Global Positioning and Socio-Economic Impact of Road Traffic Accidents in Nigeria: Matters Arising

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Abstract

This paper examines Global Positioning and Socio-Economic Impact of Road Traffic Accidents in Nigeria. As can be seeing from the foregoing Developing countries especially Nigeria has a serious road accident problem and more road safety measures need to be introduced. In order to identify priorities for actions it is important that there is a clear understanding of the road accident problem and the likely effectiveness of road safety improvements. It is therefore, a priority for Nigeria to have an appropriate accident information system and that they carry out research and evaluation studies of remedial measures. Another basic requirement is a well trained road safety teams which is capable of coordinating and integrating a wide ranging programme of road safety improvements which are preferably low cost.

Keywords: Socio-economic; accidents; global; positioning; road traffic; Nigeria

Introduction

Nigeria, like other developing countries is experiencing a rapid increase in motorization without having adequate road traffic safety mechanisms in place to control the growing number of road traffic crashes and injuries. As reported for other low-and-middle income countries, the main victims are pedestrians, cyclists and public transport passengers (Nantulya et. al, 2003, Downing, 1991). In Nigeria road traffic accident situation over the last three decades has been particularly disturbing. In 1976, there were 53,897 road traffic accidents resulting in 7,717 deaths. Although in 1981, the magnitude reduced to 5,114 accidents, but the fatality increased to 10,236 which mean that there was an average of 96 accidents and situation in subsequent years has not been any better. The number of people killed in road accidents between 1990 and 2005 rose from 28,253 and the fatality rate remains consistently high (Atubi, 2009c).

Road traffic accidents' statistics in Nigeria reveal a serious and growing problem with absolute fatality rate and causality figure rising rapidly. In majority of developing countries accident occurrence and related deaths are relative to either population or number of vehicles. Ironically, in Nigeria, studies have indicated that better facilities in terms of good quality and standardized roads have been accompanied by increasing number of accidents (Onakomarya, 1988; Gbodamosi, 2002; Atubi and Onokala, 2009). This is totally contrary to the trends in countries where even the level of sophisticated road network and volume of vehicular traffic are which higher (Atubi 2010a; 2015a). Road traffic accidents have physical, social, emotional and economic implications. The global economic cost of road traffic accident was estimated at $518 billion per year in 2003 and $100 billion of that occurring in poor developing countries (WHO, 2009). Nigeria loses about 80 billion naira annually to road accidents of all subjects that are involved in road traffic accidents in Nigeria, 29.1 percent suffer disability and 13.5 percent are unable to return to work (Labinjo et al, 2010, Atubi, 2012a).

In almost all countries in Africa, Asia and Latin America road traffic crashes have become one of the leading causes of death in older children and economically active adults between the ages 30 and 49 years (Murray et al, 1996; Jacobs et al, 2000 and Atubi, 2012g). Despite this burgeoning problem, little attention has been paid to road traffic injury prevention and treatment in most developing countries.

Efforts to combat the problem of injuries have in most cases been hampered by paucity of funds and lack of relevant data. It is however, a fact that organised road safety research, adoption of cost effective accident reduction and prevention techniques and trauma care are associated with a decreased road traffic mortality and morbidity (Murray et al, 1996).

Global Positioning and Spatial Analysis of RTA and Fatality in Nigeria

Road traffic accident has emerged as the single greatest source of human and material losses (Downing, (1991).He further commented that, throughout the world at least half a million people are killed and about 15 million injured as a result of road traffic accidents each year. The causality and fatality intensity vary significantly among different locations and it depends on specific factors in relation to different environment which include: population, traffic intensity, compliance to traffic regulation and the extent of preventive and remedial measures put in place in different countries. RTA is single largest course of deaths in Nigeria and has constituted a growing public health problem in the country. Nigeria has been facing a worsening situation with regards to loss of life and property. Pedestrian in recent times with the advent of Okada on Nigerian roads which has aggravated their exposure to danger considering the uncoordinated and dangerous operation of motor cycle riders, they appear most frequently amongst those injured and killed in road accidents.

Growth in urbanization and in numbers of vehicles in most Nigerian cities is clearly responsible for traffic accidents and congestions considering the fact Nigeria have one of the worst scenarios of accident occurrence as it ranked high as one of the countries in Africa with high incidence of road traffic accidents. The level of fatality of road traffic accident in Nigeria is quite worrisome considering the extent of human and material losses suffered as a result of traffic accident fatalities. The situation with road traffic accidents in Nigeria is uniquely high as a result of the overdependence of spatial mobility demand of commuters on the road mode. The road transport sub sector has continued to grow much more than other transport sub sectors in terms of motor vehicles in operation size of road network. Not less than 90% of Nigerian mobility needs in terms of movement of goods and services are satisfied through the mode at the expense of the potential contribution other modes. The over reliance on the road system constitute the creation of unnecessary pressure on the highway in the country which more often than not resulted in regular occurrence of accidents, a situation that has been made worse by their deteriorating condition. (Gbadamosi, 2005).

The World Health Organization (WHO 1984) estimated that 1.3 million deaths occur each year worldwide due to road traffic accidents and well over 90% of road traffic crashes are caused by human error resulting in over 50 million people seriously injured every year and 3,500 deaths per day or 150deaths per hour. It is on record that about 70% of these deaths occur in developing countries of which Nigeria constitute a part. The increasing magnitude of fatal road traffic accident globally has been attributed to population explosion and increased level of motorization. Motor vehicle crashes are the leading cause of death in adolescent and people in the prime age (Moham et at, 1991, Smith et al 1991 and Atubi et al 2009). There has been an upsurge in the proportion and absolute number of traffic fatalities witnessed in a number of developing countries while the industrial nations are witnessing downward trend in the occurrence of accident by more than 20%. Road traffic accidents have impacted negatively on the economy of developing countries at an estimated cost of 1-2% of country's GNP per annum as a result of morbidity, mortality and property related cost (Fourace et al 1976, Jacobs et- al 1983, WHO ,1989 Jadaan ,1989,Dowing 1991). The advent of automobile comes along with the negative consequence of accident arising from its misuse. United States of America had its first death from automobile accident in 1899 (Johnson 1966). WHO has consistently provided extensive information on road traffic injuries as the leading risk factors of the consequences of transport operation? Nigeria has an unenviable record of road traffic accidents as a developing country and recorded her first traffic accident in Lagos in 1906.

The world health organization report over the years has consistently revealed that road traffic injuries are the eight leading cause of death for people in their prime age. According to the 2013 WHO report on Global status report on road safety (2013) revealed that more than a million people die each year on the world's roads while, the cost of dealing with the consequences of these crashes runs to billions of dollars. With varying degrees of impact on the economy of different countries. Road traffic accident situation in Nigeria has been alarming and particularly disturbing ever since the first auto crash was recorded. Nigeria Traffic accidents in Nigeria vary by states. Nigeria has been consistently been ranked as having the highest incidents of road traffic accidents in the world for obvious reasons in addition to known causes of accidents across the globe which include very bad road arising from poor maintenance culture and poor road management .

Arising from the increasing growth of automobile in the country is the occurrence of road traffic accidents which is a major impediment in the operation of intercity movement of passengers across major cities. Closely associated with this is the is highway robbery especially targeted at passenger vehicles of which the most vulnerable are the coaches (luxury buses) on intercity transport services. An attempt has been made at this point to reflect on the spatial pattern of road traffic accident and vehicular growth in Nigeria over a period of time. The data considered were available only from 1970-2013. The period was crucial because of the availability of data on vehicle in stock in the country as at that material time. The data in the table reflected an apparently high accident figure given each level of vehicle stock. As can be seen from the table vehicle stock maintains a steady increase, so also is the level of accident occurrence. The number of deaths in relation to vehicle is also on a steady increase and the levels of accident reflect the same pattern of deaths. A closer evaluation of the figures in the table revealed that the period with high accident is marked with high death but the pattern is declining

