuscript.