



**ROAD DISCIPLINARY CHALLENGES:  
THE CASE OF PEDESTRIANS OF LA NKWANTANANG  
MADINA ADENTA MUNICIPAL DISTRICT, GHANA**

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**Abstract:**

In Ghana, 72 persons out of every 100,000 population, suffered from grievous bodily injuries, and close to 8 of the same population died from Road Traffic Accidents (RTAs) over the past decade. This study was conducted to explore the factors that contribute to pedestrian accidents on our roads as well as ways of preventing these accidents. Data were obtained from 70 pedestrians in the La Nkwantanang Madina Adenta Municipality. The descriptive analysis identified the following as possible causes of pedestrian accidents; pedestrian negligence, pedestrians using mobile phones whilst using the roads, and impatient drivers. The findings underscore the need for local government agencies to spearhead strategies of minimizing road crashes by forming neighbourhood safety groups. Their knowledge could be useful to identify problems that are difficult to detect.

**Keywords:** road traffic accidents, road disciplinary challenges, pedestrians

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## 1. Introduction

The socioeconomic ambitions of governments all around the world must rank road safety as a top priority (Blankson & Lartey, 2020). Concerns about road traffic collisions have been on the front burner of many countries, particularly developing countries, where road safety issues are compounded not only by an increase in population but also by inadequate road infrastructure and ineffective safety policies and transportation systems (Blankson, Amoako, Asah-Opoku, Odei, Ansong & Lartey, 2019). The impact of road traffic injuries could be enormous, affecting societies and individuals in different facets (Blankson & Lartey, 2020). Accidents on the road continue to be a major cause of death, despite the prevalence of COVID-19 disease in the field of public health at the present time (Blankson & Lartey, 2020).

It is estimated that about 1.35 million people around the world are killed by road collisions annually, with an additional 50 million people sustaining various degrees of injury or disability (Odonkor, Makanga & Dei, 2020). In Ghana, 72 persons out of every 100,000 population, suffered from grievous bodily injury, and close to 8 of the same population died from Road Traffic Accidents (RTAs) over the past decade (Blankson, Nonvignon, Aryeetey & Akins, 2020). In a similar vein, vehicle traffic accidents continue to be a significant obstacle to public health and development in Ghana (The Conversation, 2022). They are consistently ranked among the top 10 causes of death and take up 2.54 % of the country's gross domestic product each year (The Conversation, 2022). According to a number of recent estimates, on average, Ghana's roadways had approximately 8 to 10 fatalities and 43 injuries every single day during the months of January and July of 2021 (Odonkor et al., 2020; The Conversation, 2022).

Injuries sustained as a result of car crashes result in significant financial losses for the victims, their families, and the nation as a whole (Coleman, 2014). These losses arise from the cost of treatment as well as lost productivity for those killed or disabled by their injuries, and for family members who need to take time off work or school to care for the injured (Blankson et al., 2020). Road traffic crashes cost most countries 3% of their Gross Domestic Product (GDP). More than 90% of road traffic deaths occur in low- and middle-income countries. Road traffic injury death rates are highest in the African region. Even within high-income countries, people from lower socioeconomic backgrounds are more likely to be involved in road traffic crashes (World Health Organization, 2020). However, it is concerning to note that the number of deaths attributed to road traffic accidents appears to rise in nations with lower per capita Gross Domestic Product (GDP), such as Ghana, while it falls in countries with higher GDP per capita, such as Switzerland (Bishai, Quresh, James & Ghaffar, 2006). Road transport crashes are increasingly becoming a threat to public health and national development in many developing countries (WHO, 2018). Principally, road transport crashes contribute to poverty by causing deaths, injuries, disabilities, grief, loss of productivity and, material damage (WHO, 2020). In 2010, the United Nations General Assembly (resolution 64/255) proclaimed a Decade of Action for Road Safety. As part of the Sustainable Development Goals (SDGs), the goal

of the Decade (2011-2020) is to stabilise and then reduce the forecast level of road traffic deaths around the world. SDG 3.6 By 2020 halve the number of global deaths and injuries from road traffic accidents (United Nations Economic Commission for Europe, 2020).