Table 1: Vehicular Traffic and Accident Occurrence in Nigeria 1970-2013

Year	Estimate of vehicle in use ('000) 1	No of accident 2	No of deaths 3	Accident Per i000 vehicle in use 4	Death per 1000 vehicle In use 5
1970	145	16,666	2895	115	20
1971	166	17,745	3146	107	19
1972	195	23,317	3921	120	20
1973	238	20,474	4537	86	19
1974	292	28924	13850	99	47
1975	320	32651	5552	102	17
1976	345	53947	7217	156	21
1977	394	35861	8001	91	20
1978	464	35916	9254	77	20
1979	340	29435	8022	87	24
1980	650	32119	8740	49	13
1981	429	34338	10332	80	24
1982	305	37253	11202	122	37
1983	600	31453	10369	52	17
1984	605	28103	9295	46	15
1985	608	32985	9379	54	15
1986	602	26046	9204	43	15
1987	348	24247	8111	70	23
1988	467	25929	8575	56	18
1989	386	23227	9386	60	24
1990	303	21934	8154	72	27
1991	331	22546	9525	68	29
1992	298	22864	9620	77	32
1993	268	21459	9454	80	35
1994	241	18204	7440	76	31
1995	217	17030	6647	78	31
1996	244	18242	6364	75	26
1997	293	17488	6500	60	22
1998	269	16138	6538	60	24
1999	356	15865	6795	45	19
2000	1100	16606	8473	15	8
2001	1153	20530	9946	18	9
2002	1196	14544	7407	12	6
2003	1324	14364	6452	11	5
2004	1356	14275	5351	11	4
2005	1403	9062	4519	6	3
2006	1340	9114	4944	7	4
2007	1367	8477	4673	6	3
2008	1394	11341	6661	8	5
2009	1420	10854	5693	8	4
2010	1447	5330	4065	4	3
2011	1454	4765	4372	3	3
2012	1476	6269	4260	4	3
2013	1498	12722	4062	8	3
Total	**29647**	**940659**	**318903**	**2484.95**	**769.515**
Average	**673.80**	**21378.61**	**7247.80**	**56.48**	**17.49**

Sources:
1. Federal Office of Statistics, Lagos. (2000)
2. Nigerian Police and Federal Road Safety Corps. (2000 & 2013)
3. 4 & 5 are Authors Estimates
4. Gbadamosi, K.T. (2005 & 2015)
5. Atubi, A.O. (2013)

5.0 Strategies for Investigating Accidents

Road traffic accident rates and fatality rates in the industrialized countries have tended to exhibit pronounced decreasing time trends. Some scholars like Oppe (1991) interpret the downward trend as evidence of experimental learning, while others like Peltzman (1975), Harvey and Durbin (1986) and Broughton (1999) treat it as a nuisance parameter that happens to be essential for model fitting. A motor vehicle traffic injury (MVTI) is an important public problem in both developed (Baker et al, 1992; Graham, 1993) and developing countries (Smith and Barss, 1991; Berger and Mohan, 1996). When designing a relevant MVTI control program, the first two questions that should be asked are 'who' are at the highest risk, and 'where' MVTI are's most likely to occur. Regional MVTI mortality data are the statistics commonly used by health authorities to answer these questions (National committee for injury prevention and control, 1989; Bjaras, 1993).

Regional MVTI mortality rates calculated according to the place – or – occurrence might have different meaning from those calculated according to the place – to – residence: the former reflects area – specific environmental risk factors for MVTI, while the latter reflects characteristics of the residents that render them at increased risk for MVTI (Cummings et al, 1995). The two calculations have different implications for prevention programmes. While many scholars have pointed out that the problem of using place – of – residence in calculating regional MVTI mortality rates (Bangdiwala et al, 1985, Robertson, 1992; Cummings et al, 1995; Gooder and Charny, 2006), only two studies provided empirical data to illustrate the implication (Baker et al 1987; Gooder and Charny, 2006). However, experience from other countries show that small roundabout were an effective speed reducing measure (Simon, 1991). He also concluded that small round about increased safety. Minnen (1992) reported that new round about reduce the total number of accidents by 50% and the number of casualties by 80%. He also showed that small round about normally have the lowest accident rate of all types of, one – level junctions, but he found a tendency towards problems for two – wheeled vehicles.

While traffic related injuries take a very large toil in almost every country around the world particularly in developing countries or less industrialized countries, significant progress towards prevention and control has been limited to high income and/or highly industrialized countries (Soderland and Zwi, 2001; Zaza et al, 2003). Much of the progress in developed countries is attributable to the combination of interventions, strategies and policies that have been developed mainly in these developed countries settings over the past few decades. Such factors as high health budgets, adequate number of researchers, high levels of health and safety awareness, and near universal literacy, have also catalyzed this progress (Rivara et al, 2000; Barss et al, 2001; Forjuoh, 2003). Reducing road traffic accident is truly a global challenge and succeeding will require the involvement of multiple stakeholders at the global, national and community levels (Atubi, 2014).

