

NIGERIA PERSPECTIVE TO POPULATION DYNAMICS AND SUSTAINABLE DEVELOPMENT

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CHAPTER FOURTEEN

Nigeria's Youthful Population and Road Safety

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Introduction

Several developing countries are characterized by youthful populations with a large proportion of children and young adults. This phenomenon which has been described as “youth bulge” is usually associated with a state of declining infant mortality and a high fertility rate common to developing countries (Lin, 2012). Whereas the proportion of youths to general population has mostly stabilized in the Western world as well as in South America and the Caribbeans, this is not the case in Africa and parts of Asia. Rather, these regions are still experiencing increase in the proportions of their youth population. While it is projected that the youth population of Asia will decline from 718 million in 2015 to about 619 million in 2060, that of Africa (226 million in 2015) is expected to double by 2050 and even surpass that of Asia by the year 2080 (United Nations, 2015; World Atlas, 2022). For instance, in North Africa and Sub-Saharan Africa, nearly 40% of the population is below 15 years, while about 70% is under 30 years old (Lin, 2012). In contrast, Japan which has the world's largest oldest population has only 13% of its population under 15 years. Except for Afghanistan, all the 30 countries with the youngest population in the world are located in Africa (World Atlas, 2022).

As of 2015, with 50.4% of its population under 18 years, Nigeria occupied 16th position among countries with the youngest populations in the world (World Atlas, 2015). According to United

Nations (2019), the Nigerian population stood at 216,864,190 as of 1st July 2022 with 111,022,211 (51.2%) being 18 years and below. At the current rate of growth of 2.6% the country's population will increase to 264 million by 2030, 401 million in 2050 and 728 million by 2100. It is projected that by 2050 Nigeria will become the third most populated country in the world (World Population Review, 2022).

Road traffic accidents occur in every country of the world and account for 1.3 million deaths annually across the globe. Millions of people are also injured while many others are permanently disabled due to road crashes every year. However, 93% of fatalities due to road accidents occur in low and middle-income countries (WHO, 2007; Sumit *et al.* 2021; WHO, 2022). Over 70% of road traffic accidents occur among young males below 25 years, who are also found to be three times more likely to be involved in a crash than females (WHO, 2022). In addition, young people under the age of 25 years constitute over 30% of those who get killed or severely injured from road crashes annually and it has become the eighth leading cause of death among this group of people. However, for those within the age range of 15-19 years, road traffic accident is the leading cause of death and the second leading cause of death for those aged 20-24 years. Africa and the Eastern Mediterranean regions have the highest road traffic fatalities for those aged 0-25 years (WHO, 2007).

Road traffic accidents are on the rise in Nigeria and have become the leading cause of trauma-related deaths and the most common cause of disabilities (Solagberu *et al.*, 2003; Ekere *et al.*, 2004; Akinpelu *et al.*, 2007; Osime *et al.*, 2012; Onyemeachi *et al.*, 2016). For instance, World Bank (2021) estimated that road accident fatalities in Nigeria in 2016 alone were 39,802 and serious injuries from these crashes were 597,030. According to Statista (2022), Nigeria recorded 44,278 road casualties in 2021, resulting in 6,206 deaths while 38,073 people were injured. Road traffic accidents have therefore become one of the leading causes of death in the country, particularly for those aged 5 to 29 years (Amata, 2022). Many studies have found that the majority of those involved in road crashes and the resulting injuries and fatalities in Nigeria are young males below the age of 40 years (Nwadinigwe *et al.*, 2005; Akinpelu *et al.*, 2007; Adiga and Ozoilo, 2014). Motor vehicle accidents have been specifically identified as a major risk factor for traumatic head injury among children in Nigeria (Shour *et al.*, 2019). Various studies have also shown a preponderance of non-compliance with traffic regulations among young road users in Nigeria (Ojoko and Igweze, 2018; Uchegbu *et al.*, 2021; Samuel and Amini, 2021). This greatly increases the likelihood of accidents among young drivers compared to older more experienced drivers (Samuel and Amini, 2021).

Young people fall into the group of vulnerable road users as pedestrians, cyclists, motorcyclists and public transport passengers (WHO, 2007; Sumit *et al.*, 2021). As pedestrians, young children, in particular, are highly exposed to traffic accidents due to unsafe road design in Nigeria like that in many other

developing countries (Osifo *et al.*, 2012). Poor urban planning with little consideration for non-motorized road users, force these vulnerable road users to compete for road space with motorized vehicles (WHO, 2007). The widespread adoption of the motorcycle as a public mode of transportation has also greatly increased the risk of accidents among the youth who dominate the operation. Commercial motorcyclists are known to engage in risky behaviours like speeding, riding under the influence of alcohol and drugs, and non-compliance with traffic laws (Olusayo *et al.*, 2015; Usman and Abdulkadir, 2019; Sumit *et al.*, 2021). These factors which put young vehicle drivers at risk is corroborated by others (Samuel and Amini, 2021; Thepa, 2021; Sumit *et al.*, 2021) who point out speeding, distracted driving, drunk driving, driving under the influence of drugs and non-compliance with seat belt laws. Very importantly too, distraction caused by use of mobile phones is becoming a major problem for road safety. Various studies have recorded a significant association between phone usage among young vehicle drivers and a high rate of road accidents (Truong *et al.*, 2018; Perez-Nunez *et al.*, 2021; WHO, 2022).

Young adults form part of an economically active group that constitutes the important human capital of every country whose death or disability can push families into poverty. This is in addition to the fact that road traffic injuries can place a lot of burden on the health system particularly in poor developing countries (Thepa, 2021). Bun (2012) observed that Nigeria loses about 80billion Naira every year to road crashes, while 29% of victims suffer from a disability and 13.5% are unable to return

to work. According to World Bank (2021), the cost of fatalities and injuries in Nigeria in 2016 was about US\$28,798 million, constituting 7.1% of the country's GDP. Against this background, this paper examined the connection between the youthful nature of Nigeria's population and the rising rate of road traffic accidents in the country. The main objectives are to investigate the road traffic accident risk factors for youths in Nigeria and to suggest policy options for reducing road traffic accidents in the country.

Conceptual Clarification

Youthful population

The Merriam Webster Dictionary (2022) defines youth as 'the time of life when one is young, especially the period between childhood and maturity'. Similarly, the Cambridge Dictionary (2022) defines youth as 'the period of your life when you are young, or the state of being young'. According to United Nations Organisation, youth could best be described 'as a period of transition from the dependence of childhood to adulthood's independence'. But, for statistical purposes, the Organisation specifically defines youth 'as those persons between the ages of 15 to 24 years' (United Nations, 2022, pp.1). However, the African Youth Charter's definition adopted by the African Union in 2006, describes the youth as persons between the ages of 15 and 35 years (African Union Commission, 2012). The United Nations' definition of youth as persons aged 15 to 24 years is adopted for this study based on its wider adoption.

A population with a large proportion of children and young adults is described as a youthful population. This phenomenon

which has been labelled as 'youth bulge' is common in many developing countries (Lin, 2012). This occurs when infant mortality rates fall while families still continue to have a large number of children. This results in a surge in the number of births relative to preceding years (Rogers *et al*, 2013). It has been argued that the youthful population can either be a potential for development or be a recipe for crisis. On the one hand, if the youths have opportunities for the necessary education and skill required to properly function in a productive economy, it will be of benefit to society. On the other hand, where there is a challenge of inadequate human capital investment and a large proportion cannot be gainfully employed, the youth bulge may become a liability with the possibility of social and political instability (Lin, 2012; United Nations, 2015).

Youth-risk behaviour

Risky behaviour is common among young people and they often engage in conducts that can result in unintentional injuries and violence (Gicquel, *et al*, 2017; Morin, 2022). These impulsive, sensation seeking and risky behaviours are most common around the age of 15 to 25 years (Gicquel *et al*, 2017). Adolescents have a tendency to engage in risky behaviour because their brains are still developing structurally and functionally (Giedd *et al*, 1999; Wahlstrom *et al*, 2010; Arian *et al*, 2013) and they are still struggling to fully grasp the long-term consequences of their actions (Morin, 2022). At the adolescence stage, the brain is structurally and functionally vulnerable to impulsive habits. For instance, gamma-aminobutyric acid neurotransmission is

still under construction, which might be responsible for immature and impulsive behaviour, and neurobehavioral excitement among adolescents (Giedd *et al*, 1999; Arian *et al*, 2013). Some risky behaviours associated with youths that may contribute to road traffic fatalities include driving under the influence of alcohol or drugs, using of mobile phone while driving, non-compliance with seat belt and helmet laws, speeding and performing stunts while driving or riding a motorcycle (Elliot *et al*, 2009; Sakashita *et al*, 2014; Stephens *et al*, 2017; Truong *et al*, 2018; Ojoko and Igueze, 2018).

Major Causes of Road Traffic Accidents

Accidents often happen as a result of a combination of numerous factors and are rarely due to a single factor (Masuri *et al.*, 2013). In general, various human factors including impaired judgment or reduced reasoning power, distraction, delayed sensation of sensory organs, lack of competence and experience, inadequate

skill level, personality traits (like negligence, arrogance or overconfidence) and poor risk perception are known to be common causes of accidents (Safeopedia, 2019). In the case of road traffic accidents, three broad factors namely, environment, vehicle, and humans, are found responsible. However, man as the decision maker is known to be a central factor responsible for most road traffic accidents (Akinpelu *et al*, 2007; Masuri *et al*, 2013). Human error has been found responsible for over 90% of road traffic accidents in the world (Nigeria Highway Code, 2015; Caroselli, Beachlor and Coleman, 2021), of which drivers' inactions or reactions account for 80% (Nigeria Highway Code, 2015). Only a small fraction of road crashes are caused by a vehicle defect, poor road design and inadequate maintenance (Masuri *et al.*, 2013). As seen in Figure 1, the human factor alone accounts for 57% of all accidents in the world, while 93% of all accidents also involves human error.

