

REVIEW:

The aggravating trend of traffic collision casualties in Ghana from 2001-2011

Amo Thompson¹

Abstract

This research discusses the incidence of traffic collisions in Ghana between 2001 and 2011 and demonstrates the public health impact of road traffic injuries in the hope of finding effective preventive measures. The incidence of traffic collisions is examined in a descriptive study of time series secondary data obtained from the “Building and Road Research Institute”, Ghana. In total there were 125,681 cases involving 150,949 victims. They included 96,888 (64.2%) passengers and 40,975 (35.8%) pedestrians. There were 21,283 (14.1%) cases of fatality while 129,666 (87.9%) suffered various degrees of injuries. About 38.5% (8,194) of those fatalities were passengers while 61.5% (13,089) were pedestrians. Three types of vehicles including cars (46.4%), buses (15.5%) and heavy duty vehicles (13.1%) are involved in about 75.0% of traffic collisions. The number of males involved in traffic collisions was 1.5 times higher than females. About 65.2% of collisions involved people younger than 40 years of age. There was a difference in the incidence of collisions in different months with more collisions happening in the second half of the year with a peak in December. Traffic collisions are a threat to the lives and properties of people living in Ghana and preventive measure are needed to salvage the situation.

Keywords: Fatality, injuries, traffic collisions, Ghana, public health.

Introduction

Traffic collisions, also called Road Traffic Accidents (RTA) have become an important public health concern over the last decades as an estimated global figure of 1.3 million people loses their lives every year. It is better not to call them accidents because they can be prevented and are not random events. It is believed that almost 3,400 lives are lost every day with millions of people suffering various degrees of injuries and disabilities after these collisions. These injuries and deaths, according to the World Health Organization (WHO) also have an immense influence on the victims’ families and the communities they belong to. Currently, road traffic casualties rank 9th in the “Global Burden of Diseases” but are expected to become the 3rd leading cause of death and disability by the year 2020 unless fresh, effective and efficient safety actions are engaged (WHO, 2013).

Lower and middle income countries have higher incidence rates of traffic collisions and also account for about 90% of all resulting fatalities. About 60% of these deaths happen to young people between 15-44 years old, who play an important role in the work force. There are differences among road traffic deaths in respect to WHO Regions; the African Region continues to show the highest incidence with an average population risk of about 24.1 deaths per 100,000 (WHO, 2013). The World Bank has estimated that by the year 2020, the annual road traffic fatality will increase by 80% in developing countries. It is therefore important to develop effective preventive measures to help reverse the current trend.

Traffic collisions are among the most common causes of death in Ghana, after malaria, diarrheal and respiratory diseases. The WHO country fact sheet in 2006 ranked it as the 9th cause of death in Ghana responsible for the death of about 5,000 (3.0%) people. Afukaar et al. (2003a) noted that road traffic crashes

¹Graduate School of Asia Pacific Studies, Ritsumeikan Asian Pacific University (APU), Beppu City, Oita, Japan
e-mail: osbornamo@yahoo.com

were a leading cause of death and injuries in Ghana, with pedestrians accounting for more than 46% of all fatalities particularly in urban areas and in the south of the country. In 2009, it was estimated that the average population at risk was 7.9 per 100,000, with an age adjusted death rate of 28.1 per 100,000. The WHO report in 2010 showed that traffic fatalities included 1,986 cases of which 76% were men and 24% women. The estimated Gross Domestic Product (GDP) loss was 1.6% valued at \$419 million. They also rank the country 41st in the world. The National Road Safety Commission (NRSC) in Ghana proclaimed that there were 19 fatalities per 10,000 vehicles in 2010.

The statistics showed that 43% of the fatalities involved pedestrians while 53% involved occupants of vehicles. About 23% of all pedestrian fatalities involved children under the age of 16 years old. In 2011, there were 2,330 road accidents bringing it to an average of 7 accidents per day across the country. In 2012, by the end of November, 13,535 crashes were recorded causing over 2,069 deaths across the country. In December 2012 alone, there were 246 deaths and 1,260 injuries in vehicular accidents. According to the Commission, the major cause of traffic collisions in Ghana is over speeding which accounts for 60% of all crashes. It is thus vital that drastic measures are taken to save the lives and properties of people living in Ghana.