In the early 1970's, a survey of road traffic accident information systems in use in developing countries (Jacobs et al, 1975) indicated that only 15 percent of the countries had adequate accident report forms and none had computer analyses facilities. Therefore, to help countries improve their accident investigation and research capability, the overseas unit developed its Micro Computer Accident Analysis Package (MAAP), initially in collaboration with the traffic police in Egypt, (Hills and Elliott, 1986). However, in 2004, it is now in use in over twelve countries. It is the nationally adopted system for Botswana and Papua New Guinea, and regionally adopted in most of the other countries; major cities in which MAAP is established including Bandung, Beijing, Karachi and Islamabad. The languages that MAAP operates in include Arabic, Chinese, French, English and Spanish (Jacobs et al, 2000).

Studies of the relationship between geometric design and road accidents in Kenya and Jamaica (Jacobs, 1976) and research in Chile and India indicated, not unexpectedly, that junctions per kilometer was the most significant factor related to accidents, followed by horizontal and vertical curvature.

Social and Economic Impact of Road Traffic Accidents

It is apparent that road accident is a complex phenomenon not only in terms of its diverse causes but also in the nature of its effects on lives and property. Apart from the humanitarian aspects of road safety, the injuries and fatalities, which occur as a result of road accidents, have serious social and economic consequence, which has made prospective travelers to develop phobia for spatial interaction. This under normal circumstances would have prevented and nicked in the bud all business initiatives that would have taken place at location different from the locations of business tycoons given the fear of the unknown in relation to likelihood of being involved in road traffic accidents.

Road traffic accidents have physical, social, emotional and economic implications. The global economic cost of road traffic accident was estimated at $518billion per year in 2003 with $100 billion of that occurring in poor developing countries (WHO, 2009) Nigeria loses about 80billion naira annually to road accidents. Of all subjects that are involved in road traffic accidents in Nigeria, 29.1 percent suffer disability and 13.5 percent are unable to return to work (Labinjo et al, 2010; Atubi 2012a). Road traffic injuries are increasing worldwide with developing countries bearing the brunt of this scourge. It has been projected that road traffic injuries will be the second most common cause of disability – adjusted life year loss in developing countries by the year 2020 (Murray and Lopez, 1996; WHO, 1996). Road traffic accident resulted in the year 2002 alone in injury of more than 35million people worldwide, out of them 5million became permanently disabled and 1.2million died (Nasar, 2003). The economic cost of road crashes and injuries is also immense. A Road traffic injury is estimated to be 1% of Gross National Product (GNP) in low-income countries, 1.5% in middle – income countries and 2% in high – income countries. Low – income and middle – income countries account for US $65billion, more than they receive in developing assistance (Safety – Net, 2006).

Indeed, a World Bank study has shown that the economic development of regions and nations is associated with an increase in the number of injuries and deaths from road traffic crashes (Kopits, et al, 2005). Road traffic injuries place a heavy burden not only on global and international economies but also on household finances. Many families are driven deeply into poverty by the loss of bread winners and the added burden of caring for members disabled by road traffic injuries. Also, among males of the economically active age-group, motor vehicle injuries are the third most important cause of death in developing countries. However, the health and economic burden of road traffic injuries have not been fully recognized (Zwi, 1993). Accurate epidemiological data from many of the developing countries are difficult to find in the literature (Van et al, 2006). Hospital logs or police records from which data on accident injuries could be sourced under estimate the total burden of the injuries (Balogun et al 1992; Asogwa, 1992; Atubi; 2012t). Besides, despite the importance of injury as a public health problem, few studies have been concerned with the economic and social impacts. This is due to many factors most of which are related to availability of reliable data (Afukaar et al, 2003).

In Nigeria, road traffic crashes have become one of the leading causes of death in older children and economically active adults between the ages of 30 and 49 years (Murray et al, 1997; Jacobs et al, 2000). Despite this burgeoning problem, little attention has been paid to road traffic injury prevention and treatment in Nigeria and most developing countries. Pratte (1998) and Aderemo (2012) reported that gross underestimation of road traffic accidents injuries and fatalities in Nigeria could be due to a lack of sufficient data collection by government agencies. The socio-economic cost of road traffic accidents and injuries in Nigeria are immense. The direct cost of traffic causalities can perhaps best be understood in terms of the labour lost to the nation's economy which consequently results in low productivity. Road traffic accidents and injuries have significantly retorted Nigeria's socio-economic aspirations and development due to the premature loss of qualified and potential contributing professionals and able – bodied men and women in the labour force (Preatte, 1998; Aderemo, 2012).