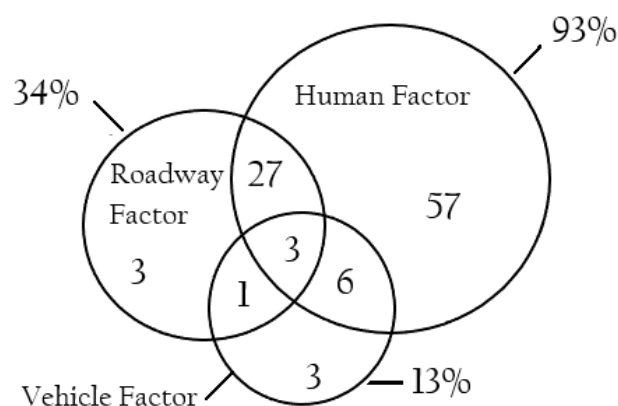


Figure 1: Contributing Factors to Vehicle Crashes

Source: American Association of State Highway and Transportation Officials (AASHTO) cited in Ishtiaque (2013)

These human factors in road traffic accidents include speeding, lack of concentration or distracted driving, driving under the influence of alcohol and other psychoactive substances, dangerous overtaking, non-use of seat belts and helmets and inadequate law enforcement (Nigeria Highway Code, 2015; Bucsuhaży *et al*, 2020 and WHO, 2022). Also, traffic accidents by young drivers have been specifically attributed to two main long-term factors: inexperience and non-adjustment of driving. Young drivers often lack experience in driving and the estimation of speed and distance. They are also inclined to overestimate their driving skills, engage in risky driving, have seat belts non-use and are more susceptible to distraction (Bucsuhaży *et al*, 2020).

Road Traffic Accident Risk Factors for Youths in Nigeria

The increase in traffic accidents in the developing world has been linked to rapid increase in population, economic development and increased motorization (Masuri *et al.*, 2013). All over the world, young people are regarded as part of vulnerable road users. In Nigeria, young road users are exposed to road traffic accidents as vehicle occupants (drivers and passengers), motorcyclists, cyclists and pedestrians. Also, as pedestrians, for many young children such as school children and hawkers in particular, the road space in Nigeria constitutes a very dangerous setting. Recent years have also witnessed the proliferation of commercial motorcycles and tricycles mostly operated by young males, known for their reckless behaviours on Nigerian roads (Amoran *et al*, 2005; Adogu *et al*, 2009; Olusayo *et al*, 2015; Usman and Abdulkadir, 2019).

Furthermore, since an increasing number of youths are having access to automobiles, it is not surprising that Nigeria is experiencing the increasing challenge of youth involvement in road traffic crashes. Road traffic accident risk factors for youths in Nigeria are related to multiple issues associated with driver error, poor road design and traffic management problems. The common driver error-related factors include speeding and reckless driving habits, distracted driving, lack of competence and experience, driving under the influence of alcohol/drugs and non-compliance with traffic regulations (Johnson *et al*, 2011; Malomo, 2014; Nigeria Highway Code, 2015; Adeyemi, 2021).

Speeding and other reckless driving habits

Speeding is a major cause of accidents on Nigerian roads. According to the Federal Road Safety Commission (FRSC) as high as 52% of road crashes in Nigeria are speed-induced (Vanguard Online, 2022). Due to youthful exuberance, young drivers tend to engage in indiscriminate, aggressive and reckless driving which results in serious risks to themselves and other road users. Young people are less likely to respect speed limits and other traffic calming expedients. As a result of inexperience in driving, young drivers are less able to adequately estimate speed and distance compared with older drivers (Bucsuhaży *et al.*, 2020). Speeding is a major issue in road traffic crashes because the average increase in speed is directly proportionate to the probability of occurrence and severity of an accident. Aside from increasing the probability of a vehicle-to-vehicle crash, speeding raises

pedestrian hit risk. For instance, a one percent increase in mean speed results in a four percent increase in fatal crash risk. Also, the death risk for pedestrians rises 4.5 times when speed increases from 50km/h to 65km/h (WHO, 2022).

Other dangerous driving habits could be linked to youthful exuberance. These include overtaking at bends and while climbing uphill, not allowing other vehicles to overtake, tailgating and running the red light. Furthermore, younger automobile drivers and motorcycle riders are more likely to be involved in stunts (overspeeding, street racing, spinning a vehicle and other careless behaviours that put others at risk) which has been closely associated with crashes (Vingilis *et al.*, 2013; Sakashita *et al.*, 2014).

