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Socio-economic characteristics and disability patterns among persons with traffic-related disabilities in Southwestern Nigeria

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Abstract

Traffic-related disabilities (TRD) constitute a major public health concern, particularly in developing countries such as Nigeria. While existing studies have largely emphasized the prevalence and consequences of traffic-related disabilities (TRD), limited attention has been paid to the socio-economic profiles of persons with TRD (PWTRD) and the specific nature of their disabilities. This study examines the socio-economic characteristics of PWTRD and categorizes TRD types in Southwestern Nigeria. Underpinned by the concept of socioeconomic status, the study employed a cross-sectional survey design, administering structured questionnaires to 421 post-crash victims selected from four tertiary hospitals in Southwestern Nigeria. Descriptive analysis indicates that respondents were predominantly male (62.7%), with a mean age of 36.9 ± 15.46 years and an average monthly income of ₦54,206.65 ± 27,213.05. Most respondents had tertiary education (46.3%), were married (52.7%), and lived in rented accommodation (66.7%). The major TRD types identified were amputation (35.4%), spinal cord injury (30.0%), and hearing impairment (12.8%), with disabilities classified as partial (64.6%) or complete (35.4%). Gender-specific patterns were observed, as males experienced higher rates of fractures and eye defects than females. A chi-square test revealed a significant difference in TRD types across age groups ($\chi^2 = 20.27$, df = 3, $p < 0.001$), with working-age adults (20–59 years) most affected. The study concludes that traffic-related disabilities greatly affect economically active males, undermining household sustainable living and economic productivity, and recommends integrated road safety measures, strengthened rehabilitation services, and targeted socio-economic support for high-risk working-age populations.

Keywords: Traffic-Related Disability (TRD); Socio-Economic Profile; Sustainable living; Working Class; Economic Productivity; Southwestern Nigeria

1. Introduction

Traffic-related disability (TRD), defined as a limitation in functioning resulting from severe road crashes, has emerged as a critical public health concern globally, with a disproportionate impact on low- and middle-income countries (Adewumi, 2022). Nigeria, like many developing nations, grapples with a high incidence of road traffic crashes, leading to a substantial burden of TRD. Fundamental to developing effective prevention strategies, rehabilitation programs, and inclusive physical planning interventions is the understanding of the socio-economic characteristics of people living with TRD, in conjunction with a clear presentation of types and categorization of their disability.

Contemporary understanding of traffic-related disability has been enhanced by literature from different fields: transportation planning and safety, injury prevention and disability studies (Adewumi, 2022). Existing literature on this

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subject has focused on prevalence and consequences of TRD (Ameratunga, 2005; King and King, 2013; Palmera-Suarez et al., 2015), whereas, there is dearth of literature regarding profiling of PWTRD. Previous studies are limited in detailing a comprehensive socio-economic profile of PWTRD, resulting in an inadequate basis for targeted intervention strategies. Specifically, the precise categorization of TRD types and their relationship with demographic variables such as gender and age remain inadequately investigated in the context of Southwestern Nigeria.

Given the above, this study is imperative for the formulation of tailored policies that address the multifaceted challenges faced by people with TRD. This paper, therefore, aims to bridge this gap by presenting a detailed socio-economic profiling of TRD respondents and classifying their disability types and categories, providing a foundational understanding for future policy and intervention efforts in Nigeria.

2. Conceptual Framework and Literature Review

This section provides the conceptualization of the framework that adequately underpins the study, and the literature that truly situates it with the existing body of knowledge in transportation safety, injury prevention, physical planning and disability studies.

2.1. Conceptual Framework; The Concept of Socioeconomic Status

Socioeconomic status (SES) is a multi-faceted construct that takes into account the economic and social position of a household or an individual within a social stratum or a societal hierarchy. It is often measured with such variables as occupational prestige, educational attainment, income, and sometimes neighborhood characteristics or wealth (Diemer et al., 2013). SES is not just descriptive but shows an individual's access to opportunities and resources that influence life outcomes, including education, social mobility, and health. Generally, SES, as a concept, is rooted in economic and sociological theories of hierarchy/stratification. Weber (1946) highlighted that power, social status, and class interplay in determining individuals' life chances. Socioeconomic position has been linked with control over productive resources. These theoretical views underpin the modern empirical assessment of SES, which continue to enlighten research in social sciences, public health and education (Oakes and Rossi, 2003).

Socioeconomic status (SES) always relates to others within a social context. For example, two individuals who are on the same income level may encounter different SES contingent on the local cost of living, cultural valuation of occupations, and community resources (Krieger, Williams, and Moss, 1997). Thus, SES is best recognized as a relative measure of social status rather than an absolute metric. Education is often judged the most stable pointer of SES. Unlike occupation and income, which may change over the life course, educational attainment tends to remain permanent fixed after early adulthood and effectively predicts occupational opportunities and earnings (Mirowsky and Ross, 2003). Furthermore, education imparts social networks, cognitive skills, and cultural capital that strengthen socioeconomic opportunities. Occupation is another critical pointer of socioeconomic status. Apart from income, social identity, exposure, and occupations confer prestige to working conditions that impact well-being (Hauser and Warren, 1997). For example, white-collar occupations are often connected with autonomy and higher prestige, while blue-collar jobs may carry lower social recognition and greater health risks. Thus, occupational status reflects both symbolic dimensions and economic of SES. Income and wealth denote the best way of assessing material resources within SES. Income gives access to consumption of goods and services, while wealth leads to enduring intergenerational advantages and security (Keister and Moller, 2000). Nevertheless, scholars advised that SES stands the risks of being oversimplified if attention is solely given to financial indices without considering the interaction of material capital with occupational, educational, and social dimensions in complex ways.

The significance of SES rests in its impact on life chances and inequalities. Empirical research constantly shows strong relationships between health outcomes and SES, with lower SES connected to higher mortality and morbidity (Adler and Ostrove, 1999). Similarly, SES effects employment prospects, educational attainment, psychosocial well-being, and even, political participation. This multifaceted impact of SES emphasizes its conceptual centrality in policy research and social science.

2.2. Literature Review

This study carries out a review of literature on profile of PWTRDs in order to present a state-of-the-art information on the subject. The review reveals a complex interaction between the prevalence of disabilities, their socioeconomic impact, mobility challenges, and the systemic barriers embedded in the society. The literature, though often focused on persons with disabilities (PWDs) generally, highlights traffic accidents as a significant cause of disability, particularly in developing countries like Nigeria, where road safety challenges are immense (World Health Organization, 2023). Studies in Nigeria indicate a high prevalence of mobility and physical disabilities (Mbada et al., 2021; Ipingbemi, 2015),

which are the most common consequences of severe road traffic injuries. Profiling this specific subgroup is essential because while not all PWDs have traffic-related disabilities, this group's needs and characteristics are directly tied to an inadequately managed public health and transportation crisis.

Socio-demographic profiles of PWDs in Nigerian studies often paint a picture of marginalization and low socioeconomic status. In Ibadan, Southwestern Nigeria, a study by Ipingbemi (2015) on socio-demographic characteristics of PWD found that a significant proportion of PWDs relying on public transportation were male, had no more than primary education, and relied on begging as their primary source of income. The high representation of mobility impairments among PWDs in the region (Mbada et al., 2021) strongly suggests that this demographic profile is highly relevant to individuals whose disabilities stem from road trauma.

A major theme in the literature is the overwhelming barrier to mobility and accessibility faced by PWDs, which directly impacts the daily lives of those with physical impairments. Studies across Nigeria, including the Southwestern states, consistently report a dire lack of accessible transportation infrastructure (Ipingbemi, 2015; Mbada et al., 2021). This includes a non-existence of pedestrian infrastructure, lack of universal design facilities on roads, and inaccessible public transport vehicles, which are rated low on safety, accessibility, reliability, and affordability (Andrews et al., 2023). For persons with post-crash disabilities, the journey chain—from accessing the bus stop to boarding vehicles—is fraught with structural challenges, compounding their physical limitations and leading to heightened inconvenience and reduced trip-making (Ipingbemi, 2015; Velho, 2019).

The experiences of persons with traffic-related disabilities are further exacerbated by societal and systemic discrimination. The dominant social model of disability in the literature asserts that the disability is a result of social exclusion and barriers, rather than the impairment itself (Barnes, 1992; Oliver, 1990). In Nigeria, PWDs encounter stigmatization, discrimination, and negative attitudes from the public and even transport staff, which manifests as an unwillingness to assist or denial of reserved seating (Adewumi, 2022). In addition, while the Discrimination Against Persons with Disabilities (Prohibition) Act, 2018 exists, its poor implementation and lack of enforcement mean that mandates for accessible public transport and infrastructure are often ignored (Human Right Watch, 2019).

In defining and categorizing disability, it is recognized that TRD encompasses a wide range of debilitating conditions. According to Clay et al. (2009), a disability becomes permanent when the injury is located in the locomotive region of the body.

A more profound and professional classification of these disabilities were made by the International Classification of Functioning, Disability and Health (ICF). The ICF was developed by the World Health Organization and published as International Classification of Functioning, Disability and Health. The *International Classification of Functioning, Disability and Health* (ICF) is a 2001 framework published by the World Health Organization. It provides a standardized language and structure for describing health and health-related states, focusing on how people live with health conditions rather than solely on diagnosis or disease. The purpose was to standardize the description of functioning, disability, and health as shown in Table 1.

Table 1 ICF Conceptualization of Selected Health Conditions and Injuries

Health Condition	**ICF Component**	**Relevant ICF Domain / Code(s)**	**ICF Description of Impairment**	**Typical Activity Limitations / Participation Restrictions***
Amputation	Body Structures	s730–s750 (structures of upper and lower extremities)	Partial or complete absence of a limb or limb segment	Walking, grasping, lifting, self-care, employment
Paraplegia	Body Functions; Body Structures	b730 (muscle power); b760 (voluntary movement); s120 (spinal cord)	Complete or partial loss of motor and/or sensory function in both lower limbs	Standing, walking, transfers, independent mobility
Quadriplegia (Tetraplegia)	Body Functions; Body Structures	b730; b760; s110 (brain); s120 (spinal cord)	Severe impairment of motor and sensory functions affecting all four limbs	Self-care, mobility, communication, work participation
Hearing Impairment	Body Functions; Body Structures	b230 (hearing functions); s250 (middle ear); s260 (inner ear)	Partial or complete loss of auditory perception	Communication, education, social interaction
Spasm	Body Functions	b735 (muscle tone functions)	Involuntary muscle contractions or abnormal muscle tone	Fine motor tasks, walking, posture control
Brain and Spinal Cord Injury	Body Structures; Body Functions	s110 (brain); s120 (spinal cord); b1 (mental); b7 (neuromusculoskeletal)	Structural damage to central nervous system with associated functional impairments	Cognitive functioning, mobility, self-care, social participation
Seizure Disorder	Body Functions; Body Structures	b110 (consciousness functions); s110 (brain)	Episodic disturbances in consciousness and neurological control	Driving, schooling, employment, independent living
Femoral Fracture	Body Structures; Body Functions	s750 (structure of lower extremity); b710 (joint mobility); b730 (muscle power)	Structural damage to the femur affecting movement and stability	Walking, standing, transfers, daily activities

Furthermore, other forms of physical disabilities resulting from road crashes are classified according to the International Classification of Functioning, Disability and Health (ICF), as established by the WHO (1993). Under the ICF.