The objective of this research is to analyze the incidence and other epidemiological data of traffic collisions in Ghana between 1st January 2001 and 31st December, 2011. The analysis specifically focuses on mortality, age, gender, monthly incidence and types of vehicles involved. This research intends to add additional knowledge and draw attention of policymakers to the dangers on the roads in Ghana.

Methodology

This study uses a descriptive method and time series data to examine the incidence of RTA in Ghana from 2001 to 2011. The “Building and Road Research Institute” (BRRI) under the “Council for Scientific and Industrial Research” (CSIR) in collaboration with the “Motto Traffic and Transport Unit” (MTTU) of “Ghana Police Service” keep data of all reported cases of traffic collisions across the country. The study also reviews the literature on death and injuries caused by traffic collisions in Ghana, as well as information on traffic collisions available from the World Health Organization (WHO) and other international institutes. An analysis was done on data obtained from BRRI from 1st January 2001 to 31st December, 2011. The selected parameters included all deaths, injuries, vehicles involved, gender, age and months of traffic accidents. The results have been presented in charts and figures using Microsoft Excel 2010.

Findings and Results

The yearly trend of the total number of injuries and total life lost is presented in figure 1. It can be observed that there has been a significant increase in the number of fatalities from 2001 to 2011. In 2001, a total of 14,833 people were involved in traffic collisions which resulted in 1,660 deaths; 989 were pedestrians and 671 were passengers. In 2011, 16,219 persons were involved which resulted in 2,199 deaths and 14,020 cases of injuries. The fatalities included 1,519 pedestrians and 680 passengers. The results thus show an overall increase of about 4.5% in the number of fatalities from 2001 to 2011.

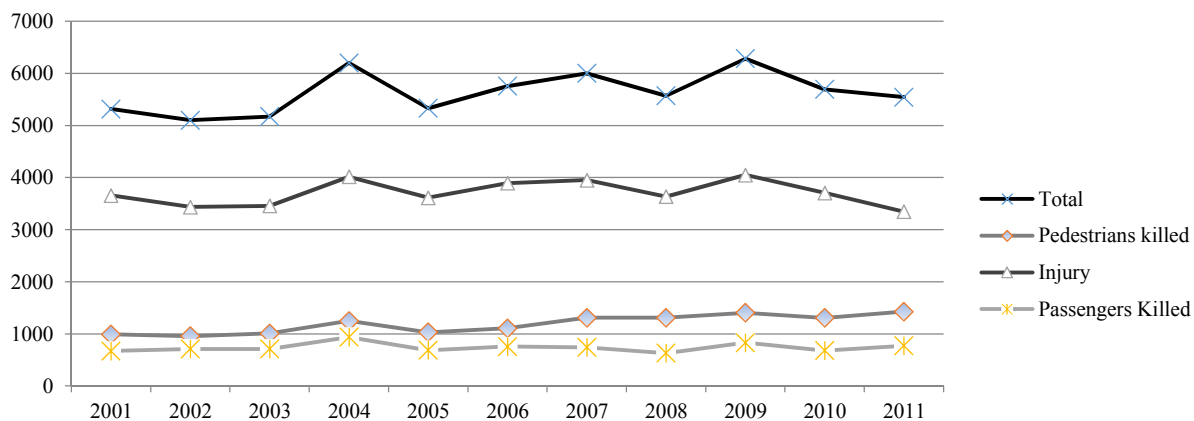


Figure 1. Yearly trend of the total number of people affected by traffic collisions, including injuries and fatalities, of passengers and pedestrians, in Ghana from 2001-2011

With regards to the gender distribution of all road traffic victims within the studied period, which includes a total number of 92,467 fatalities, there were 55,029 (60%) males and 37,438 (40%) females (gender was not identified in 2,527 cases). This difference may result from the larger number of male drivers and/or their higher tendency for over speeding.