Distracted driving

Lack of concentration while driving may be associated with phone usage, concentration on music, changing radio stations, eating, gesticulating or engaging in deep conversation while driving (Nigeria Highway Code, 2015; WHO, 2022). Distraction resulting from mobile phone usage in particular has become a great concern for road safety across the globe (WHO, 2022). According to the Centers for Disease Control and Prevention (CDC) (2022), there are three main types of distractions related to driving. These are identified as visual (taking the eyes off the road), manual (taking the hands off the wheel) and cognitive (taking the mind off driving). Various studies have shown that young adults and teen drivers are more likely to

engage in another activity that takes their attention from driving which increases their risk of accident (Sullman, 2012; Sullman *et al.*, 2015; Vollrath *et al.*, 2016; CDC, 2022). For instance, texting, emailing and phone calls are responsible for the high proportion of fatal crashes among drivers below 21 years old in the United States (CDC, 2022).

As reported in *Daily Nigerian* (2020), the FRSC raised concerns about the increasing problem of distraction caused by mobile phone usage among Nigerian drivers. It is now common to find young adults and teenagers fiddling with phones while driving automobiles or riding motorcycles. This has caused many accidents resulting in deaths and injuries on Nigerian roads. For instance, it was found that almost 90% of sampled drivers in Oyo State, Nigeria are prone to mobile phone addiction, while 65% have been involved in a phone-related driving accident (Adeyemi, 2021). The use of mobile phones while driving seems to have become a trend among young people in Nigeria. In addition, while many young pedestrians have been knocked down while fiddling with phones along the road, others have been hit by vehicles while listening to music through earplugs, unaware of oncoming vehicles (*The Sun Online*, 2020). It has been found that drivers using mobile phones are about four times more likely to be involved in a crash. This is because phone usage reduces drivers' reaction time (such as for breaking traffic signals) and makes it harder to maintain the correct lane and to keep an appropriate following distance (WHO, 2022).

Lack of competence and experience

Lack of skill is a deficiency that can result in operating errors. Driving skill or competence increases with experience which comes with the length of time of driving or mileage/kilometre covered (Alfonsi, 2018). This determines competence and perceptive skills like hazard/risk perception and information processing skills, self-adjustment and safety-related attitudes (Harrison, 1999; Alfonsi *et al*, 2018). Lack of driving experience increases the probability of being involved in a traffic accident, besides raising the possibility of traffic violation (Berg, 2006; Alfonsi *et al*, 2018). It is believed that an individual's motives and goals, at a particular stage of life influence their way of driving. Thus, an individual's profile constituting their social background, life experiences, lifestyle, gender, self-control, age and some other factors, influence driver's attitudes, motives, choices and behaviour (Jessor, 1987; Berg, 2006).

In Nigeria, the problem of incompetence and inexperience in driving is partly traceable to the fact that many people begin to drive automobiles without fulfilling the legitimate requirements stipulated by law. Thus, minimum age requirement, driving school training criterion and Vehicle Inspection Officer's (VIO) test, are often overlooked in the issuance of a driver's license. It is possible to skip official procedures by bribing officials to obtain a genuine license or even simply purchase a fake driver's license (*Premium Times online*, 2018). Therefore, many drivers on Nigerian roads do not possess the necessary skills and experience for safe driving. This

problem becomes compounded when teenagers and young adults with a higher tendency for risk-taking attitudes and behaviours are considered. For instance, Johnson *et al*. (2011) found that inexperience is a significant factor responsible for road traffic accidents in Imo State, Nigeria. Similarly, Adejugbagbe *et al* (2015) observed that younger long-distance drivers in Ibadan are more involved in accidents than older more experienced drivers. Furthermore, in a study of the influence of age and experience on driving error in Lagos city, Nigeria, Malomo (2018) reported that the more the drivers' experience the less the aberrant behaviour exhibited, which implies the less the risk of crashing.

The importance of competence and experience lies in the fact that they play a very significant role in mastery of traffic situations and vehicle maneuvering. On the one hand, a driver interacts with other road users and is expected to anticipate their actions and also make it possible for other road users to anticipate his /her actions. On the other hand, a driver is also expected to be able to execute the most vital maneuver automatically while correctly processing the large flow of information within the driving environment (Berg, 2006).

Driving under the influence of alcohol and other psychoactive substances

Drunk driving and driving under the influence of drugs greatly increase the risk of accidents and the severity of a crash. For example, it is observed that those who drive after consuming even a little amount of alcohol are twice more likely to crash than sober drivers (Arnedt *et al*, 2000;

Zhoa *et al*, 2014). Alcohol can negatively affect drivers' vision, cognition, vigilance, attention, judgment and reaction (Chamberlain and Solomon, 2002; Zhao *et al*, 2014). A small or moderate amount of alcohol adversely affects driving-related skills. For instance, psychomotor skills like steering and braking abilities are negatively affected when under the influence of alcohol. Also, alcohol reduces the capability to process information and quickly respond to stimuli such as road signs and traffic signals. Furthermore, driving under the influence of alcohol adversely affects divided attention skills thus, reducing the ability to respond to dangerous situations (Chamberlain and Solomon, 2002). In Nigeria, the legal limit is 0.05g/100ml blood alcohol concentration (BAC) while driving. However, there is no enforcement due to lack of alcohol testing equipment (Ogazi and Edison, 2012).