The existing literature provides a framework for profiling persons with traffic-related disabilities in Southwestern Nigeria, but also highlights a significant knowledge gap. While general PWD studies confirm a high proportion of mobility impairments, low socioeconomic status, and severe accessibility barriers, specific, detailed profiling of the "traffic-related" sub-group is sparse. Future research is needed to isolate and detail the unique medical, rehabilitation, psycho-social, and livelihood experiences of individuals whose disabilities are a direct result of road traffic accidents. This study, "Profiling Persons with TRD in Southwestern Nigeria" is essential for developing evidence-based intervention programs that move beyond general disability support to address the specific consequences of road trauma in the Southwestern Nigerian context.

3. Methodology

3.1. Study Setting

Southwestern Nigeria (SWN) is geographically delineated by latitudes 6∘ and 9∘ North and longitudes 2∘30′ and 6∘30′ East of the Greenwich Meridian (Akintonde and Kalilu, 2013). The region is characterized by its boundaries with the Nupe and Borgurawa to the north, the Igala to the northeast, and the Edo to the east, while its southern and western limits are marked by the Atlantic Ocean and the Republic of Benin, respectively (Akinjogbin, 2002; Akintonde and Kalilu, 2013).

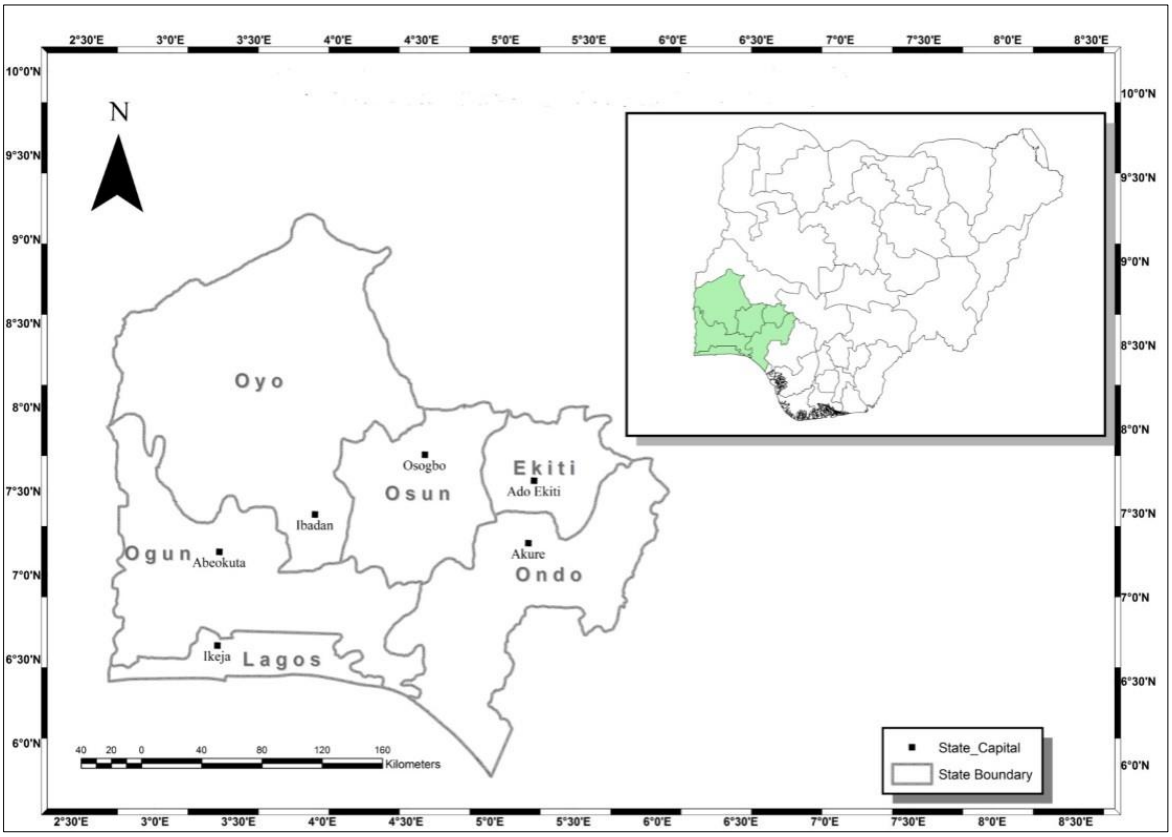
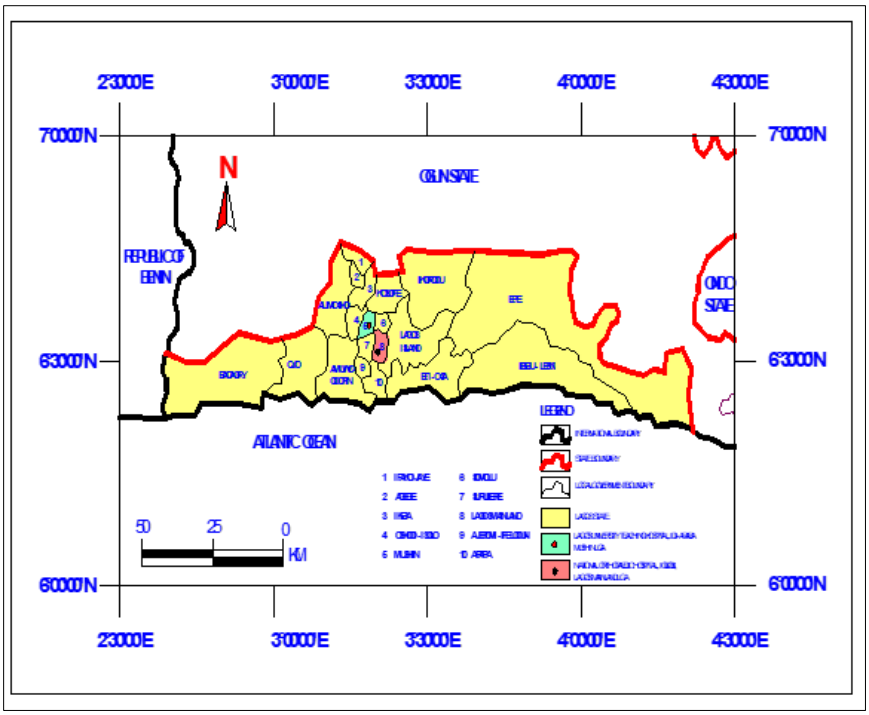
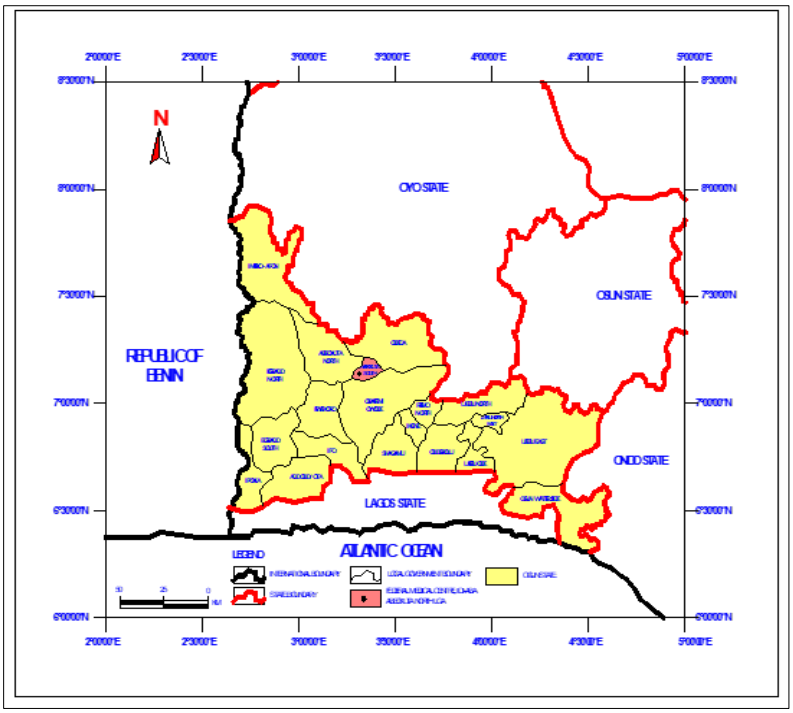