According to Michelle Bachelet, the High Commissioner for Human Rights, the Universal Declaration of Human Rights recognized the right to life for everyone. Yet every year, 1.35 million people die on the world's roads, including more than 182,000 children. The majority of these deaths and injuries are preventable. Road accidents happen around the world for several reasons. In the case of Ghana, Gyimah (2023) asserts that road accidents in Ghana happen for a lot of reasons such as distraction of drivers behind the wheels and tiredness on the path of drivers. Discipline is the readiness or ability to respect authority and observe conventional or established laws of the society or any other organisation. There are serious issues of indiscipline and lawlessness plaguing our society and crystallising and becoming accepted normal behaviour (Allotey, 2013).

According to the road minister, Honourable Kwaku Ofori Asiamah (June 8<sup>th</sup>, 2021, Ghanaian Times newspaper) *"road safety is a shared responsibility; people must begin to take up those personal responsibilities for their own safety and ensure that they obey and observe road regulations to avoid crashes that can cost them their lives and those of other road users,"* he stated, *"pedestrians dash across roads; most people jaywalk roads as if they are in their living rooms walking to take a remote control; cyclists ride facing the traffic flow and to top it all, we have the tricycles, popularly referred to as 'Pragya', that are a law unto themselves, riding on the shoulders of the road and stopping at anytime, anywhere"*. As pedestrians flout the rules and do as they please on roads, fatalities rise. The statistics are that 40 percent of fatalities are accidents involving pedestrians (Blankson et al., 2020). These days too, Zebra crossings are merely white marks on roads, generally not respected by drivers as an investigative piece *"Zebras 'eat' pedestrians" in September 2019 by the Daily Graphic showed"*. Over the years, a lot of studies have indicated that most road indiscipline occurrences are a result of the negligence of drivers (Amo & Meirmanov, 2014; Coleman, 2014; Blankson et al., 2020; Blankson et al, 2019). However, few studies have been conducted from the perspective of pedestrians who are also road users (Lagarde, 2007; WHO, 2018; Siaw, Duodu & Sarkodie, 2013; Appiah, 2013; Donkor, 2014). A lot of these cases emanate out of the refusal of pedestrians to obey road signs and abide by road transport rules in Ghana with a strong focus on the La Nkwantanang Madina Municipal. There have been a lot of cases of pedestrian indiscipline, mainly at La Madina Nkwantanang Municipal. The citizens complained of many road accidents which involved the knocking down of pedestrians.

The government intervened and erected footbridges for pedestrians, yet they refuse to use the walkway and still prefer to cross the road at unapproved areas or points in the municipality. A report by Citi Newsroom showed that (October 18, 2015) pedestrians refuse to use Madina-Adentan footbridges and as such demand police operations. Despite the arrest of 110 pedestrians by the Madina Police MTTD for not using the completed footbridges along the Adenta Madina highway, some people are still flouting the directive. The presence of the police has not deterred some people, who are still crossing the highway at unapproved spots. A lot of studies have been carried out on

road accidents which channel the idea to the drivers being the highest causes of road accidents, however, few studies have been done on the part of pedestrians to assess the situation in the country (Bjerre, Kirkebjerg & Larsen, 2006; Appiah, 2013; Coleman, 2014; Donkor, 2014; Blankson et al., 2019:2020). There is a worry that this concept has not been investigated to its full potential. The study concentrated on the factors that contribute to pedestrian accidents on the roads as well as preventative measures. The primary goal of this investigation is to provide a significant scholarly contribution in addition to bridging a research gap that has been identified in the existing body of research.