Several studies have also established the serious adverse effects of psychoactive substances on drivers' road accident risk (Smink and Egberts, 2009; Romano and Voas, 2011; Elvik, 2013; NIDA, 2019). For instance, the effects of marijuana on drivers include slowing down of reaction time, impairment of judgment of time and distance, and reduction of coordination (National Institute on Drug Abuse (NIDA), 2019). Also, drivers under the influence of amphetamines or cocaine may be aggressive and reckless while driving and are five times more likely to be involved in a fatal crash (NIDA, 2019; WHO, 2022). Furthermore, even certain prescription medications like opioids, benzodiazepines, anti-asthmatics, analgesics, anti-depressants, penicillin

and zopiclone may have effects like dizziness, drowsiness and impaired thinking and judgment (Elvik, 2013; NIDA, 2019). The negative effects of drugs on driving include poor reaction time, increased lane weaving, failure to obey, speeding and distraction, all of which increases the risk and severity of accidents (Smink and Egberts, 2009; Romano and Voas, 2011; NIDA, 2019).

Substance abuse has become widespread and is observed among all groups in Nigeria, but, higher among people aged 25 to 39 years (United Nations Office on Drugs and Crime (UNODC), 2018). The National Drug Law Enforcement Agency (NDLEA) has noted that 40% of Nigerian youths between 18 and 35 years are deeply involved in drug abuse (Premium Times, 2021). The commonly abused substances by youths in Nigeria are alcohol, cannabis, caffeine, tramadol, codeine, refnol, amphetamine, diazepam, fentanyl derivatives, methadone, buprenorphine, crystal meth, heroin and cocaine (UNODC; 2018; Abuchi *et al*, 2019; Unya and Onya, 2020; Jatau *et al*, 2021). While noting that drug abuse in Nigeria is prevalent among the young population, Jatau *et al* (2021) raised concerns about the increasing prevalence of substance abuse among undergraduates and secondary school students in the country. The prevalence of drug abuse has also been widely reported among young teenagers in secondary schools in various parts of the country. For example, various studies have established a high rate of substance abuse among secondary school students in southwestern Nigeria (Lawoyin *et al*, 2005; Yisa *et al*, 2009; Eaguranti *et al*, 2009). Similarly, studies

in the north and southeastern parts of the country have also recorded high rates of abuse of various psychoactive substances among secondary school students (Idris and Sambo, 2009; Igwe *et al*, 2009; Onoja, 2010; Alex-Hart *et al*, 2015).

In their review of relevant research on substance abuse and traffic accidents, Ogazi and Edison (2012) noted that as high as 67.2% of Nigerian drivers have admitted to drinking alcohol during the working day. Also, a study by Egwuatu *et al* (2020) showed that 42% of commercial vehicle drivers in Nigeria have used illicit drugs in recent times. Similarly, Akinawo *et al* (2020) found the prevalence of drug use among commercial drivers in Lagos to be 38.5%, with 19% of the drivers at the severe level requiring clinical intervention. However, a higher prevalence of alcohol and drug use has been established among younger drivers than older ones. Oridota *et al* (2013), Okpataku (2015), Adejugbagbe *et al* (2015), Toyosi *et al* (2020) Onigbogi *et al* (2021) and Samuel and Aminu (2021) have all observed a close positive association between substance use and risk of traffic accident. For instance, Adejugbabe *et al* (2015) found that alcohol use is more prevalent among younger long-distance drivers in Ibadan compared to their older counterparts. In a related study, Onigbogi *et al* (2021) also discovered that younger age and lower educational status were associated with drug use among drivers in Lagos. Toyosi *et al* (2020) also found that drug use among commercial drivers in Lagos is significantly related to their likelihood of committing traffic offences. Many other studies have also established the

widespread prevalence of psychoactive substance use among commercial motorcycle and tricycle riders in Nigeria (Alti-Muazu and Aliyu, 2008; Gudaji, 2011; Odivwri, 2014; Ajibade *et al*, 2016; Nelson *et al*, 2018; Afolaranmi *et al*, 2020; Dantsoho and Jamilu, 2020; Fasoro *et al*, 2020; Bako *et al*, 2020; Obadeji *et al*, 2020). Most of these studies reported over 50% prevalence level of substance abuse among the riders. For instance, while Fasoro *et al* (2020) reported the prevalence of drug use among commercial motorcyclists in Ijero to be 61.5%, Bako *et al* (2020) observed that 92.8% of sampled riders in Makurdi have used at least one psychoactive substance in the past. Similarly, Nelson *et al* (2018) reported that 82% of commercial tricycle riders in Uyo use psychoactive substances. Substance abuse is therefore a major factor responsible for the high rate of involvement of young people in traffic accidents in the country.