Figure 2 shows the percentage share of the type of vehicles involved in traffic collisions in Ghana between 2001 and 2011. The total number of vehicles involved was 200,528. The vehicle type crash statistics indicate that the ‘car’ category was involved in crashes the highest during the period under investigation with a total of 93,102 (46.4%), followed by bus, with 31,035 cases (15.5%), heavy goods vehicle with 26,432 cases (13.2%), minibus (8.9%), pickup with 12,898 cases (6.43%), motorcycle with 10,717 cases (5.3%), bicycle with 5,165 cases (2.6%), and others (1.3%) in that order. The smallest cause of traffic collisions was ‘tractor’ with 749 cases (0.4%).

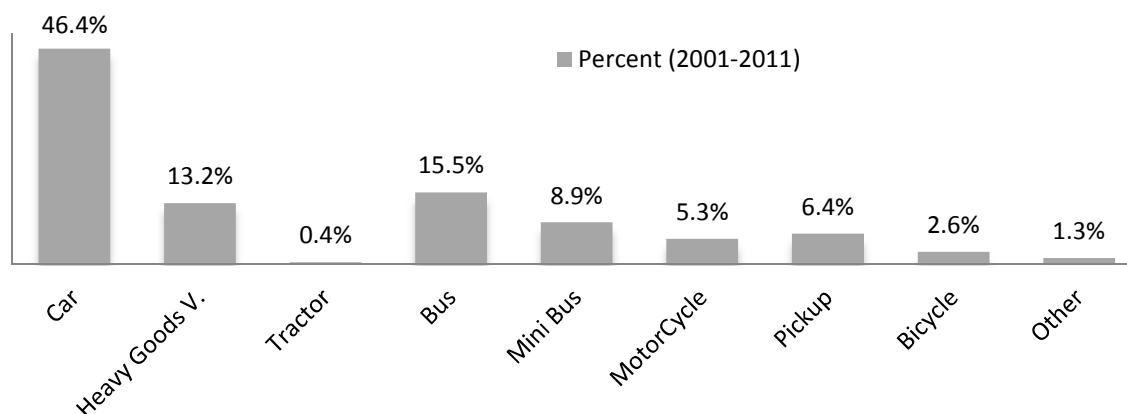


Figure 2. The type of vehicles involved in traffic collisions in Ghana from 2001-2011.

Figure 3 presents the age distribution of the number of people who were killed in traffic collisions in Ghana from 2001 to 2011. Notably, more than 65% of the victims are less than 40 years old. The statistics clearly show that many young people suffer the death caused by traffic collisions. The category ‘unknown’ represents the number of people whose age at the time of death was not specified.

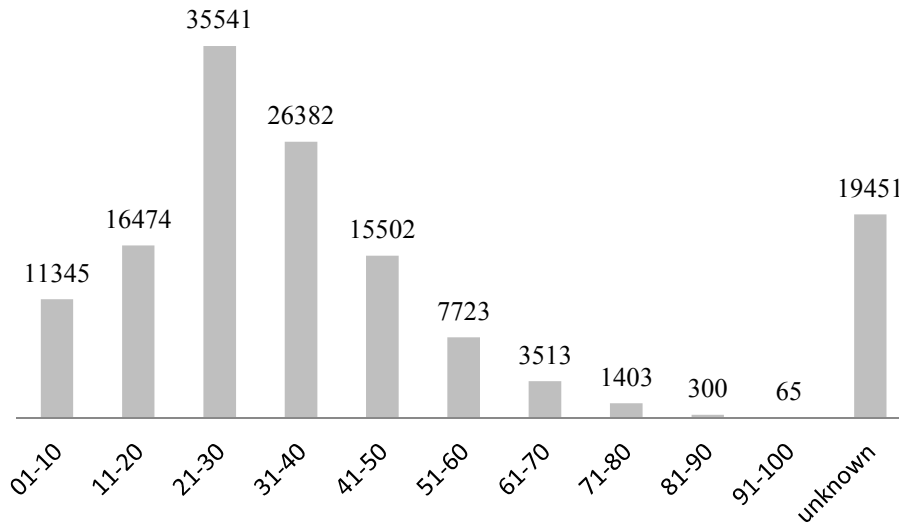


Figure 3. Age Distribution of fatalities of traffic collisions in Ghana from 2001-2011

Figure 4 shows the monthly distribution of all traffic collisions within the study period. The percentage share of these months (from January to December) is 7.3%, 7.0%, 7.8%, 8.1%, 8.3%, 7.8%, 7.7%, 8.6%, 8.7%, 9.4%, 9.4%, 9.9% respectively. In the first half of the year (January-June), collisions are higher in the months of April and May, while in the second half of the year (July-December), they increase continuously until the end of the year. The incidence of traffic collisions is the highest in the month of December (9.9%) followed by November (9.4%). This could have been related to the higher number of vehicular travels related to activities such as work, school, vacations and etc.