## **2. Literature Review**

### **2.1 Theoretical Framework: Domino Theory of Accident**

A theory of accident causation and control, developed by H. W. Heinrich in 1950, purports that all accidents, whether in a residence or a workplace environment, are the results of a chain of events. Heinrich (1959) proposed that accident occurs in a chain of events after conducting studies on statistical accident analysis. Heinrich (1959) elaborated that the individual fault can be related to other factors in sequence, just like a domino. There are five dominoes according to this theory. Heinrich (1959) explains that undesirable personality traits can be passed along through inheritance or develop from a person's social environment and both inheritance and environment contribute to the faults of a person. This can be considered as the first domino. The second domino deals with worker personality traits. Heinrich explains that inborn or obtained character flaws contribute to accident causation. According to Heinrich (1959), natural or environmental flaws in the worker's family or life cause these secondary personal defects, which are themselves contributors to unsafe acts or the existence of hazardous conditions. The third domino is the direct cause of incidents - the unsafe act. Heinrich defines four reasons why people commit dangerous acts: (i) improper attitude, (ii) lack of knowledge or skill, (iii) physical unsuitability, and (iv) improper mechanical or physical environment. Heinrich later subdivides these categories into 'direct' and 'underlying' causes and concludes that the combination of multiple causes creates a systematic chain of events that leads to the accident. The goal of the domino theory is to establish a linear cause-effect relationship among various social and individual factors using five metaphoric dominoes (Lamah et al., 2019).

### **2.2 Causes of Road Indiscipline from the Perspective of Pedestrians**

No single factor is completely responsible for the problem of pedestrian-vehicle crashes resulting in injuries and fatalities (United Nations Development Programme, 2019). A combination of unsafe pedestrian behaviour, vehicle and driver factors, problematic physical environments, and other special conditions all contribute to them (World Health Organisation, 2018). This list of factors is not exhaustive, but instead highlights some common causes of pedestrian-vehicle crashes that result in injuries and fatalities (Martin & Wu, 2018). Simply stated, pedestrian-vehicle crashes occur when physical

environments allow pedestrians to come into contact with moving vehicles (Das, Ashraf, Dutta & Tran, 2020). If this occurs repeatedly, then a pedestrian-vehicle crash problem exists (Das et al., 2020). Most such problems will be the result of failures on all three sides of the triangle (pedestrians who are inattentive or incapable of using the street safely; drivers who operate in ways that make it difficult for them to detect pedestrians in the road; and physical environments that encourage unsafe pedestrian and/or driver behavior, or fail to adequately separate pedestrians and vehicles (Maeda, Hitosugi, Shibasaki & Kagesawa, 2019; Koh, Hitosugi, Kagesawa, Narikawa & Takashima, 2021).

### **2.1.1 Pedestrian-related Indiscipline**

It will interest you to know that unsafe pedestrian indiscipline is a major cause of pedestrian injuries and fatalities. In a study by Ernst, Baily, Canby, and McCarty (2004), about 7,000 pedestrian injuries and fatalities in Florida were caused by pedestrian indiscipline. In this qualitative study, the researchers discovered that pedestrians were at fault in about 84 percent of these accidents. Similarly, Cui and Nambisan (2003) investigated the methodology for evaluating the safety of Midblock pedestrian crossings in the United Kingdom. The study employing an interpretivist philosophical standpoint averred that pedestrian indiscipline accounted for nearly 90 percent of vehicle crashes recorded. Besharati and Kashani (2018) concluded that in Iran jaywalking or waiting at the roadside in poorly lit locations substantially contributed to pedestrian injuries and fatalities.

In Louisiana in the United States, Das et al. (2020) investigated pedestrian-related behaviours and the risks affecting injury levels when pedestrians were under the influence of alcohol or drugs. The study revealed that pedestrians who subjected themselves to these despicable attitudes increased the occurrence of road crashes and general fatalities. The study further opined that pedestrians who have been drinking especially those who had blood-alcohol content levels (BAC) of 0.10 percent and more run an even higher risk of getting killed in traffic, constituting between 40 percent and 70 percent of all pedestrian fatalities. The study concluded that while pedestrians who have not drunk alcohol are more aware of increased walking risks, drunken pedestrians tend to be more oblivious to traffic conditions, poor lighting, and poor weather.

