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Trends in Road Traffic Accidents in Ghana; Implications for Improving Road User Safety

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ABSTRACT: *Road Traffic Accidents (RTA) keep increasing every year in Ghana. In 2012 alone, 2,249 Ghanaians lost their lives while 14,169 got injured through RTA (Road Safety Commission 2012). The increasing population in Ghana coupled with the increasing vehicle ownership and the use of defective tyres, poor road user attitudes are among the reasons accounting for the alarming rate of RTAs in the country. This study examines the trends in relation to the factors contributing to the alarming rate of RTA. Accident reports collected from the National Road Safety Commission was used as the secondary data for the trend analysis. A total of 2,271,153 RTAs were recorded over the 21 year period and a very strong correlation (R = .852 or 85%) was found between the total number of accidents and their corresponding years. There is a positive correlation between the estimated total number of accidents and their corresponding years indicating the presence of a direct relationship. The pattern of RTAs reveal a form of a multi-modal distribution over the period which saw a decreasing trend from 1991 to 1993, rose gradually from 1994 to 1998 and fluctuated between a lower range of 8762 in 1999 and a peak of 14915 in 2012. It was further found that the mean number of accidents for males is relatively higher (9146) than that of females (4205) with a mean difference of 4939.97 and a ratio of 2:1. In terms of age, people aged 35-44 years are more predisposed to RTAs than any other age cohort. Using the regression model (Y=7121.429+278.583x) for a 5 year projection, it was found that RTAs will continue to rise from 13529 in 2013 through to 14643 in 2017. Foreseeing no indication of a decrease now, this paper calls for a shared sense of responsibility in implementing fully the National Road Safety Policy and resourcing as well as monitoring key stake holders activities against a set of strategic objectives.*

KEY WORDS*: Trends in RTAs, road traffic accidents, road transport injuries, road user safety, road accidents*

I. INTRODUCTION

Road traffic injuries constitute a major but neglected public health and development crisis that require more focused efforts for effective and sustainable prevention (WHO, 2004). Globally, an estimated 1.2 million people are killed in road crashes each year and as many as 50 million are injured. Projections indicate that these figures will increase by about 65% over the next 20 years unless there is new commitment to prevention (World Reports on Injury Prevention, 2011). In most low income countries, the predisposing factors to road transport injuries are complex as they include complex interplay of political, economic, social-cultural factors and lack of clear road safety policies (WHO, 2008).

For instance, according to World Report on Injury prevention (2011), the increasing population in most low-income countries including regions in Africa and Asia, coupled with the increasing vehicle ownership, poor surveillance on road users, human, technical errors are among the several reasons accounting for the alarming rate of RTA. In Africa and particularly in Ghana, mortalities and morbidities associated with road transport injuries are most often among pedestrians, passengers, cyclists, users of motorized two-wheels, and occupants of buses and mini buses(National Road Safety Commission, 2008 and Lopez et al.,2001). In Ghana, statistics show that between 2002 and 2008, 13,166 people were killed in road accidents. Of that figure, 42% were pedestrians, 23% were passengers in buses, and 12% were car occupants, while the remaining 23% consisted of riders (National Road Safety Commission, 2008).Road transport accident have been identified to be the second cause of death in the country. With the first being malaria (Building and Road Research Institute, 2009). In 2012 alone, 2,249 Ghanaians lost their lives while 14,169 got injured through RTA and were mostly from the active labour force and predominantly those between the ages of 30-49 years (NRSC 2012).

The economic loss in terms of GDP to this country in addition to other burdens such as the trauma, disabilities, high cost of treatment, long period of hospitalization and the fact that there are often permanent loss of lives makes the high incidence of RTAs a public health and developmental concern in Ghana. There is thus an urgent need to bring to the fore the shattering nature of road transport injuries and its associated burdens and to create awareness for its prevention. The understanding of the trends in RTAs could help fashion out case-specific interventions to reduce such injuries.

II. METHODS

This quantitative study is based on secondary data collected from the Ghana National Road Safety Commission. It is a twenty-one year data set compiled from 1991 to 2012. The data included regional statistics, age and sex differentials in road accidents over the period. A preliminary study was conducted to determine how the data was collected in other to determine the validity of the data as well as the reliability of the instrument used for the data collection. It was found that the data was compiled from police files using the Standard Crash Form. This form includes information about the nature of the crash, the location, the vehicle(s) and casualties involved. The data was prepared using Micro-Computer Accident Analysis Package software. After the request for the data, it was exported into SPSS version 17 for the projection of the trends in terms of age, sex and regional differentials.

