Original Research Article

Assessment of First Aid Knowledge, Attitude, and Practice to Accident Victim among Selected Communities along Lagos-Ibadan Expressway, Nigeria

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Abstract: *Background*: The burden of Road Traffic Accidents (RTA) has been on the increase in Nigeria. First-Aid (FA) service is one of the key measures for reducing RTA-related injuries and complications. Information about factors, which could influence FA response by residents of communities along major highways in Nigeria, is insufficient. *Objective*: This study aims to examine factors influencing FA assistance to accident victims and action taken by residents of selected communities along Lagos-Ibadan expressway. *Methodology*: A cross-sectional survey conducted in six randomly selected communities along Ogun state axis of the Lagos-Ibadan expressway. A three-stage sampling technique was used to select 599 consenting respondents from the communities based on proportionate population. An interviewer-administer- questionnaire containing questions on awareness of FA, actions taken when accidents occurred, A 16-point FA knowledge scale was used to collect the data. Knowledge scores of ≤ 10 and ≥ 11 were rated as poor and good respectively. Quantitative data were analyzed using descriptive statistics, Chi-square, and ANOVA. The level of significance was set at 0.05. *Result*: Majority (79.1%) of the respondents had ever witnessed an accident along the expressway and 46.7% had ever assisted accident victims. Overall mean knowledge score was 6.0 ± 2.0 with 95.2% of respondents showing poor knowledge of FA. Factors which cause delay in conveying accidents victim to the hospital included: fear of negative reactions from the police (24.0%); traffic congestion (18.5%) and lack of vehicle (16.2%). *Conclusion*: There was poor knowledge of First Aid. Logistics problems are the main barriers to the provision of First Aid services to accident victims on the expressway. Sensitization and training related to First Aid should be instituted at the community level.

Keywords: First-Aid, knowledge, Road traffic accident, Community response, Traffic related injuries.

1.0 INTRODUCTION

Road traffic deaths and injuries continue to pose a significant worldwide health and development concern. As of 2019, road crashes remained the greatest killer of children and youth aged 5-29 years, as well as the 12th highest cause of death overall (WHO, 2023). Road traffic deaths declined marginally to 1.19 million in 2021, a 5% decrease from 2010, with over half of all UN Member States, including low-income countries, reporting a decrease in mortality (WHO, 2019, 2022, 2023). Although deaths decreased slightly, the global motor vehicle fleet more than doubled; road networks expanded substantially, as did the global population, which now stands at more than one billion (Hyder, 2020). Nonetheless, this decrease in mortality falls well short of the UN Decade of Action for Road Safety 2021-2030 goal of lowering road traffic deaths by 2030 (WHO, 2023).

Road traffic injuries are the leading cause of death for children and young adults aged 5 to 29. Two-thirds of all road deaths occur among working-age individuals (18-59 years) (OECD/ITF, 2023). Despite owning more than 60% of the world's vehicles, low- and middle-income nations are responsible for nine out of every 10 road deaths (Ana Mariya Pento *et al.*, 2020). In Sub-Saharan Africa, these fatalities are putting a strain on our already overburdened infrastructure, particularly our road networks. The growth in the number of individuals relocating from rural to urban regions frequently

leaves scores of people who were either murdered or maimed on our roadways while going about their daily responsibilities, leaving behind shattered families and communities (Eneh *et al*., 2023).

Nonetheless, current efforts to address road safety pale in comparison to the growing human suffering, as millions of people each year spend weeks in hospitals following severe crashes, and many of the victims will never be able to live, work, or play as they once did (OECD/ITF, 2023). More than 90% of traffic fatalities occur in low- and middle-income nations. According to WHO Africa data, road traffic fatalities increased from 24.1 per 100,000 persons in 2010 to 26.6 per 100,000 in 2016. If no action is taken, road trauma in Africa is expected to increase, with fatalities per capita more than doubling between 2015 and 2030 (Cynthia *et al*., 2023; WHO, 2023).