Figure 1 Southwestern Nigeria houses the Four Tertiary Hospitals



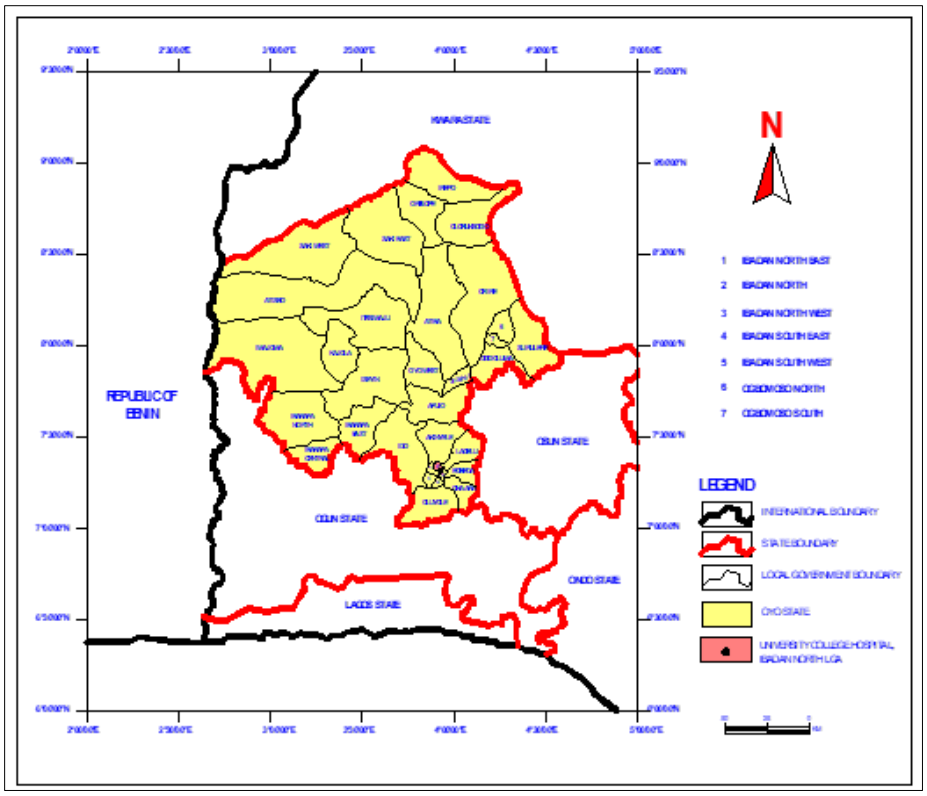
Source: Adapted from Survey Department, 2018

Figure 2 Lagos University Teaching Hospital (LUTH), Idi-Araba and national Orthopedics Hospital (NOHI), Igbobi, Lagos



Source: Adapted from Survey Department, 2018

Figure 3 Federal Medical Centre, Abeokuta



Source: Adapted from Survey Department, 2018

Figure 4 University College Hospital

This region is well served by road transport, which remains the dominant and preferred mode for the conveyance of persons, goods, and services, primarily due to its relative cost-effectiveness and capacity to provide door-to-door accessibility (Ipingbemi, 2006; Ofoegbu, 2013; Oyesiku et al., 2013). Consequently, SWN is plagued by high traffic density and often inadequate road infrastructure and enforcement, which contributes to a substantial burden of road traffic accidents and the resultant TRD population. This outcome is consistent with global observations that low- and middle-income countries, including Nigeria, bear a disproportionate share of road traffic injuries (World Health Organization [WHO], 2018). The challenge is further exacerbated by the consequences of rapid and often poorly planned urbanization (Onokerhoraye, 1995), which has resulted in pervasive environmental inaccessibility across public spaces and transportation systems. This physical constraint is compounded by underlying socioeconomic vulnerabilities. That is, the regional economy, while a major hub of activity, is marked by significant income inequality and a heavy reliance on informal economic activities (Adeyemo et al., 2010).