Poor road infrastructure

Roadway and road design elements play a very significant role in determining the risk of an accident (Ishtiaque, 2013). Therefore, road infrastructure constructed with consideration for users' safety and to minimize the risk of accidents, should comply with necessary safety standards. Ideally, roads should be designed with the safety of all road users in mind. This means that aside from provision for motorized vehicles, there should be facilities for pedestrians and cyclists (WHO, 2022). Adequate consideration must be given to road width, curves, shoulder, bus stops, illumination, non-motorized lanes and pedestrian sidewalks (Ishtiaque, 2013; Pembuain *et al*, 2018;

Famakinwa, 2019). For instance, road shoulder has a great influence on accident risk. It is believed that a wide shoulder reduces the risk of a head-on collision on an undivided highway and also helps recovery of the vehicle after going out of the travel lane. In addition, the condition of the roadside (clear zone) is very important. For example, a greater area of clear zone provides more room for maneuver and a better chance of recovery before crashing into an object (Ishtiaque, 2013). It is also important that walkways are made functional by avoiding blockage and damage to the surface so that pedestrians do not have to take the risk of entering the road and competing with motorized traffic (Pembuain *et al*, 2018). However, in Nigeria sidewalks are often taken over by street vendors and beggars so that pedestrians are usually forced onto the road thus, increasing their risk of being knocked down by moving vehicles.

It has been argued that Nigeria has some of the worst and most dangerous roads in the world because of their generally poor design and lack of necessary important facilities and maintenance. The deplorable condition of Nigerian roads, therefore, makes road users susceptible to traffic accidents (Agbonkhese *et al*, 2013). In fact, due to their state of disrepair some Nigerian roads have been tagged “roads to hell” (*The Sun*, 2016; *The Sun*, 2019; *The Punch*, 2020). Various studies in Nigeria have documented the deplorable condition of roads and the dearth of necessary road infrastructure in the country (Adedotun *et al*, 2016; Famakinwa, 2019; Okafor, 2020). For instance, Adedotun *et al*. (2016), observed that roads in Osogbo,

Osun State, Nigeria are grossly deficient in road signs, bus stops, parking facilities, walkways and pedestrian crossings. Therefore, pedestrians and motorized vehicles have to compete for road space. Relatedly, in a study in Owo, Ondo State, Famakinwa (2019) noted the dearth of necessary road infrastructure like road markings, information posts, roadside kerbs, speed breakers, walkways and street lights. In many Nigerian cities, street lighting is highly inadequate in terms of distribution and functionality. This results in poor visibility for drivers and makes night driving hazardous. However, this is particularly very dangerous for young drivers, who are more likely to make errors. Teen drivers are three times more likely to be involved in night-time accidents than adults (CDC, 2021). Famakinwa also observed that many of the roads have lacerated surfaces and potholes. Therefore, driving on Nigerian roads typically requires a lot of patience and concentration which are likely to be more uncommon among younger drivers compared to older, more experienced drivers. This increases the risk of accidents among young people who also due to overconfidence often overrate their driving skills. Overconfidence has been linked to unsafe driving activities such as speeding and distracted behaviours among young drivers (Fleet News, 2014; Hogan, 2015; Safety and Health, 2017).

Poor road infrastructure also put pedestrians particularly, small children at great risk of accidents in Nigeria. This is not surprising because traffic accident has become one of the most significant hazards that school children face in

developing countries. Besides the fact that many schools are located along major roads, children also have lower impulse control and lower risk perception. Furthermore, poor road design and deplorable road conditions force these children to compete for road space with vehicular traffic (Deccan Herald, 2021). There is also the problem of child hawkers and street kids who loiter around major streets in Nigerian cities. They put themselves at great risk, chasing vehicles on highways and streets trying to sell their wares or begging for money (Afroeden, 2021). Nigeria is known to have one of the highest pedestrian death rates in the world (Solagberu *et al*, 2012; Solagberu *et al*, 2014). Solagberu *et al* (2012) found that 1 in 5 pedestrians involved in an accident in Lagos died from their injuries. Male children are known to have the highest risk of pedestrian road traffic accidents in the country (Odelowo, 1992; Solagberu *et al*, 2014).