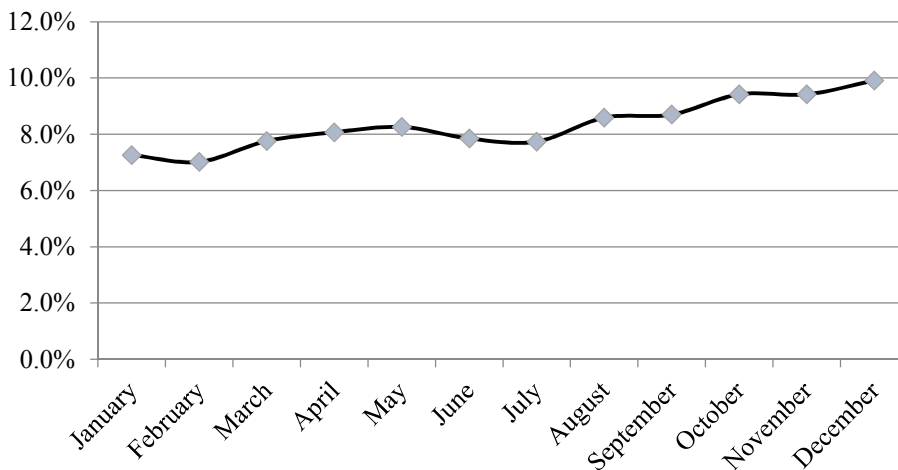


Figure 4. The monthly distribution of all traffic collisions in Ghana from 2001-2011

Discussion

This study has analyzed the incidence of traffic collisions that occurred in Ghana between 1st January, 2001 and 31st December, 2011. A total of 125,681 traffic collisions involving 150,949 people were recorded within this period, including 96,888 (64.2%) passengers and 54,061 (35.8%) pedestrians. The total number of fatalities was 21,283 (14.1%) and 129,666 (85.9%) sustained various degrees of injuries. The analysis takes into consideration the total number of reported collisions, fatalities, injuries, type of vehicles involved, the gender and age of the victims, and the months of the year within which these collisions occurred. The total number of deaths per 100,000 population as mentioned earlier was 7.9, which is higher than that in neighboring countries like Burkina Faso (4.2%) and Togo (7.1) (WHO, 2009). It is observed that pedestrians are very vulnerable and stand a high risk of death because of traffic collisions. Afukaar (2003b) noted that pedestrians were the main victims of traffic collisions in Ghana and identified loss of control of the vehicle because of speeding the predominant factor responsible in over 50% of the cases.

The percentage share of lives lost includes 8,194 car passengers (38.5%) and 13,283 pedestrians (61.5%). It appears that more pedestrians die in traffic collisions than passengers in the vehicle. In the year 2004 and 2009 there was a sharp increase in the number of traffic collisions (Figure 1). The NRSC indicated that the increase in 2004 could be linked to political activities. Similar circumstances occurred in the year 2000, which was also an election year. However, a specific reason for the increase in 2009 has not been proposed.

The results also showed that more men die in traffic collisions than women (1.5 times more). Similar results were obtained by Nilambar et al. (2004) and Mondal et al. (2011) who concluded that the number of deaths of men was 4.9 times higher than women. This could be associated with the fact that there are more male drivers in cars, minibuses and other commercial vehicles. It may also be related to the social lifestyle where more men leave the house and are thus more exposed to the risk of a traffic collision. Survivors and their immediate families may experience painful consequences including disability, scars of injury and needed rehabilitation, costs of care and/or funeral expenses which results in more poverty (WHO, 2004).

The findings also show that only three types of vehicles including passenger cars (46.4%), buses (15.5%) and heavy goods vehicles (13.2%) are responsible for more than 75% of traffic collisions. This could be linked to the growing number of vehicles in Ghana. It is estimated that the total number of vehicles increased from 43,825 in 1990s to 61,427 in 2000s which implies a 42 % increase (NRSC, 2010). An increase in population and urbanization, along with a corresponding increase in the number of vehicles are factors considered to be responsible for more traffic collisions.