3.2. Sampling technique and Data Analysis

This study adopted a cross-sectional survey design and randomly collected data from 421 individuals from a list of 10,009 post-crash victims. The victims were identified from accident discharge records from 2007-2016 at four purposively selected tertiary teaching hospitals: Lagos University Teaching Hospital (LUTH), National Orthopaedics Hospital Igbobi (NOHI), Federal Medical Centre (FMC) Abeokuta, and University College Hospital (UCH) Ibadan., located within Southwestern Nigeria.

Data were collected through structured questionnaires, covering socio-economic characteristics, such as, age, gender, marital status, education, income, occupation, and house ownership. Data on types and categories of TRD were also collected. These data were collected to determine the relationship between the socioeconomic characteristics of respondents and types, categories and forms of disabilities suffered. Quantitative data were analyzed using descriptive statistics (frequencies, percentages, means) and inferential statistics, Chi-square tests, to determine statistically significant relationship between types of traffic-related disabilities acquired and the age of respondents.

4. Results of Findings

4.1. Socio-Economic Characteristics of Respondents

The study surveyed 421 respondents, revealing a marked gender disparity, with 264 males (62.7%) and 157 females (37.3%) (Table 2). This imbalance suggests a higher exposure of males to traffic-related disabilities (TRD), which may be linked to greater male participation in road use and high-risk mobility activities. The mean age of respondents was 36.9 ± 15.46 years, indicating that TRD predominantly affects individuals within their economically productive years. This has important implications for household livelihoods and broader economic productivity.

Table 2 Socio-economic Characteristic of Respondent

Variables	Attributes	Frequency	Percentage
Sex	Male	261	62
	Female	160	38
	Total	421	100
States of Origin	Ekiti	35	8.3
	Lagos	53	12.6
	Ondo	53	12.6
	Ogun	117	27.8
	Osun	40	9.5
	Oyo	52	12.4
	Other states	71	16.9
	Total	421	100
Age	<20	47	11.2
	20-29	70	16.6
	30-39	119	28.3
	40-49	116	27.6
	50-59	58	13.8
	≥60	11	2.6
	Total	421	100
Marital Status	Single	156	37.1
	Married	222	52.7
	Divorced	16	3.8
	Separated	14	3.3
	Widower/widow	13	3.1
	Total	421	100
Education	No formal Education	75	17.8
	Primary	64	15.2
	Secondary	87	20.7
	Tertiary	195	46.3
	Total	421	100

Employment	Self-Employed	155	36.8
	Private employee	52	12.4
	Public employee	45	10.7
	Unemployed	52	12.4
	Students	69	16.4
	Retirees	48	11.4
	Total	421	100
Income	≤19,000	20	4.8
	20,000-39,000	137	32.5
	40,000-59,000	95	22.5
	60,000-79,000	94	22.3
	80,000-99,000	57	13.5
	≥100,000	18	4.3
	Total	421	100
Residential types	One storey	86	20.4
	Two storeys	76	18.1
	Duplex	62	14.7
	Bungalow	137	32.5
	Others (Brazillian type)	60	14.3
	Total	421	100
House Ownership	Owner occupier	138	32.8
	Tenants	283	67.2
	Total	421	100

Author's Fieldwork, 2024

Mean monthly income of responded was ₦54,206.65 ± 27,213.05, reflecting considerable income variability and underscoring the diverse socio-economic backgrounds of those affected. Spatially, participants were drawn from multiple states across Nigeria, with Ogun State contributing the largest share (**27.8%**). The remaining Southwestern states—Ekiti, Lagos, Ondo, Osun, and Oyo—each accounted for between 8.3% and 12.6**%**, while 16.9% of respondents originated from other regions of the country. This distribution highlights the widespread nature of TRD beyond state boundaries and reinforces its national public health relevance.

Analysis of age groups further shows that the largest proportions of respondents fell within the 30–39 years (27.6%) and 40–49 years (28.3%) categories. Together, these cohorts represent the core of the working-age population, emphasizing the substantial socio-economic burden associated with TRD. Younger respondents below 20 years constituted 11.2%**,** while those aged 60 years and above accounted for only 2.6%**.** Employment patterns revealed a strong male dominance among the self-employed and private-sector employees**,** with males comprising 72.9% and 73.1% of these groups, respectively.