Road Safety Policies and Interventions for Nigeria

Oyo State was the first to establish a Road safety commission in Nigeria through edit 18 of 1977. It was referred to as "Oyo State Road Safety Corps" and nicknamed "MAJAMAJA". The commission's mandate included preventing and minimising road accidents, taking prompt care of victims of road accidents, educating drivers and prospective drivers in the proper use of highways, conducting research into causes of motor accidents and methods of prevention. The corps along Federal, State and Local Government roads in Oyo State with emphasis on the first two. An Evaluation of the effectiveness of the Corps revealed that it slightly reduced the rate of injuries resulting from road traffic accidents between 1978 and 1981. It, however, did not make a meaningful impact on reduction of accident fatality rates. The Oyo State Corps died a natural death when the then Federal Government banned it from operating on Federal Roads in that State resulting from inter-party feuds between NPN controlled Federal Government and the UPN government of Oyo State.

After the demise of Oyo State Road Safety Corps, the Federal Road Safety Commission (FRSC) was formed with bases at the Federal Ministry of Works and Housing and States' Ministries of Transport. The Commission worked with two important committees, namely, the Research Committee and Implementation Committee. The Commission was successful in getting many people in the entire country and more importantly at the federal level to become more aware of the road safety problem.

The Federal Road Safety Commission was established under Decree 45 of 13th December 1988 with jurisdiction limiting its operations to only Federal Highways. The Jurisdiction was enlarged and further extended by an amendment Decree 35 of August, 1992 to cover all roads in Nigeria.

The most strategic and enduring road safety policy is the establishment of the Federal Road Safety Commission (FRSC). The Commission was empowered by law to carry out the following:

1. Prevent or minimizing accidents on the highways.
2. Clearing obstructions on any part of the highway
3. Education drivers, motorist and other members of the public generally on the proper use of the highways
4. Giving prompt attention and care to victims of accidents.
5. Conducting researches into cause of motor accidents and methods of preventing them
6. Determining and enforcing speed limits for all categories of road s and vehicles.

All these and many others are what the law permits the Federal Road Safety commission to execute with measures of force when the need arises. The Commission had been able to live off to expectation as the country has witnessed a gradual reduction in the magnitude of accident occurrence since their introduction.

Experience in developed countries shows that multiple programme and policy initiative can produce a rapid decline in deaths associated with road traffic injuries. Interventions such as the use of seat belts, child car seats, motorcycle helmets, enhanced enforcement programmes, alcohol control policies and traffic calming have all proved effective in reducing traffic injuries and preventing crashes in high – income countries. Policies of the developed countries however, cannot simply be transferred to low and middle – income countries because vulnerable groups at risk and the cultural, social economic and political contexts in developing countries are different (Nantulya et al, 2002; Nantulya et al, 2003).

Furthermore, approaches shown to be effective in developed countries may not give similar results in the developing world. For example the mere presence of a seat belt in an automobile may not suffice for effective intervention unless complemented with public education and enforcement by law enforcement officers. Additionally, many specific interventions and strategies require some administrative infrastructure for implementation, epidemiology for planning and prioritising and some fundamental pragmatic requirements (Trinca et al, 1988; Atubi and Ekrudjalgar, 2008).

Interventions Programme on Accident Prevention Policies in Nigeria

With a daily average of 76 fatalities and 104 causalities and 14.2 deaths per 100,000 population for the year 2004 from road traffic accident (Atubi, 2013). Nigeria seems to have increased its fatality rate per accident even though the absolute number of the accident seems to have decreased. The establishment of the Federal Road Safety Commission to evolve a scientific and cultural relevant programme to meet the objective of its role as enunciated in degree No. 45, 1988 is another in the efforts of government to increase safety measures in Nigeria. One factor that has worsened this accident rate is the use of poorly maintained vehicle occasioned by the structural adjustment policy of 1989. This is further worsened by lack of genuine spare parts, and the flooding of the market by fake spare parts. These further put the life of the drivers and passengers at greater risk. Similarly, the cost of tyres which has been put beyond the reach of the average car owners has led a lot of people to their untimely death. Inability to change these bad tyres leads to blowouts. These situations therefore have turned many a vehicle to "mobile coffins". However some of the interventions for Nigeria include;