The implication of this finding is that drunken pedestrians are more likely to be injured or killed by vehicles because of their inability to recognize dangerous walking and traffic conditions. Moreover, drunken pedestrians contribute to pedestrian-vehicle crashes because they likely have slower reaction time, have poor judgment, and are not likely to assess the safety of walking conditions. In a related study by Koh, Wong & Chandrasekar (2014), out of the 180 pedestrian fatalities, about 86 of those involved pedestrians who had been drinking. The researchers are of the opinion that the more one drinks, the higher the risk of being involved in a pedestrian-vehicle crash resulting in a fatality. In a mixed-method study, Allotey (2013) lamented that pedestrian behaviour also contributes to road indiscipline and lawlessness as some do not cross the road at

approved areas and even lack the skill of road crossing. In the view of this researcher, gross indiscipline is the cause in most cases amongst Ghanaians.

According to Ojo, Adetona, Agyemang & Afukaar (2019), other causes of pedestrian indiscipline identified are pedestrian's failure to observe vehicular traffic, choice of crossing place, non-compliance at designated crossings. Ojo et al. (2019) maintained that some pedestrians might not understand or be aware of signs that convey safe walking procedures. Nonetheless, some pedestrians might unintentionally enter roads and be struck by oncoming traffic because they are confused. For instance, some pedestrians may jaywalk simply because they do not know where and when they have the right-of-way. In the concluding statement of the research finding, it was discovered that distracted pedestrians are also at higher risk. For instance, pedestrians using a cell phone are less likely to look at traffic before crossing, to wait for traffic to stop, to look at traffic while crossing, or to walk briskly.

### **2.1.2 Vehicle and Drive-related Indiscipline**

Vehicles and their drivers' behaviour are the second major group of factors that are considered in this research paper. Gyimah (2023) utilised a mixed/integrated approach to examining contributing factors to road accidents in Ghana and maintained that consumption of alcohol to celebrate any occasion is common. But when mixed with driving it turns celebration into a misfortune. Alcohol reduces concentration. It decreases the reaction time of the human body. Limbs take more to react to the instructions of the brain. It hampers vision due to dizziness. Alcohol dampens fear and incites humans to take risks. All these factors while driving cause accidents and many times prove fatal. For every increase of 0.05 blood alcohol concentration, the risk of an accident doubles. Apart from alcohol many drugs, and medicines also affect the skills and concentration necessary for driving.

Similarly, Damsere-Derry et al. (2009) examined reasons and solutions for road traffic accidents in India and found out that drunk driving and negligent parking contributed to pedestrian injuries and fatalities. Damsere-Derry et al. (2009) asserted that drinking makes people lose the ability to focus and function properly. This makes it dangerous for the driver to operate the vehicle. Drunk driving is another major cause of car accidents worldwide although this can easily be avoided. Secondly, Damsere-Derry et al (2009) held the firm belief that vehicles are usually parked negligently on the side of the roads without any kind of warning or reflectors, that too on narrow roads. This causes inconvenience for the easy plying of the other vehicles. Also, the vehicle which breaks down is left unattended on the roads. This causes several fatal accidents, especially on the highways. Related to this study is the one conducted by Levulyte, Baranyai, Sokolovskij, and Török (2017) who investigated pedestrian's roles in road accidents. The study found out that apart from pedestrians being a direct cause of many road crashes drivers also contributed partly to the numerous injuries and fatalities.

This finding is also related to the findings of Yanagisawa, Swanson, and Najin (2014) who posited that Speeding is a major contributor to vehicle crashes. They asserted

that it is not surprising, then, that speeding is also an important consideration when examining pedestrian-vehicular crashes. Speed influences these crashes in two distinct ways.

The study further found out that, first, speed increases the chances of a collision. Simply, faster vehicle speeds make it more difficult for drivers to see pedestrians, and at the same time, high speeds reduce the amount of time the driver and pedestrian have to avoid a crash. For example, a pedestrian hit at 40 miles per hour has an 85 percent chance of getting killed, whereas the likelihood goes down to 45 percent at 30 miles per hour and 5 percent at 20 miles per hour.