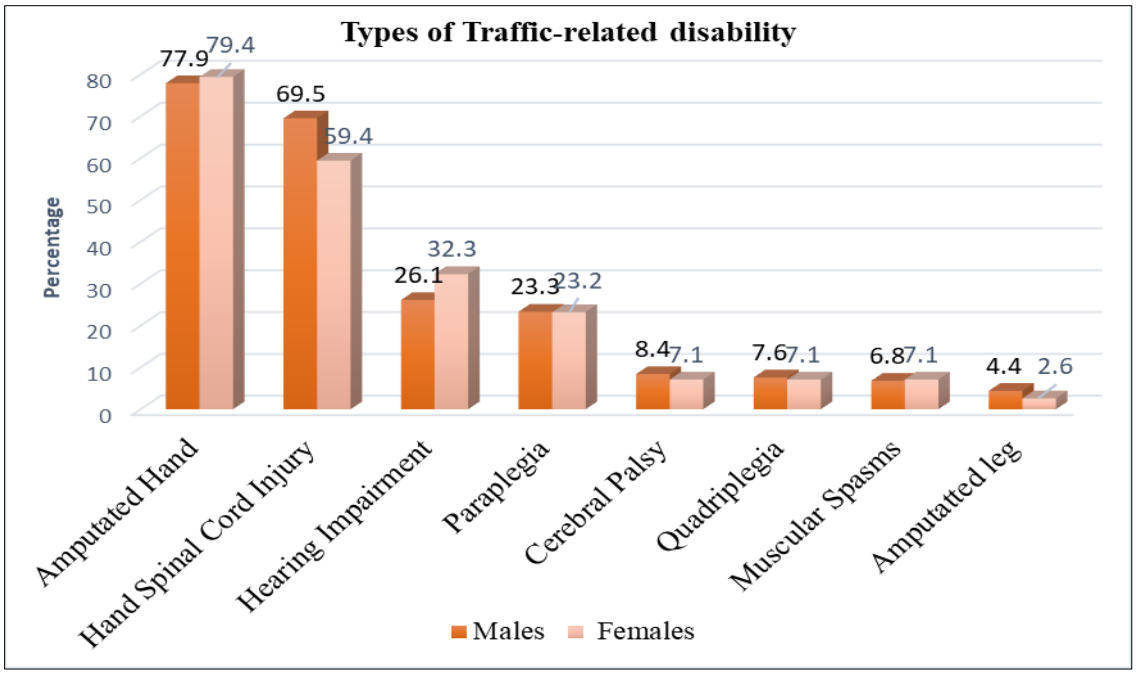
Educational attainment among respondents varied widely. While 17.8% had no formal education and 15.2% completed primary education, 20.7**%** possessed secondary school certificates, and a substantial 46.3% had attained tertiary education. This distribution indicates that TRD cuts across all educational strata, affecting both low- and high-skilled segments of the population. Regarding housing status, the majority of respondents **(**67.2%**)** were tenants**,** while 32.8% were owner-occupiers**,** suggesting that most individuals affected by TRD reside in rented accommodations, a factor that may compound their vulnerability in the event of income loss or long-term disability.

4.2. Disability Types and Categories

The study identified several major types of Traffic-Related Disabilities (TRDs) among the respondents (Figure 5). The TRDs identified among the respondents include Amputation (of hand or leg), which 35.4% of respondents, Spinal Cord Injury (30.0%), Hearing Impairment (12.8%), and Paraplegia (10.5%).

There are other forms of disabilities where gender-specific patterns were observed. For instance, males experienced more fractures in legs (73.3%) and hands (79.3%) compared to females (26.7% and 20.7% respectively). Leg deformities were more prevalent among males (68.8%) than females (31.3%). Conversely, females (75.0%) had a higher incidence of hand deformities than males (25.0%). Eye defects resulting from road crashes were exclusively reported by males (100%).

Disabilities were further categorized into complete and partial. Partial disability was more prevalent, affecting 64.6% of respondents, while complete disability accounted for 35.4%.



Males (65.8%) experienced more complete disabilities than females (34.2%).

Figure 5: Types of Traffic-related Disability

4.2.1. Age and Gender Distribution of Traffic-Related Disabilities

Figure 6 presents the distribution of traffic-related disabilities (TRD) by age group and gender. The pattern reveals clear variations across age cohorts, as well as notable gender differences in the occurrence of TRD.

Among males, the highest number of cases was recorded in the 40–49 years age group, followed by the 20–29 years and 30–39 years categories. Lower frequencies were observed among males aged below 20 years and 50–59 years, while a moderate number of cases occurred among those aged 60 years and above. This distribution indicates a concentration of male TRD cases within the economically active age groups.

For females, the largest number of cases was observed in the 30–39 years age group, followed by the 20–29 years and 40–49 years cohorts. Female cases were comparatively lower among respondents aged below 20 years and 50–59 years, with a slight increase again in the 60 years and above category. Across most age groups, females recorded higher case counts than males, particularly in the 20–29 years and 30–39 years categories.

Overall, the chart demonstrates that traffic-related disabilities are most prevalent among individuals aged 20–49 years, for both genders.