According to the International Federation of Red Cross and Red crescent (IFRC) Define first aid as any emergency/accidents that require immediate and proper life-saving care before a patient receives extensive treatment (IFRC, 2020). This lifesaving intervention known as 'first aid' comprises an evaluation and actions that can be performed rapidly by an individual who is on the scene of the occurrence with few or no medical supplies (Bashekah *et al*., 2023). Post-crash care and survival are extremely time-sensitive; a few seconds could make the difference between life and death. Many literatures disclose that between the time of accident and available medical service, there is a period that is vital to the victim known as the 'GOLDEN HOUR', during which the victim receives first aid care that can make or mar his/her impairment limitation or even death.

In Nigeria, where there are no good prehospital emergency care facilities, citizens with minimal or no medical training who respond to road traffic events might play a crucial role in delivering urgent assistance to victims of road accidents (Balikuddembe *et al*., 2020). Citizens can act by regulating crowds gathered at the incident, requesting assistance from responsible sources, and coordinating transportation to send injured people to the hospital if ambulances are unavailable (Ndile, 2020).

Nigeria has 200 million inhabitants and an average family size of six people, totalling around 33 million families (NPC/ICF, 2018). Nigeria has 1.7 million vehicles, with each serving approximately 117 people. As a result, road transportation is critical in Nigeria; nevertheless, many of them are in poor shape, impassable, small, underdeveloped, and littered with potholes, with most streets without adequate nighttime illumination (NBS/FRSC, 2022).

This issue is prevalent in Nigeria, where many valuable lives are lost on the roadways every day, resulting in a nationwide public health emergency. The Lagos-Ibadan Expressway is an important land road that connects Lagos to other regions of the country. Lagos is often regarded as the business and economic hub of Nigeria. The route is predicted to account for 20-30% of all accidents in Nigeria (Eneh *et al*., 2023; NBS/FRSC, 2022). The purpose of this study is to look into the elements that influence how inhabitants of villages along the Lagos-Ibadan expressway provide first aid to accident victims.

2.0 MATERIALS AND METHODS
2.1 Study Design, Settings, and Participants
A cross-sectional study was conducted to investigate factors associated with First Aid knowledge, attitude, and practice level among residents of the Lagos-Ibadan expressway and accident victims. The research was carried out in July 2024 with 349 participants. The Lagos-Ibadan Expressway is a key road that connects Lagos to the rest of the country. Lagos is often regarded as the business and economic hub of Nigeria. The route is predicted to represent 20-30% of all accidents happening in Nigeria (Salisu & Oyesiku, 2020).

2.2 Data Collection Instruments
A questionnaire with closed-ended questions was adapted from a previous study in Saudi Arabia on factors associated with first aid knowledge, attitude and practice among general public. (Bashekah *et al*., 2023). It has been divided into four sections. The in first section asked for the respondents' personal information. The second segment examined the respondents' knowledge. The third portion evaluated respondents' attitudes toward accident victims, while the fourth segment evaluated their first-aid practice routines. The questionnaire was developed in English and translated into Yoruba to guarantee that all research assistants provided the same interpretation of the questionnaire.

A 16-point knowledge scale was used to assess respondents' knowledge about first aid. A correct knowledge earned one point, whereas incorrect information earned zero. A score < 10 points was regarded poor, while scores ≥ 11 points were rated as good knowledge. Similarly, a 14-point attitudinal scale was employed to assess respondents' attitudes towards first aid. A positive attitude earned two points, whilst a negative one received zero. A score of ≤7 and ≥8 points indicated negative and positive attitudes, respectively. Experts from the faculty of medicine and health science completed the content validity of the questionnaire, while 40 participants filled out and submitted a form prepared for the face validity used during the pilot project, resulting indicated that 93% agreeing that all the questions were satisfactory.

2.3 Sample Size Determination and Sampling Procedure

The sample size was determined using the Lwanga and Lemeshow 1991 formula for determining the proportion of the population, which was the communities along the Lagos-Ibadan expressway, based on their knowledge, attitude, and practice level. The sample size was increased to 600 to account for non-response and to improve the generalizability of the results.