## **2.2 Strategies to Reduce Road Indiscipline**

Many scholars interested in road and pedestrian safety issues have expressed multiple desires to arrest road crashes and overall indiscipline. Interestingly, these scholars have proposed the adoption, integration, or combination of these factors, thus, safer road infrastructure, safer vehicles, human component behaviour change, and sustainable transport systems (Patel, Krebs, Andrade, Rulisa, Vissoci & Staton, 2016; Hughes & Falkmer, 2016). For instance, In South Africa, Schoeman (2018) examined strategies to reduce traffic accident rates in developing countries: lessons learned for assessment and management. Using a statistical analysis, Schoeman (2018) proposed a number of strategies; thus, strong enforcement initiatives with a focus on speed control, alcohol consumption, promotion of seatbelt utilisation, and road user sensitivities related to both motorized and non-motorised modes of transport. Similarly, Namatovu et al. (2022) employed a systematic review to assess the effectiveness of interventions to reduce road traffic crashes, injuries, hospitalisations, and deaths among pedestrians. A total of 69123 unique records were identified through the searches, with 26 of these meeting the eligibility criteria. The findings indicated that road environment, legislation, and enforcement intervention alone produce positive effects on pedestrian safety. The study further revealed that a combination of road user behaviour and education interventions is particularly effective in improving pedestrian safety.

Another systematic study by Fisa, Musukuma, Sampa, Musonda, and Young (2022) investigated the effects of interventions for preventing road traffic crashes. The study found that behavioural-based interventions are very effective in reducing road traffic crashes. In a mixed or integrated approach by Koranteng (2018) investigating deadly roads, it was concluded that the government should empower all road safety stakeholders (NRSC, DVLA) to invent scientific technologies on roads mainly to foretell drivers, passengers, and pedestrians about avoidable accidents. Directly related to this study is the study done by Damsere-Derry, Ebel, Mock, Afukoar, and Donkor (2009). Damsere-Derry et al. (2009) investigated reasons and solutions for traffic accidents in India and concluded that pedestrians should take care before crossing roads with heavy traffic. The study also posited that pedestrians should always cross at designated pedestrian crossings. In summary, the study averred that pedestrians should always be aware of the oncoming traffic and look both ways before crossing the road.

### 3. Methods and Materials

#### 3.1 Research Design

The research design for this study was a descriptive research survey with a quantitative approach. Descriptive design is a procedure of gathering information so as to respond to questions concerning the present status of the subject in the study (Cohen, Manion & Morrison, 2018; Kuranchie, 2021). Kuranchie (2021) contends that the objective of descriptive research is to depict the attributes of a chosen phenomenon and includes the collection of data without the control of factors. Particularly, this design is useful in showing patterns in attitudes and practices and empowers speculation of the discoveries of the study to be done (Kuranchie, 2021). The descriptive research design was fitting for this study since improved the measure of value data yielded (Cohen et al., 2018). In any case, there are numerous challenges related to the use of descriptive surveys and one of them is that it is not in itself sufficiently complete to give answers to questions and cannot set up any circumstances and logical results relationship (Yin, 2018). Despite its disadvantages identified, the descriptive survey was used on the grounds that it has the benefit of delivering great reactions from a wide scope of individuals (Kuranchie, 2021). Likewise, it gives a significant image of occasions and looks to clarify group sentiment and conduct based on information at a specific time (Cohen et al., 2018).