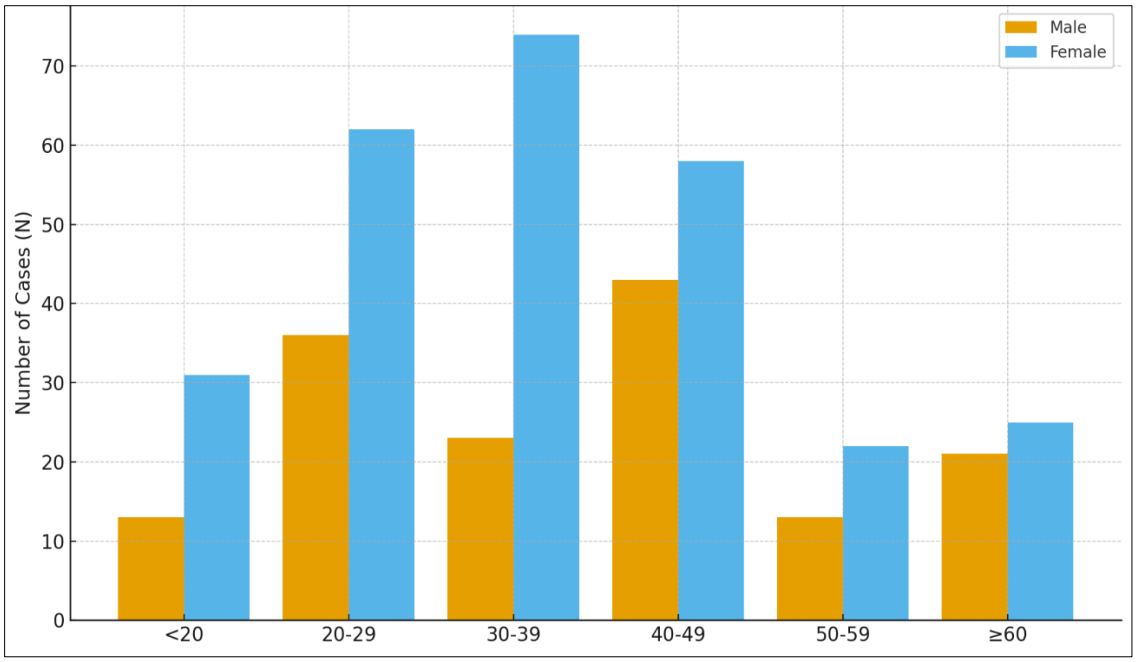


Figure 6 Age and gender distribution of traffic-related disabilities

This age range corresponds to peak economic and social activity, suggesting that TRD disproportionately affects the working- age population. The observed gender differences further highlight variations in exposure and vulnerability across age groups, underscoring the importance of age- and gender-sensitive approaches in traffic safety and injury prevention interventions

4.2.2. Gender and Age Versus TRD Categories

Data in Table 3 demonstrates a marked male predominance in traffic-related disabilities, with males constituting 61.2% of cases and dominating both complete and partial disability categories. Partial disability was more prevalent (64.6%) than complete disability (35.4%), indicating that most affected individuals retained some level of functional capacity. The highest burden occurred among economically active age groups (20–49 years), reflecting greater exposure to road traffic risks. However, the presence of substantial cases among those aged ≥60 years highlights the continued vulnerability of older adults to severe traffic-related injuries.

Table 3 Gender and Age Versus Categories of Traffic-Related Disability

	Attributes	**Male (N/%)**	**Female (N/%)**	**Total (n/%)**
Category	Complete Disability	98 (65.8)	51 (34.2)	149 (35.4)
	Partial Disability	163 (60.0)	109 (40.0)	272 (64.6)
	Total	**261**(61.2)	**160** (38.8)	**421**(100)
Age	<20 (N)	13 (8.7)	272 (64.6)	44
	20-29 (N)	36 (24.2)	62 (22.8)	98
	30-39 (N)	23 (15.4)	74 (27.2)	97
	40-49 (N)	43 (28.9)	58 (21.3)	101
	50-59 (N)	13 (8.7)	22 (8.1)	35
	≥60 (N)	21 (14.1)	25 (9.2)	46
	Total (N)	**149 (35.4)**	**272 (64.6)**	**421(100)**

Source: Author's Analysis, 2024

4.2.3. 4.2.3 Other Forms of Disabilities

These include fracture, deformity and visual impairment and amputations (Table 4) According to the International Classification of Functioning, Disability and Health – ICF (WHO, 1993), fractures and deformity fall under skeletal fragility while visual impairment is classified as sensory function impairment (WHO, 1993). Information in Table 3 further showed that more males experienced fracture in the legs (73.3%) and hands (79.3%) than the female counterparts with 26.7% and 20.7% respectively. About seventy percent 44 (68.8%) males had deformity of legs, while females were 20 (31.3%). In terms of deformity of hands, there were more females 6 (75.0%) than their male counterparts 2 (25.0%). Eyes defects resulting from road crashes affected only males 4 (100%) respondents.

Table 4 Other Forms of Disabilities among the Respondents

Deformity	**Affected Parts**	**Male**	**%**	**Female**	**%**	**Total**	**%**
Fracture	Leg	55	73.3	20	26.7	75	41.7
	Hand	23	79.3	6	20.7	29	16.1
Deformity	Leg	44	68.8	20	31.2	64	35.6
	Hand	2	25	6	75	8	4.4
Visual impairment	Eyes	4	0.0	0.0	0.0	4	2.2
Total		128	71.1	52	28.9	180	100

Source: Author's Analysis, 2017
Note: Only 180 respondents attempted this item: other forms of disabilities

4.3. Relationship Between TRD Types and Age

A Chi-square test analysis was conducted to examine the relationship between the types of traffic-related disabilities acquired and the age of respondents. In Table 4, the results indicated a statistically significant difference in the types of TRD acquired between adults and non-adults ($\chi^2 = 20.27$, df = 3, N = 421, $p < 0.05$). This finding suggests that the specific types of disabilities resulting from road crashes vary significantly across different age groups. The analysis further revealed that TRD types were less dominant among non-adults (<20 years, 10.7%) but more prevalent among adults (89.3%), with a majority of adult victims being male (61.6%). This highlights that while TRD affects all age groups, its prevalence is distinctly higher among the adult.

Table 5 Hypothesis Tested

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.268[a]	3	0.000
Likelihood Ratio	20.231	3	0.000
Linear-by-Linear Association	0.029	1	0.866
N of Valid Cases	421		

Source: Author's Analysis, 2017

5. Discussion

The observed gender imbalance, with males constituting nearly two-thirds of respondents, aligns with existing evidence that men are more frequently exposed to road traffic risks due to higher mobility levels, greater involvement in commercial transport activities, and higher engagement in risk-prone road use behaviors. In the Nigerian context, men are more likely to work as drivers, commercial motorcyclists, artisans, and informal-sector operators, which increases their exposure to traffic hazards. This pattern reinforces the view that TRD is closely linked to occupational and mobility structures within urban and peri-urban environments.