Inadequate Post-Crash Care

Post-crash care helps to avert avoidable death and disability, limit the severity of the injury and reduce suffering resulting from it, to ensure accident survivor's best possible recuperation and rehabilitation into society. Thus, the level of emergency and trauma care available to victims determines their chances and quality of survival (Health Emergency Initiative, 2022; US Department of Transportation, 2022). Inadequate post-crash care for road accident victims increases the severity of injuries and the risk of death and permanent disability. Crash victims in need of trauma care have a better chance of survival if they receive good care within the first hour (golden hour) (Urfi *et*

al, 2020). Therefore, delay of a few minutes can make the difference between life and death (WHO, 2020). Post-crash care consists of both pre-hospital and hospital care. The quality of pre-hospital care is generally poor in the developing world. It is estimated that the proportion of injured victims who die before reaching a hospital in developing countries is at least twice that of developed countries (WHO, 2016).

Pre-hospital care is almost absent in most parts of Nigeria and victims rarely have access to emergency medical services during transportation to a hospital. For instance, Solagberu *et al* (2002) noted the general absence of pre-hospital care and the existence of long arrival times for accident victims. This is expected because the Nigerian health system depends on the direct transfer of victims from the accident scene to the hospital by untrained first responders such as relations, police or bystanders. These people are usually unable to give necessary basic life support (BLS) care to the victims (Solagberu *et al*, 2020; Okereke *et al*, 2022). Similarly, Ibrahim *et al* (2017) observed that only 2.3% of crash victims had pre-hospital care and shorter arrival time. Lack of immediate emergency care and delay in arrival at the hospital are therefore major risk factors for accident fatality for young people who constitute a significant proportion of crash victims in Nigeria. In particular, when pedestrians fall victim of hit-and-run drivers, other drivers are often reluctant to help transport them to a hospital due to fear of being implicated by law enforcement agents. Therefore, since emergency ambulance services are usually non-existent, accident victims

often arrive at the hospital after a very long delay. In the few cities where emergency ambulance services are available such as Lagos and Abuja, they are grossly insufficient. Okereke *et al.* (2022) observed that out of Nigeria's 36 states, only Lagos has an organised emergency ambulance service with one ambulance in each Local Government Area.

The Federal Road Safety Commission (FRSC) established some emergency ambulance points and roadside clinics and trauma centers located along major highways in the country. In addition, the FRSC call center was established in 2008 while the National Communication Commission (NCC) also allocated a 3-digit national Toll-free line (122) to FRSC for accident reporting and response in 2011 (Oyeyemi, 2017). However, the ambulances and roadside clinics are too few and ill-equipped to make any significant impact.

The quality of hospital care available to trauma victims also has a great influence on their chances of survival and level of recovery. For instance, the likelihood of survival for severely injured patients increases by 25% if treated in a level 1 trauma center (US Department of Transportation, 2022). While comprehensive trauma care systems that provide optimal care for victims exist in most developed countries, most developing countries lack functional trauma systems. (Okereke *et al.*, 2022). The major components of a functional trauma system include emergency services (EMS) and transport (ground or air), trauma system hospital and inter-hospital transfer (ground or air), trauma

center and outpatient and inpatient rehabilitation and follow-up care (American College of Surgeons, 2022; Okereke *et al.*, 2022). In Nigeria, the quality of trauma care is severely limited by the generally poor level of healthcare in the country. Factors like declining government expenditure on health, insufficient basic medical equipment, inadequate health facilities, lack of basic drugs and personnel deficiency are responsible for the poor quality of health care in Nigeria (Ephraim-Emmanuel *et al.*, 2018). Furthermore, many financially disadvantaged Nigerians do not have access to timely effective treatment due to their inability to afford the costs of treatment (Ephraim-Emmanuel *et al.*, 2018; Health Emergency Initiative, 2022). As a result, many accident victims in Nigeria die due to lack of funds needed for emergency medical treatment. Okereke *et al.* (2022) observed that pre-hospital and critical trauma care in Nigeria is grossly inadequate and requires complete overhaul.

Policy Options for Reducing Youth Accident Risk in Nigeria

Road safety should be a critical development priority for Nigeria especially because of its significant youth population. As rightly observed by the United Nations Organization, the youthful population in a country can be the potential for social and economic development if well taken care of, and provided with the necessary education and skills to fit into a productive environment (UN, 2015). Although the safety of all Nigerians both young and old is very important, young people who form a huge proportion of the population need

special attention. The future of any country is its young people therefore, there is a need to consider the vulnerabilities of young Nigerians in road safety policy design and implementation. Thus, various proactive initiatives are hereby suggested to reduce road traffic accidents and resultant fatalities and injuries among youths in particular, and Nigerians in general.

Enforcement of Traffic Laws

When traffic laws and regulations are actively enforced, a reduction in road traffic accidents and the resultant fatalities and injuries will most likely occur. Drivers' license issuance and renewal should be closely monitored to ensure strict compliance with official requirements and procedures. Laws on drink-driving, speed limits, seat belt wearing, child restraints, helmet use and other traffic regulations should be adequately enforced and necessary penalties applied in case of non-compliance. Active enforcement with appropriate penalties will ensure safe driving behaviour among Nigerian youths. To ensure successful enforcement, road safety officials should be adequately trained and equipped with modern facilities and technical equipment. For instance, the provision of modern oral fluid sampling kits for testing blood alcohol levels will go a long way in controlling the problem of drunk driving. In addition, FRSC officials, police and other enforcement officers should be trained to identify common clinical signs and symptoms of drug use to detect offending automobile drivers and tricycle/motorcycle riders.