III. RESULTS

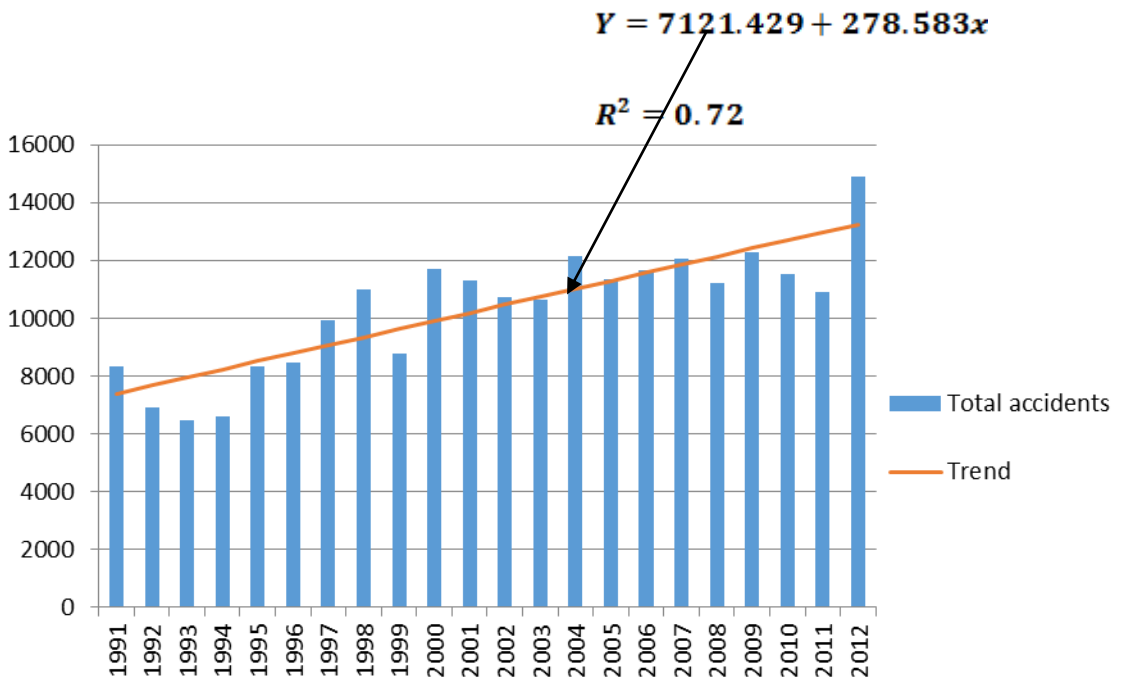
A total of 2271,153 Road Transport Accidents (RTAs) were recorded over the 21 year period and a very strong correlation (R = .852 or 85%) was found between the total number of accidents and their corresponding years. Moreover, this high variation (72%) is accounted for by the corresponding years. The presence of a positive correlation also indicates a direct relationship between the estimated total number of accidents and their corresponding years. This implies that as the years go by or increases, the estimated total number of road accidents in the country also increases which is confirmed by the trend in figure 1.

The likely reasons for the increasing rate are the increasing population coupled with the increasing vehicle ownership, poor roads and human errors. The pattern of RTAs reveal a form of a multi-modal distribution over the 21 year period which saw a decreasing trend from 1991 to 1993, rose gradually from 1994 to 1998 and fluctuated between a lower range of 8762 in 1999 and a peak of 14915 in 2012. Based on the regression model (, and a 5 year projection, road accidents in the country will continue to rise. For instance, it was found that the estimated total number of road transport accidents will increase to 13529 in 2013 and will further increase to 13807 in 2014, 14086 in 2015, 14365 in 2016 and 14643 in 2017. [Figure 1] The RTA data was categorized according to gender with the aim of establishing a relationship between gender and the rate of accident. Using the independent t-test, there was a statistically significant difference in road transport accident and gender (t-value = 8.719; df = 40 and P-value (Sig.) =.000).

It was further found that the mean number of accidents for males is relatively higher (9146) than that of females (4205) with a mean difference of 4939.97 and a ratio of 2:1[Table 2].In terms of the age structure of the population, an analysis of variance (ANOVA) was performed and found that the variation that existed between the various age cohorts was statistically significant (p-value (Sig) = 0.000) [Table 3]

With reference to the maximum number of RTA among the age cohorts, people aged 35-44 years are more predisposed to RTAs than any other age cohort. It was further found that there is a direct relationship between age and RTA among 0-44 year cohort and an indirect relationship between 45-65+ age cohort. People aged 65+ years were found to be the least vulnerable to RTAs. This is followed by those aged between 0-4 years [Table 4].