A three-stage sampling approach was used to select the study's participants. They are as follows: The Ogun state axis of the Lagos-Ibadan expressway was purposefully chosen because it has the widest spread on the freeway, a higher number of residents, and is more prone to crashes. Then, one Local Government Area (LGA) was randomly picked from the three LGAs that cover this section of the expressway, and six (6) communities were chosen at random from the selected LGA based on population density. Finally, the study's participants were chosen randomly. The inclusion criteria were residing near the expressway, but the exclusion criteria were refusing to participate in the study.

2.4 Data Processing and Analysis

Data gathered were subjected to descriptive (mean, median, and mode) and inferential statistics such as Chi-square to determine the association between socio-demographic characteristics and residents' knowledge of first aid alongside the highway. The SPSS 27.0 statistical package was used for the analysis. Finally, the data collected was summarized and displayed in tables and figures.

2.5 Ethical Approval and Consent to Participants

Ethical approval was acquired from both the University of Ibadan and the designated ministries of health in Lagos and Ogun states. All participants provided informed written consent.

3.0 RESULTS

3.1 Socio-demographic Characteristics of Respondents

Table 3.1 shows that more of the respondents (44.2%) were residents of the Ibafo community and 11.2% were from the Berger community. Respondents' ages ranged from 15 to 50 years, with a mean age of 31.0 ± 9.3 years. Majorities (61.9%) were males, 56.6% were Christians, and 44.6% were artisans. Few (10.5%) had no formal education, while 18.2% had tertiary education. Many (46.2%) of the respondents have been living along the Lagos-Ibadan expressway between 2 and 6 years, and 12.5% have lived along the axis for 11 years and above.

Table 3.1: Socio-demographic Characteristics of Respondents N=599

Demographic variables	Frequency	%
Age Group (N=599)		
11-25	191	30.1
26-40	325	52.3
41-55	70	11.7
56-70	13	2.2
Occupation (N=599)		
Artisan	267	44.6
Trader	245	40.9
Civil Servant	25	4.2
Teacher	4	0.7
Student	53	8.8
Unemployed	4	0.7
Clergy	1	0.2
Name of Community (N=599)		
Ibafo	265	44.2
Arepo	61	10.1
Opic Isheri	70	11.7
Warewa	65	10.9
Magboro	71	11.9
Berger	67	11.2
Educational level (N=599)		
Non formal education	63	10.5
Primary Education	133	22.2
Secondary Education	294	49.1
Tertiary Education	109	18.2
Ethnicity (N=599)		
Yoruba	426	71.1

Demographic variables	Frequency	%
Igbo	109	18.2
Hausa/Fulani	50	8.3
Others	14	2.3
Years of staying along Lagos-Ibadan Expressway (N=599)		
0-1 year	113	18.9
2-6 years	277	46.2
7-10 years	134	22.4
11 years and above	75	12.5

3.2 Respondents' Awareness First Aid

Table 3.2 show that many (53.4%) of the respondents had ever heard of first aid, and 22.5% had ever been trained as a first aider, while the duration of their training ranged between 0 and 11 years (4.7%).

Table 3.2: Respondents' awareness of First Aid N=599

Awareness of First Aid	N	%
Ever heard of First Aid (N=599)		
Yes	320	53.4
No	279	46.6
Ever been trained as First Aider (N=599)		
Yes	135	22.5
No	464	77.5
Duration of training as First Aider (N=134)		
0-1year	28	20.9
2-5 years	54	40.3
6-10 years	36	26.9
11 years and above	16	11.9

3.3 Respondents' Knowledge of First Aid

The overall mean knowledge score of the respondents was 6.0 ± 2.0. Most of the respondents (95.2%) had poor knowledge of first aid. More than a quarter (31.1%) of the respondents did not know that first aid is helping an accident victim before taking them to the hospital, and 29.9% also did not know that the first action at the site of an accident is to shout for help and check for danger. The mean knowledge scores of respondents with no formal, primary, secondary, and tertiary education were 5.0 ± 1.6, 5.2 ± 1.8, 6.2 ± 2.0, and 6.9 ± 2.2 points, respectively ($p = 0.00$).