#### 3.2 Population, Sample and Sampling Procedures

A population is a distinct group of individuals, whether that group comprises a nation or a group of people with a common characteristic (Yin, 2018; Kuranchie, 2021). Thus, any selection of individuals grouped together by a common feature can be said to be a population (Kuranchie, 2021). The population for the study was pedestrians using the principal roads in Madina, Adenta, and La Nkwantanang of about 700. The reason that informed the researcher for selecting these communities was the fact that these are areas noted for more pedestrian crashes in the La Nkwantanang Madina Adenta Municipality. The sample for the study was 70 pedestrians. According to Cohen et al. (2018), it is appropriate to sample 5 – 30% of the accessible population for a study. In this current study, the sample size of 70 represented 10% of the accessible population. The purposive sampling technique was used in selecting the three communities (Madina, Adenta, and La Nkwantanang) in the La Nkwantanange Municipality. In purposive sampling, the cases to be used in the sample are handpicked on the basis of their judgment of their typicality or particular knowledge about the issue under study (Cohen et al., 2018). The power of purposive sampling lies in selecting information-rich cases for in-depth analysis related to the central issues being investigated (Kuranchie, 2021). Lastly, convenience sampling was adopted to select the participants for the study. In convenience sampling, the data is taken from participants who are accessible, available at a given time, and willing to participate in the study (Varpio & Macleod, 2020). This sampling technique enabled the researcher to talk to pedestrians who were available and ready to be talked to.



### 3.3 Data Collection Instrument

The structured questionnaire was adopted to guide this study. The questionnaire was developed based on the objective of the study derived from the related literature. Rating (Likert) scale questions were used containing a list of fixed statements to which the respondents were asked to respond. The questionnaire was short and clear to prevent ambiguity and technical jargon. The questionnaire was divided into three sections. Section 'A' was used to gather background information on respondents. Section 'B' was used to source information on the causes of road accidents among pedestrians. Section 'C' was used to elicit information on strategies to reduce road accidents.

### 3.4 Validity and Reliability of Instrument

The instrument for data collection was vetted by experts in the field of research methodology. This determined the face and content validity of the instrument. This enabled the researcher to develop an instrument that yielded valid information. Conversely, Cronbach's Alpha was employed to measure the consistency of the instrument. The Cronbach alpha is most commonly used when there are multiple Likert questions in a survey questionnaire that form a scale and you wish to determine if the scale is reliable (Cohen et al., 2018; Kuranchie, 2021).

### 3.5 Data Analysis

The data collected was edited by carefully inspecting it in order to identify the mistakes and questions wrongly answered and respond to items. Data was analysed using the Statistical Package for Service Solutions programme version 22. The analysis was done systematically as per the objectives of the study and presented using frequencies and percentages. Measures of central tendencies such as mean scores and standard deviations were also used to analyse the information obtained.

## 4. Findings and Discussions

### 4.1 Demographic Variables

The gender of the respondents was the first demographic variable of interest to researchers. The distribution of respondents by gender is represented in Table 1.

**Table 1:** Distribution of Respondents by Gender

Age	Frequency	Percent
Male	38	54.3
Female	32	45.7
<b>Total</b>	<b>70</b>	<b>100</b>

**Source:** Author's construct, 2022.

Table 1 shows that out of the total of 70 respondents, the male respondents were 38 representing 54.3% whilst the female respondents were 32 representing 45.7%. This implies that the majority of the respondents sampled for this study were males.

Another important demographic variable investigated was the age of respondents. The variable was measured on a 5-point Likert scale. Table 2 presents the distribution of respondents by age.

**Table 2:** Distribution of Respondents by Age

Gender	Frequency	Percent
15-19	1	1.4
20-24	43	61.4
25-29	9	12.9
30-34	14	20.0
35-39	3	4.3
<b>Total</b>	<b>70</b>	<b>100</b>

**Source:** Author's construct, 2022.

Table 2 indicates that the majority of the respondents were below 40 years. Out of the total respondents of 70, 43 (61.4%) were between the ages of 20-24 years. Also, 20% representing 14 respondents were between the ages of 30-34 years.

The educational qualification of respondents was another demographic variable worth investigating. The variable was measured on a 6-point Likert scale. Table 3 presents the distribution of respondents by level of education.

**Table 3:** Distribution of Respondents by Educational Qualification

Educational qualification	Frequency	Percent
WASSCE or its equivalent	26	37.1
Diploma \ HND	2	2.9
Degree (BA, BSC) or its equivalent	42	60.0
<b>Total</b>	<b>70</b>	<b>100</b>

**Source:** Author's construct, 2022.

Table 3 indicates that most of the respondents had attained some level of formal education. Out of the total of 70 respondents, 26(37.1%) had attained a WASSCE or its equivalent. Apart from that, 42 respondents representing 60.0% had obtained a degree qualification or its equivalent. This gives a clue that almost all the respondents for this study had formal education with the associated qualifications.