Kopits and Cropper (2003) identified that an increase in the number of motor vehicles in low-income nations, related to economic growth, usually brings an increase in traffic collisions. The increased casualties could also be attributed to the higher number of imported used cars after being kept unused for some time in other developed nations. Chalfin (2008) estimated that 80% of imported vehicles were used cars. Policy changes that address the quality of imported used cars could be initiated, similar to other developing countries. Stakeholders such as the National Road Safety Commission (NRSC), the Driver and Vehicle Licensing Authority (DVLA), the Motor Transport and Traffic Unit (MTTU), the Ghana Highway Authority (GHA), the Department of Urban Roads and the Department of Feeder Roads have proposed a comprehensive structure that is also adopted by United Nation (UN) for road safety with the view to reverting the aggravating trends in traffic collisions.

Age specific patterns of traffic collision casualties were examined to identify which age group is more prone and likely to be affected. Within the 2001-2011 period, more than 65% of affected individuals were less than 40 years old. The reason could be that in general the population of Ghana is very young with 38.3% under 15 years, 57% between 15 and 64 years and only 4.7% of the population at 65 years and over (GSS, 2010). The age group of 26-30 (14.3%) stands at high risk of traffic collisions which is in line with information published by WHO (2013) which suggest that about 60% of deaths resulting from traffic collisions happen to people between the ages of 15-44 years old. Jha et al. (2004) and Mondal et al. (2011) made similar observations, reporting that 22.3% and 35.0% of crash death were among individuals 30-39 and 30-44 years old, respectively. This has serious economic consequences because they are among the most productive age group for the nation's development.

The monthly distribution of the data shows that the incidence of collisions is relatively lower (46.2%) in the first half of the year (January-June) compared to the last six months from July-December (53.8%). Generally, there are two rainy seasons in Ghana. Heavy rain in the south usually happens from April until June, and a lighter rain during September and October; in the northern part, it usually rains a lot from April until October every year. Therefore, an increase in RTA could be attributed to heavy rains with a wet condition of the roads in the rainy months. Similar finding was observed by Jha et al. (2004) who reported an increase in traffic collisions linked to the rainy season associated with the bad condition of the roads. In our data, there was a higher incidence of traffic collisions in December which could be attributed to more travels during the holidays; there are lots of business activities and social gathering in this period.

Finally, the NRSC in the 2010 annual report admitted that the road traffic agencies' performance in general was unsatisfactory and estimated it to be in the range of 2-3% of the performance target, which is not an acceptable mark for an agency responsible for road safety. Evidence from the results of our study show that pedestrians are still the group mostly affected by traffic collisions in Ghana; this fact suggests a lack of the observance of road traffic laws, such as speeding, and/or a lack of safe passage for pedestrians.

Traffic collisions can be reduced if the existing traffic laws are properly enforced by the authorities. However, Afukaar (2003b) suggested that enforcement of speed limits by police was not affordable and instead recommended the use of rumble strips and speed humps. Moreover, stakeholder agencies should intensify affordable safety measures as much as possible, including road safety audits, emergency response services, better training of drivers and the general public over traffic safety, setting up of first aid posts, the use of speed radar guns and alcometers to monitor observance of regulations, and stiffer punishment for erring drivers.

Road safety agencies could develop affordable strategies and ensure the implementation of policies that may help reverse the disturbing trends of traffic collisions in Ghana. Changing the attitudes of the public towards road traffic safety and manners of driving would require a lot of work. Lund and Torbjörn (2009) studied the sociocultural perception of road traffic risks and the attitude and behavior of Ghana citizens and found that "Ghanaian adolescents were less sensitive to risks, judged the severity of consequences to be less and were more willing to take risks compared to adults and older adults in Ghana". Nordfjærn and Rundmo (2009) referred to a lack of clearly defined traffic regulations in Ghana, low usage of road sign including those indicating speed limits, and therefore a higher risk taking traffic behavior among citizens of Ghana.