Table 3.3: Respondents' knowledge of First Aid N=599

Knowledge of First Aid	n	%
Statements that best define the word first aid		
a. Helping an accident victim after taking him to hospital	28	4.7
b. It is prevention of all accidents along the road	24	4.0
c. Helping an accident victim before being taken to the hospital*	413	68.9
d. As assistant given before an accident happen	8	1.3
e. No response	126	21.0
First action at the site of an accident		
a. Shout for help and check for danger*	420	70.1
b. Wait until you get help	81	13.5
c. Call the police and wait till they arrive	63	10.5
d. I really don't know	35	5.8
First action when accident victim sustains three injuries namely severe bleeding, fracture with no bleeding and unconsciousness		
a. Shout for help and check for danger		
*True	382	63.8
False	217	36.2
b. Take care of the unconscious level		
True	270	45.1
*False	329	54.9
c. First treat the severe bleeding		
True	330	55.1
*False	269	44.9

Knowledge of First Aid	n	%
d. First treat the fracture		
True	109	18.2
*False	490	81.8
Tongue of an accident victim who is unconscious can be major causes of his/her death if not properly handle within 5 minutes		
Yes *	445	74.3
No	154	25.7
Benefits/advantages of helping an accident victim at the site of the crash		
God's favour	111	18.5
Job opportunity	8	1.3
*Prevent death	257	42.9
Prevent of traffic hold up	39	6.5
Prevent loss of blood	20	3.3
Materials needed to administer help to accident victim at accident site		
Bandages*	203	
Water*	187	
Methylated spirit*	163	
Cotton wool	159	
Iodine	116	
Scissors/blade*	105	
Plaster	77	
Drugs	72	
Ambulance	68	
Robb	27	
Hand gloves*	25	
Disinfectant	18	

*Correct responses

3.4 Respondents' Attitude Towards Accident Victim

The overall mean attitudinal score of the respondents was 11.6 ± 2.2. The majority (97.0%) of the respondents had a positive attitudinal score, while 3.0% had a negative attitudinal score. The majority (97.7%) feel that accident victims need urgent assistance, and 93.0% feel that accident victims require assistance even if it is a minor accident. Negative attitudes among respondents included *"accident victim who is at fault of causing the accident needs not to be helped (72.5%)"*. The mean attitudinal scores of respondents with no formal, primary, secondary, or tertiary education were 11.7 ± 2.5, 11.7 ± 1.9, 11.6 ± 2.5, and 11.7 ± 1.7 ($p > 0.05$).

Table 3.4: Respondents' Attitude towards Accident victim N=599

Statements	Agree	Disagree
Accident victims need urgent assistance	583 (97.7%)	14 (2.3%)
Accident victim who is at fault of causing the accident need not be helped	433 (72.5%)	166 (27.5%)
Accident victims require assistance even if it is a minor accident	558 (93.2%)	41 (6.8%)
No matter the circumstances of an accident victim, I will always stay and offer my help	522 (87.1%)	77 (12.9%)
Regardless of my religious belief, I will always offer help to either male or female victim of accident	565 (94.3%)	34 (5.7%)
Regardless of my cultural belief, I will always offer help to either male or female victim of accident	565 (94.3%)	34 (5.7%)
People always assess the status of an accident victim first before offering any help	279 (46.6%)	320 (53.4%)

3.5 Respondents' Practice of helping Accident victims

Many (59.1%) had ever attempted to render help to an accident victim before, and the time they offered such help was immediately after it occurred (56.6%) and one hour after it occurred (2.2%). Some (47.4%) normally convey an accident victim to the hospital or health center nearest to them, and the time taken to convey the victim was within an hour (44.1%) and 2-3 hours (2.7%). Some (45.2%) were of the opinion that there are delays in conveying accident victims to the hospital or any health center, and reasons for delay included fear of the police (24.0%) and fear of the victim's death (14.2%).