The mean age of 36.9 years, coupled with the concentration of respondents within the 30–49 years age range, indicates that TRD primarily affects individuals in their most productive years. This finding is consistent with global and regional

studies showing that road traffic injuries and their long-term consequences disproportionately impact working-age adults. The implication is a substantial socio-economic burden, not only for affected individuals but also for households and the wider economy, through loss of income, reduced productivity, and increased dependency.

Income distribution further reveals that a large proportion of respondents earn below ₦60,000 per month, reflecting limited financial resilience among many TRD victims. The relatively wide income variability suggests that TRD cuts across socio-economic classes; however, lower-income groups may experience more severe post-injury consequences due to limited access to healthcare, rehabilitation services, and social protection mechanisms. This economic vulnerability is reinforced by the high proportion of tenants among respondents, indicating limited housing security and reduced capacity to absorb the long-term costs associated with disability. The low-income levels and high tenancy status observed among TRD victims are consistent with evidence that road traffic injuries disproportionately exacerbate poverty among already vulnerable urban households. The World Bank (2019) demonstrates that crash-related disability in low- and middle-income countries often results in catastrophic household expenditure, reduced housing security, and long-term welfare losses, particularly where social protection systems are weak.

Educational attainment among respondents was relatively high, with nearly half possessing tertiary education. This finding challenges the assumption that traffic-related disabilities predominantly affect individuals with lower educational status and suggests that road traffic risks transcend educational boundaries. Nevertheless, education does not necessarily translate into reduced exposure, particularly in urban contexts where highly educated individuals may still rely on unsafe transport systems or congested road networks.

Employment patterns show that self-employed individuals constituted the largest occupational group, followed by students and unemployed respondents. The dominance of males among self-employed and private-sector workers further explains the gender disparity observed in TRD prevalence. For self-employed individuals, especially those in the informal sector, disability often translates directly into income loss due to the absence of job security, disability insurance, or employer-based support. Consequently, TRD may deepen existing socio-economic inequalities and contribute to cycles of poverty and social exclusion. The predominance of amputations and spinal cord injuries corroborates Chalya et al. (2012) study, which found that high-energy road traffic crashes in sub-Saharan Africa frequently lead to severe, permanent disabilities due to poor vehicle safety standards, inadequate trauma care, and weak enforcement of traffic regulations.

The predominance of amputations and spinal cord injuries among respondents highlights the severity of road traffic crashes in the study area. These forms of disability are typically associated with high-impact collisions, inadequate road safety infrastructure, and limited enforcement of traffic regulations. The higher prevalence of partial disability compared to complete disability suggests that while many victims retain some functional capacity, they may still experience long-term limitations that affect mobility, employability, and quality of life.

Gender-specific patterns in disability types further illustrate differential exposure and outcomes. The higher incidence of fractures and leg deformities among males reflects their greater involvement in high-energy crashes, possibly as drivers or riders of motorcycles and commercial vehicles. Conversely, the higher occurrence of hand deformities among females may be linked to different injury mechanisms or seating positions during crashes. The exclusive occurrence of crash-related eye defects among males further reinforces the role of gendered exposure in shaping injury outcomes.

When interpreted through the lens of the International Classification of Functioning, Disability and Health (ICF), the identified disabilities span skeletal fragility and sensory impairments, emphasizing that TRD extends beyond immediate physical injury to long-term functional limitations. These impairments can restrict participation in economic and social activities, particularly in environments where accessibility and inclusive infrastructure are limited. Interpreting traffic-related disabilities through the International Classification of Functioning, Disability and Health is consistent with the World Health Organization's conceptualization of disability as a dynamic interaction between health conditions and contextual factors. The ICF framework emphasizes that impairments from road traffic injuries often translate into long-term participation restrictions, especially in environments lacking inclusive infrastructure (WHO, 2001).

The age and gender distribution of TRD cases, as illustrated in Figure 5, reveals that both males and females are most affected between 20 and 49 years. However, distinct gender peaks were observed, with male cases highest in the 40–49 age group and female cases peaking at 30–39 years. These differences may reflect variations in travel patterns, caregiving responsibilities, and occupational roles across the life course.

The chi-square analysis confirms a statistically significant relationship between age and types of TRD, indicating that disability outcomes vary meaningfully across age groups. The lower prevalence of TRD among non-adults suggests

reduced exposure or protective supervision, while the dominance of adult cases particularly among males' points to sustained exposure over time. This finding supports the argument that road traffic disability is not randomly distributed but is shaped by age-related mobility patterns and socio-economic roles.

Recommendations

- Targeted Road Safety Enforcement: Prioritize age- and gender-sensitive road safety interventions, with stricter enforcement of traffic regulations for high-risk road users especially commercial drivers, motorcyclists, and informal transport operators.
- Strengthened Post-Crash Care and Rehabilitation: Improve emergency medical response and expand access to affordable, multidisciplinary rehabilitation services to reduce the severity and long-term impacts of traffic-related disabilities.
- Enhanced Social Protection for TRD Survivors: Develop disability-inclusive health insurance, income support, and employment reintegration policies to protect self-employed and low-income individuals from the economic consequences of traffic-related disabilities.
- Inclusive Urban and Transport Planning: Integrate disability-inclusive design into urban and transport systems, supported by robust data collection and research, to improve accessibility, reduce exposure to road risks, and inform evidence-based policy interventions.

6. Conclusion

The findings of this study provide important insights into the socio-economic dimensions, disability patterns, and age–gender dynamics of traffic-related disabilities (TRD) in Southwestern Nigeria. Overall, the results underscore the disproportionate burden of TRD on economically active populations and highlight marked gender differentials in both exposure and disability outcomes.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from the four medical institutions where individual participants included in the study who also gave their consent were receiving rehabilitation services.

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