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References

- Afukaar, Francis K.. 2003(a). Speed control in developing countries: issues, challenges and opportunities in reducing road traffic injuries. *Injury Control and Safety Promotion* 10 (1-2): 77-81.
- Afukaar, Francis K., Phyllis Antwi and Samuel Ofosu-Amaah. 2003(b). Pattern of road traffic injuries in Ghana: Implications for control. *Injury Control and Safety Promotion* 10 (1-2): 69-76.
- Baker, Therese L. 1999. Doing social research 3rd edition. MacGrawhill Companies Inc.
- Chalfin, Brenda. 2008. Cars, the Customs Service, and Sumptuary Rule in Neoliberal Ghana. *Comparative Studies in Society and History* 50 (2): 424-453.
- Ghaffar, Abdul, Adnan A. Hyder, and Tayyeb I. Masud. 2004. The burden of road traffic injuries in developing countries: the 1st national injury survey of Pakistan. *Public Health* 118 (3): 211-217.
- Ghana Statistical Service. 2010. The Population and Housing Census.
- Kopits, Elizabeth and Maureen Cropper. 2003. Traffic Fatalities and Economic Growth. World Bank Policy Research Working Paper No. 3035. The World Bank, Available at <http://ssrn.com/abstract=636397>
- Kumar, Arvind, Sanjeev Lalwani, Deepak Agrawal and TD Dogra. 2008. Fatal road traffic accidents and their relationship with head injury: an epidemiological survey of five years. *Indian Journal of Neurotrauma* 5 (2): 63-67.
- Jha, N. and C.S. Agarwal. 2004. Epidemiological study of road traffic accident cases: A study from Eastern Nepal. *Regional Health Forum WHO South East Region* 8(1).
- Jha, Nilamber, D.K. Srinivasa, Gautam Roy and S. Jagdish 2004. Epidemiological study of road traffic cases: a study from south India. *Indian Journal of Community Medicine* 29 (1): 20-24.
- Khare, N, S.K. Gupta, A. Varshney and A.V. Athavale. 2012. Epidemiological study of road traffic accident cases attending tertiary care hospital, in Bhopal Madhya Pradesh. *National Community Medicine* 3 (3):395-9.
- Lund, Ingunn Olea and Torbjörn Rundmo. 2009. Cross-cultural comparisons of traffic safety, risk perception, attitudes and behavior. *Safety Science* 47 (4): 547-553.
- Lunevicius, Raimundas, Hadley K. Herbert and Adnan A Hyder. 2010. The epidemiology of road traffic injuries in the republic of Lithuania, 1998-2007. *European Journal of Public Health* 20 (6): 702-706.
- Mishra, B, N.D. Sinha Mishra, S. Sukhla, and A. Sinha. 2010. Epidemiological study of road traffic accident cases from western Nepal: *Indian Journal of Community Medicine* 35: 115-121.
- Mock, Charles N., Samuel N Forjuoh, Frederick P. Rivara. 1999. Epidemiology of transport-related injuries in Ghana. *Accident Analysis & Prevention* 31: 359-370.
- Mondal, P., Abhishek Kumar, U.D. Bhangale and Dinesh Tyagi. 2011. A silent tsunami on India: a comprehensive analysis of epidemiological aspects of road traffic accidents: *British Journal of Medicine and Medical Research* 1(1): 14-23.
- National Road Safety Commission Annual Report, 2010. Accra, Ghana.
- Nordfjærn, Trond and Torbjørn Rundmo. 2009. Perceptions of traffic risk in an industrialised and a developing country. *Transportation Research Part F: Traffic Psychology and Behaviour* 12 (1): 91-98.
- Pedan, M and R. Scurfield. 2004. The World report on road traffic injury prevention. WHO, Geneva.
- Performance Audit Report of the Auditor-General on Road Safety. Accra, Ghana. 2007. Available at: http://www.ghaudit.org/reports/NATIONAL_ROAD_SAFETY.pdf
- United Nations. 2011. Global plan for decade of action for road safety 2001-2020.
- World Bank. 2013. The Challenge of Noncommunicable Diseases and Road Traffic Injuries in Sub-Saharan Africa. An overview.
- World Health Organization. 2004. The global burden of diseases (update).
- World Health Organization. 2013. Global status report on road safety: supporting a decade of action.