Table 3.5: Respondents' Practice towards Accident victim N=599

Statements	n	%	N
Time offer help to accident victims			
Immediately after it occur	339	96.0	353
One hour after it occurred	13	3.7	
2-3 hours after it occurred	1	0.3	
Normally convey accident victim to hospital or any health centre nearest to you			
Yes	284	80.2	354
No	70	19.8	
How long does it take to convey the victim			
0-1 hour	264	91.7	
2-3 hour	16	5.6	288
4-5 hour	5	1.7	
6 hours and above	3	1.0	
Delay in convening the accident victim to the hospital or health centre			
Yes	328	92.7	354
No	26	7.3	
Reasons for delay			
Fear of victim's death			
Yes	85	24.3	
No	268	75.7	
Fear of police			
Yes	144	40.7	
No	210	59.3	354
Traffic holds up			
Yes	111	31.4	
No	243	68.6	
Lack of vehicle			
Yes	97	27.4	
No	257	72.6	
First action taken by respondents			
Appropriate	339	96.0	353
Inappropriate	14	4.0	

Respondents were asked for their perceptions on the tools needed to prepare residents living in communities along the expressway for providing first aid assistance to accident victims. To this, 75.6% said that community members should be trained on first aid, 14.4% were of the opinion that more speed breakers should be put on the road, 5.7% wanted drivers to be trained on first aid, and 4.3% were of the opinion that police officers along the expressway should be trained on first aid.

4.0 DISCUSSION

The majority of respondents in this survey were from Ibafo communities; this could be owing to congestion in Lagos State, which has caused a spillover to surrounding states, particularly Ogun State. This confirms the assertion of the United Nations Department of Economic and Social Affairs (2020), which postulated that the impacts of economic growth and physical expansion of the urban area are not confined within urban boundaries; they reach much wider areas surrounding urban centers, resulting in the so-called urban areas, urban fringe areas, or peri-urban areas effect (Joy, 2016; Liu Zhenmin, 2020; Rajendran *et al*., 2024).

The respondents' age distribution was mostly dominated by working-age men who cannot afford to live in the megacity of Lagos. The majority of the study participants were craftsmen, which could be attributed to the fact that Nigerian governments encourage individuals to learn basic skills in order to provide more jobs for their citizens, hence lowering unemployment rates (Eze, 2023; Sabastine *et al*., 2023).

The majority of respondents had ever witnessed a road accident, which contradicts the findings of Balikuddembe *et al*., (2020); Purnamasari *et al*., (2022), who reported that less than a quarter of their respondents had witnessed an RTA. The respondents' reactions to accident victims varied, but the majority assisted accident victims in the company of others. This could be because Nigerian culture encourages you to be your brother's keeper (Jasper *et al*., 2019). Also, this data is in conflict with previous research conducted by Olusegun, (2022), where it was documented that only 4% of injured cases were assisted by the people, but agreed with the Ghana study, which reveals that the majority of accident victims were assisted by people around them (Blankson *et al*., 2020; Duut *et al*., 2022). The study also found that the majority of

respondents had witnessed accidents at least once a week. This could be attributed to the inflow of people to this axis of the Lagos-Ibadan expressway, which has had a good impact on their settlement through greater economic returns while also having a negative impact through regular traffic congestion and an increase in accidents (Federal Road Safety Corps Nigeria, 2024).

Many of the respondents had heard of first aid, but fewer than a quarter had ever been trained as first aiders. The finding supported a Polish study that found that few of their respondents are well-prepared to provide effective first aid at the accident scene. However, they lack the necessary skills to provide first aid, as Larsson and his team discovered that the majority of their participants had received no first aid training (Adere *et al.*, 2022; Avau *et al.*, 2019). In this study, a relationship was shown between education level and first aid knowledge. This supports the findings of an Iranian study that found a correlation between knowledge and education level (Asif *et al.*, 2021; Hoque *et al.*, 2024). More than a quarter of the study's respondents did not know that first aid is used to assist accident victims before they are transported to the hospital. This is consistent with research conducted in Iran on laypeople's attitudes toward RTA victims (Shahsavari *et al.*, 2022). The findings indicate that laypeople have insufficient knowledge of first aid, as evidenced by how to interact at a crash site, what information should be provided to emergency services, and how to perform first aid (Chandra *et al.*, 2018; Daniati *et al.*, 2024)