Marital status was another demographic variable of interest. This demographic variable was measured on a 3-point Likert scale. Table 4 presents the distribution of respondents by marital status.

**Table 4:** Distribution of Respondents by Marital Status

Marital status	Frequency	Percent
Married	1	1.4
Cohabitation	3	4.3
Not married	66	94.3
<b>Total</b>	<b>70</b>	<b>100</b>

**Source:** Author's construct, 2022.

Table 4 indicates that the majority of the respondents were not married. Out of the total respondents of 70, 66(94.3%) were not married. 3 out of the total respondents representing 4.3% were cohabiting. Surprisingly, only a respondent representing 1.4 was married.

Similarly, the researcher was interested in investigating if respondents had ever been involved in a road accident as a pedestrian. This variable was measured on a 2-point Likert scale. The results are presented in Table 5.

**Table 5: Ever Involved in a Road Accident**

Statement	Frequency	Percent
No	56	80.0
Yes	14	20.0
<b>Total</b>	<b>70</b>	<b>100</b>

**Source:** Author's construct, 2022.

Table 5 clearly indicates that most of the respondents have never encountered any accidents as road users. Out of the total of 70 respondents, 56 (80.0%) indicated that they had never been involved in a road accident as a pedestrian. Only 14 representing 20.2% had indicated that they had ever encountered a road accident as a pedestrian.

Causes of road accidents among pedestrians were of interest to this study. In all ten different items were used to elicit the respondents' views on the subject matter. This was also measured on a 4-point Likert scale. Table 6 gives the distribution of respondents regarding the causes of the road accidents.

**Table 6: Causes of Road Accidents among Pedestrians**

Statement	Freq.	Mean	Std. Dt.
Most pedestrians' accidents are caused by their negligence.	70	2.90	1.009
Most pedestrian accidents are caused by reckless drivers.	70	3.60	.730
While crossing the street, the majority of pedestrians eat.	70	2.23	.919
Most pedestrians use their cell phones when crossing the street.	70	3.19	.856
Impatient drivers are to blame for the majority of pedestrian accidents on the road.	70	3.30	.874
The majority of pedestrians are caught doing something else while crossing the road.	70	3.03	.900
The majority of pedestrian accidents occur when cars use their brakes are too late.	70	3.20	.878
Pedestrians are in a hurry to get across the street.	70	3.09	.865
Pedestrians can also get into accidents when their surroundings are covered by stalled or parked cars.	70	3.20	.868
Alcohol use can cause road accidents among pedestrians.	70	3.27	.913
<b>Total</b>	<b>70</b>	<b>100</b>	

**Source:** Author's construct, 2022.

The means of the various items in Table 6 indicate that respondents hold a positive view of the causes of road accidents among pedestrians. The magnitude of the standard deviations further confirms this. The majority of the respondents strongly agree that most pedestrian accidents are caused by alcohol use. Also, the respondents agree that pedestrians can get into accidents when their surroundings are covered by stalled or parked cars. Apart from that, the respondents strongly agree that the majority of pedestrians use their cell phones when crossing the street as well as being caught doing something else while crossing the road.

The respondents further agree that most pedestrian crashes are caused by reckless drivers. This finding is consistent with the findings of Das et al. (2020). Das et al. (2020) investigated pedestrian-related behaviours and the risks affecting injury levels when pedestrians were under the influence of alcohol or drugs. The study revealed that pedestrians who subjected themselves to these despicable attitudes increased the occurrence of road crashes and general fatalities. The study further opined that pedestrians who have been drinking especially those who had blood-alcohol content levels (BAC) of 0.10 percent and more run an even higher risk of getting killed in traffic, constituting between 40 percent and 70 percent of all pedestrian fatalities. The finding of this study corroborates the views of Allotey (2013). Allotey (2013) lamented that pedestrian behaviour also contributes to road indiscipline and lawlessness as some do not cross the road at approved areas and even lack the skill of road crossing. Related to this finding is the study conducted by Levulyte et al. (2017). The study found out that apart from pedestrians being a direct cause of many road crashes drivers also contributed partly to the numerous injuries and fatalities.