Road Safety Education and Substance Abuse Counselling

There is a need to raise awareness of the detriments of reckless driving behaviours and substance abuse, and their impacts on road safety (such as injuries, death, damage to property and danger to others) among the youth. Beginning from the primary school level, road safety education should be taught. This will provide adequate information on traffic signs and regulations to the youth from a tender age. Information on the meaning of different traffic signs, road markings, the risk of backing oncoming traffic while walking, safe crossing points and so on should be taught from childhood. In addition, the formation of Road Safety Clubs has to be encouraged and promoted in schools to raise youth consciousness about the importance of road safety and the risks associated with reckless driving habits. Furthermore, young people should be continuously counselled on the detriments of substance abuse through workshops, lectures by various professionals, and public campaigns and programmes. These road safety and substance abuse campaigns should also be widely extended to commercial bus, tricycle and motorcycle parks across the country. Also, if possible, provision should be made for free treatment and rehabilitation of addicted youths through public/private initiatives.

Provision of Adequate Road Infrastructure

The problem of inadequate road infrastructure needs to be addressed in Nigeria. Roads should be designed with the aim of ensuring the safety of all road users. Thus, provision must be made to also ensure the safety of non-motorized

vehicles and pedestrians by providing facilities like bicycle lanes, walkways and safe crossing points on the roads. It is also important that sidewalks are in good condition and free of obstructions to avoid forcing pedestrians onto the roads, thus endangering their lives. Trading on road pavements and sidewalks should be completely banned and strictly enforced with appropriate fines and imprisonment terms imposed, to ensure compliance.

It is also important that road development in Nigeria is done with adequate consideration for proper widths, curves and road complementary buildings like bus stops and bays. In addition, appropriate road equipment like signs and street lighting must be provided to create a good driving environment and reduce accidents on Nigerian roads. Furthermore, the problem of the poor surface condition of most roads in Nigeria needs urgent attention. Surface pavement distresses like cracks, uneven road surfaces and potholes should be promptly repaired when they occur to avoid the risk of causing accidents.

Improving Post-Crash Care

First aid for the injured is the most important part of emergency response. Thus, emergency care at the scene of an accident, transportation and hospital-based emergency care are critical for the survival and quality of recovery of victims. Improving post-crash care in Nigeria should therefore begin with ensuring that first responders at accident scenes act in a way that helps to raise victims' chances of survival and recovery. Since in most cases bystanders are often the first to respond, it is essential that medical emergency training programmes

are organized for interested members of the public. This will enable and train people to be able to give necessary assistance to accident victims, without complicating their conditions. For instance, providing the public with knowledge of hemorrhage control and safe positioning will help improve the safety of victims when being transported to the hospital. First aid training can also be organized for commercial drivers and commercial motorcycle/tricycle riders in collaboration with their various unions. In addition, the regulation that drivers carry basic first aid supplies in their vehicles should be strictly enforced throughout the country. First aid training should be included as part of the requirements for issuance of a driving license, as done in some countries.

The provision of emergency ambulance services should be prioritized by all tiers of government in the country. The FRSC emergency ambulance scheme and roadside clinics ought to be expanded to cover more federal highways. Similarly, emergency ambulance points should be provided in all cities while rural emergency ambulance points can also be provided in at least, all local government headquarters in the country.

Similarly, the importance of adequate hospital care to aid the chances of survival, quality of recovery and rehabilitation of crash victims cannot be overemphasized. It is important that government at all levels pays more attention to the health sector. To begin with, primary health care centers and general hospitals that have almost

completely collapsed in many parts of the country need comprehensive overhaul. It will enable these facilities to easily attend to minor and non-critical injuries, that do not require special attention, thereby reducing pressure on the teaching hospitals. The teaching hospitals should also be rehabilitated and equipped with modern facilities and equipment to function effectively as required in modern society. Furthermore, there is a need for the establishment of well-equipped major trauma centers (MTC) with medical specialists and highly qualified specialists to provide care for critically injured patients. At least one of these MTCs should be located in each geopolitical region of the country and should operate within a system comprising teaching hospitals, general hospitals and other

primary healthcare centers within the region.

Conclusion

This research explored the link between the youthful nature of Nigeria's population and the rising incidences of road crashes and the resultant fatalities and injuries in the country. The research emphasised the significant burden that road traffic accidents place on the country's health system and the economy, considering the fact that the youth constitutes important human capital. Using evidence from relevant literature, the paper identified the major road traffic accident risk factors to which Nigerian youths are exposed, and offered some policy recommendations that could be implemented to help reduce road traffic accidents and their adverse consequences

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