Figure 1: Trend of RTA'S from 1991 – 2012



Source: NRSC, 2012

Table 2: Gender and RTAs						
Gender	***N***	***Means***	***Std. Deviation***	***T***	***df***	***Sig. (2-tailed)***
Male	**21**	**9145.52**	**2346.961**	**8.719**	**40**	**.000**
Female	**21**	**4205.55**	**975.216**			

Table 3: Significance of Age and RTAs					
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Between Groups	**2.219E8**	**7**	**3.170E7**	**79.959**	**.000**
Within Groups	**6.344E7**	**160**	**396471.543**		
Total	**2.853E8**	**167**			

Table 4: Number of RTAs by Age				
	N	**Mean**	**Minimum**	**Maximum**
0 - 4 years	**21**	**331.14**	**190**	**535**
5 - 14 years	**21**	**1025.29**	**762**	**1362**
15 - 24 years	**21**	**2547.67**	**1493**	**3633**
25 - 34 years	**21**	**3660.14**	**2001**	**6470**
35 - 44 years	**21**	**2219.95**	**1248**	**3521**
45 - 54 years	**21**	**1093.62**	**629**	**1734**
55 - 64 years	**21**	**508.57**	**300**	**759**
over 65 years	**21**	**250.24**	**125**	**361**
Total	**168**	**1454.58**	**125**	**6470**

IV. DISCUSSION

One of the major concerns of the World Health Organization is to reduce the high rate of unintended injuries especially road traffic injuries globally. This is as a result of the high burden associated with such injuries (WHO, 2004). For instance according to the WHO Global Burden of Disease project, in 2004, about 1.3 million people were killed in road traffic crashes around the world and up to 50 million move were injured or disabled even though road crashes are preventable. Among the major global efforts aimed at reducing road traffic injuries is the adoption of the UN Decade of Action of Road Safety which encourages governments to be committed to road safety action plan that address the 'five pillars' in good practices: Better road safety management, safer roads, safer vehicles, safer road user behavior and better post-crash response (SSATP, 2011). It was expected that after the Government of Ghana has promulgated the National Road Safety Commission Act (NRSC Act 567) in 1999 and mandated the commission to provide strategic leadership for developing and implementing interventions and measures towards a sustainable management of road safety in Ghana, road traffic accidents would decrease. This study rather found the reverse. There has been continuous increase in RTAs from years before the Act, and after the Act. The study found that after the promulgation of the Act, RTAs cases have rather increased and have almost doubled from about 8500 in 1999 to about 1600 in 2012 over a period of 13 years which is too short a time. This explains why WHO and UNICEF's joint report on childhood injury prevention in 2004 was emphatic that countries in the Sub Saharan Africa and Asia should be committed to efforts at reducing childhood injuries since the rates of childhood injuries in such countries are high (WRCIP 2008).Studies have found the underlying reasons to the increasing trend of RTAs in Ghana.

Dankyi, (2010) attributed the causes of these accidents to fatigue driving especially long distant drivers, speeding, wrongful overtaking, over loading, non-maintenance of vehicles, poor nature of road. Dankyi, (2010) further found other causes for concern to be the non-use of pedestrian crossing and crossing without paying attention to traffic on the road, especially by minors. Ofosu-Ackaah (2010) in his surveillance studies in Accra, Ghana, also found over speeding, disregard to road signs and non-use of reflective triangle when vehicles break down as major factors in Ghana. Inferring from the concern identified by Dankyi, (2010) and Ofosu-Ackaah(2010), a common pattern emerging is that avoidable accidents most often point to common acts of indiscipline, such as over loading, over speeding, drunk – driving and improper overtaking. This finding supports the study conducted by the Tema MTTU in 2020 to check the incidence of recalcitrant driving within a week in December 2010 which led to the arrest of 277 drivers who were fined GH 30,300 by the courts.

If the causes of increasing road traffic accidents are mainly attitudinal and emanating from indiscipline by road users then there is the need to refocus attention on behavior change education so as to have safer road user behavior. Singapore can be a model for a study since they have been able to reduce human errors associated with unsafe road user behaviour. 'Safer Road Singapore' (2013) have changed the culture of road users to one where safe and courteous road use is instinctive and habitual by embarking on the three elements of road safety education – basic, continuous and corrective education. Under the basic education, the Traffic Police recognize that it is important to provide fundamental knowledge on how to use the roads safety. The continuous education provides road users up to date traffic laws and reminding road users to avoid dangerous behaviors of concern while the corrective education deals with identifying at risk motorist and to help them overcome unsafe road use habits and re-learn safe road use practices.

Western Australia's Road Safety Strategy for 2008 – 2020 also provide a good background for understanding of safe road use behavior. This emphasizes road user behavior, improving road infrastructure, ensuring speed limits and travel speeds are appropriate for the safety of the road infrastructure and improving the safety of the vehicle on the road (Government of Western Australia 2013).

V. CONCLUSION

Since the 5 year projection of road accidents indicates that RTA trends will continue to rise at a faster rate in Ghana, while foreseeing no indication of a decrease now, there is the need for the National Road Safety Commission to actively engage all stakeholders to foster a shared sense of responsibility. This can be achieved when the National Road Safety Policy is fully implemented and all stakeholders resourced and their activities monitored against a set of strategic objectives. Lessons can also be drawn from the experiences of Singapore as well as Australia to boost road user safety in Ghana.

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