The vast majority of respondents held a positive attitude. This supports the findings of research conducted in Iran, China, and India, which found that respondents' attitudes about first aid were positive (Chandra *et al.*, 2018; Shahsavari *et al.*, 2022; Wang *et al.*, 2023) This observed good attitude toward accident victims could be attributed to cultural beliefs in Nigeria and elsewhere in Africa that encourage people to be one's brothers' keepers. Many had ever attempted to render help to accident victims, and the time they offered such help was immediately after it occurred. This is consistent with another study conducted in western Nigeria, which found that many RTA victims received some type of pre-hospital care from bystanders. Some of them might have had their wounds irrigated with water, while others had their wounds covered with clothing materials. Some of the victims had their fractures splinted with wooden bars, while others were given water to drink and food to eat. The remaining patients were transported to the nearby hospitals' emergency departments without receiving any care (Indri Wahyuningsih *et al.*, 2022).

Some of the respondents in the study were of the opinion that there are delays in conveying accident victims to the hospital or any health center, and reasons for delay include fear of police and fear of victim's death (Wahyuni *et al.*, 2020). This agrees with the Jordan SL (2023) study, which noted that fear of legal prosecution seems to make some bystanders and health professionals hesitate to act as respondents in an accident scene. In addition, other factors associated with the reluctance by their respondents to intervene at a RTA scene predominantly result from concern about possible health and safety risks such as infection (Nok *et al.*, 2023) (Tan & Xi, 2019).

4.1 Implications of the Finding for Health Promotion and Education
The study's findings have significant implications for the design, development, and implementation of RTA prevention programs in communities along Nigeria's expressways and major roads. A health education specialist's role should aim to change people's behaviour and its causes (Bakhtari Aghdam *et al.*, 2020; Fowode *et al.*, 2023). Health education is to help people adopt practices that support their overall well-being (Azami-Aghdash *et al.*, 2021; Bakhtari Aghdam *et al.*, 2020). It is concerned with reinforcing and changing people's knowledge, attitudes, and behaviours through effective information communication, with the ultimate objective of aiding them in achieving optimal well-being. Health education can thus help to bridge the gap between health information and health practices in the context of RTA. Health education strategies and procedures can be used to address the issues raised in this study.

5.0 CONCLUSION
In conclusion, the study's findings revealed that, despite a high degree of accident awareness and a positive attitude toward first aid, respondents had limited knowledge on first aid. Furthermore, the majority of the steps taken at the scene of the accident were incorrect. This highlights the urgent need to address responders' lack of first-aid knowledge and practice. More effort should be devoted toward training the inhabitants of these towns on how to provide pre-hospital aid to RTA victims.

6.0 RECOMMENDATIONS
Many of the respondents in this survey have a high level of awareness and witnessing of RTA, as well as a favorable attitude toward first aid, but few have ever received training in how to provide first aid to RTA victims. There is a need for well-planned enlightenment and educational programs on the benefits of first aid for RTA in communities. In view of them, the following strategies have been recommended:
1. Periodic health talks about RTA and first aid should be implemented in all communities, regardless of gender, age, or religion.

2. Federal, State and Local Governments authorities and stakeholders must engage community leaders and various groups within communities to organize a voluntary first-aid club that will be tasked with responding quickly in the event of an accident.

3. Community leaders should be urged to keep first-aid supplies on hand for people who have volunteered to be part of the first-aid clubs in each town.

4. The apparent fear that has prevented some people from providing first assistance to RTA victims needs to be addressed. There is a need to educate law enforcement officials about the need to work and cooperating with the community in order to reduce the number of lives lost each year to RTA.

5. There is also a need to implement a practical structure that will assure fast and smooth attendance to RTA victims by providing ambulances and skilled professionals to man them.

6. Road safety and speed warning signs, speed breakers, and overhead bridges should be installed in these towns to lessen the frequency and severity of road traffic accidents.

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