Strategies to reduce road accidents among pedestrians were also examined in the study. A set of items were therefore designed to collect data on strategies to reduce road accidents. All the six items were measured on a 4-point Likert scale. The result is presented in Table 7.

**Table 7: Strategies to Reduce Road Accidents**

Statement	Freq.	Mean	Std. Dt.
When crossing the street, I look to the left or right	70	3.36	1.036
Before crossing the road, I look to the right and to the left	70	3.64	.780
I cross the road only at approved crossing zones	70	2.89	.819
I cross the street when a vehicle comes to a complete stop	70	2.91	1.087
Before crossing the street, I look for traffic signs and restrictions	70	2.93	1.040
When I have to cross the street, I walk straight	70	3.03	.900
<b>Total</b>	<b>70</b>	<b>100</b>	

**Source:** Author's construct, 2022.

The means of the various items in Table 7 show that the respondents hold a positive view of strategies to reduce road accidents. As it is seen, all the means are far above average which goes on to confirm that most of the respondents are of the view that when crossing the street, they look to the left or right. The respondents also affirmed that before crossing the street, one should look for traffic signs and restrictions which all indicate strategies

for curbing road accidents among pedestrians. The findings of this study are in line with the study by Damsere-Derry, Ebel, Mock, Afukoar, and Donkor (2009). Damsere-Derry et al. (2009) investigated reasons and solutions for traffic accidents in India and concluded that pedestrians should take care before crossing roads with heavy traffic. The study also posited those pedestrians should always cross at designated pedestrian crossings. In summary, the study averred those pedestrians should always be aware of the oncoming traffic and look both ways before crossing the road. In the same spirit, Fisa et al. (2022) share a similar assertion. This systematic study examined the effects of interventions for preventing road traffic crashes. The study found that behavioral-based interventions are very effective in reducing road traffic crashes.

## **5. Recommendations**

It is in the interest of this current study to profess these recommendations Firstly, local government agencies (e.g., traffic engineering departments, transportation departments, and planning departments) could spearhead the strategies to minimize road crashes amongst pedestrians. Such agencies could provide data for analysing the problem and also help plan and implement responses. These agencies can also implement costly responses that go beyond the scope of the local neighbourhood or resident groups. The study also recommends the formation of neighbourhood safety groups. These groups can use their local knowledge to identify the problem and potential contributing factors. Their knowledge could be especially useful in identifying problems involving special factors that can be difficult to detect. With this intervention, government and other agencies might also be more inclined to help plan and implement responses if approached by organised neighbourhood safety groups. Based on the findings of this study, the researcher further recommends the involvement of local schools. Schools are critical to developing and distributing pedestrian safety education/awareness campaigns and information when children and teens are a high-risk group in the community.

## **6. Conclusion**

The study concluded that enforcing speeding violations and other unsafe driver behaviours at high-risk locations (early) can minimise road crashes amongst pedestrians who are primary road users. Since pedestrians are more likely to be injured or killed as vehicle speeds increase, police should establish speed zones and increase the number of speeding citations at high-risk locations. One way to establish a speed zone could be to install traffic cameras at problem intersections. In addition, District, Municipal, and Metropolis court authorities should aggressively enforce violations related to pedestrian safety. Beyond speeding enforcement, police should also issue citations for unsafe driver behaviour that could put pedestrians at risk at intersections (e.g., running red lights, turning on red without looking, failing to yield the right-of-way to pedestrians). The more focused enforcement is at high-risk places, and the more the community understands the

reasons for the enforcement, the less likely it is to create pressure from the public to curtail the enforcement.

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### **Conflict of Interest Statement**

There are no conflicts of interest on the part of the authors.

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