i. Seat Belts

No matter how you will drive there is always a chance that you will be involved in an accident. You cannot predict when it may happen. From statistical analysis of road traffic accidents in Nigeria since independence the chance that one will be injured in an accident in his life time is 1:3; that he may be killed in an accident is 1:9. The best protection inside the vehicle is the use of seat belts (Federal Road Safety Commission Highway Code, 1997). Similarly, the use of seat belts in Nigeria was optional, hence many vehicle are not fitted with seat belts. In those that have them, they are not being utilized by drivers and passengers alike. But currently, the Federal Road Safety Commission has made the use of seat belts compulsory to all motorists with effect from July 1st 2005 (The Guardian Newspaper, July 2nd, 2005, p. 14). In most developed nations especially Britain, a lot of money has been sunk into the implementation of the use of seat belts. The seat belt is an example of an active intervention for occupants because it requires some action on the part of the users.

Its effectiveness in preventing injury and death in motor vehicle collisions has been well established by many earlier research studies (Final rule, 1984; Mueller et al, 1988; Rivera et al, 2000).

ii. Motorcycle Helmets

Safety helmet worn in the correct way and properly fastened is the most effective way could increase your chances of surviving an accident (Federal Road Safety Commission Highway Code, 1997). In the time past, various laws were enacted by Federal, State and Local governments to curb the excesses of the riders. These include the National Road Traffic Regulation of 2004 and FRSC Establishment Act 2007 to mention belt few. The acquisition of motorcycle helmets is well within the budgets of the people who afford motorcycles in this country. In addition, promulgating helmet laws has been associated with significant decrease in mortality and injuries sustained from motorcycle crashes (Fasakin, 2000; Fasakin, 2002). When a motorcycle is acquired, purchase of an approved helmet should be encouraged or even mandated in low-income countries (LICs) given the feasibility and potential sustainability of this intervention.

Just like seat belts have proven effective in motor vehicle crash related injury reduction, motorcycle helmets have proved effective in motorcycle crash related injury reduction making motorcycle helmet laws a strategy with proven effectiveness. Infact, recent research findings in setting other than the United States corroborate the evidence for the effectiveness of mandatory motorcycle helmet laws (Tsai et al, 2000; Conrad et al, 2001; Atubi, 2006).

iii. Speed Limits

Drivers often think that the faster they drive, the more they impress themselves and others. They fail to remember that anybody's tyre can burst that accidents at high speed are more disastrous than accidents at low speed; that the vehicle is a machine and can fail at any time. At 100kmph, your vehicle moves at 28 metres per second, just imagine where you could be in only one second if you veer off the road which is usually less than 12 metres wide. (Federal Road Safety Commission Highway Code, 1997; Atubi and Ekruwdjiakpw, 2008). The Federal Road Safety Commission also imposed speed limit for all categories of vehicles i.e. 100kmph maximum speed for all private cars, 90kmph for commercial vehicles and 60kmph for trucks. But common sense often dictates lower speed limits. Speeding on highways is a major cause of traffic crashes. The effect of speed on causing traffic related crashes, injuries and deaths has been documented in many settings (Farmer et al, 1999; Posada et al, 2000). For example, the 1995 repeal of the United States national maximum speed limit, allowing states to raise interstate speed limits, resulted in a 15% increase in fertilities in 24 states that raised speed limits. In Adelaide, Australia the risk of severe crash involvement was found to increase as vehicles speed increased (Moore et al, 1995). Infact, the over 20% reduction in traffic crashes and deaths in Brazil has been partly attributed to speed limits which have been posted on many roads since 1998 (Polidefigueiredo 2001).

iv. Public Education Targeting Motorists

Your safety depends on what you see and how you react. If you need spectacles to meet the official eye sight standard, wear them. It is an offence to drive with uncorrected defective vision. For example, a Nigerian study found a third of taxi drivers to have poor vision (Alakija, 2003). Although the findings from a 1999 study revealed the ineffectiveness of driver education for young drivers (Vernick et al, 2001), there is some evidence that general public education along with some behavioural modification that targets motorists may have some impact on road safety. One area is education of motorists on posted traffic signs. A recent study in three countries i.e. United States, Sweden and United Kingdom, showed that comprehension of 28 posted traffic signs for drivers were related to years of driving experience (Al-madani, 2000)

v. Traffic Control by Signs

A thorough knowledge of traffic signs, signals, road and markings together with signals by authorized traffic officers are to ensure a smooth and safe traffic flows. You must know them and be able to recognize them immediately. In the case of regulatory signs such as stop at intersection, stop police, stop highway survey, no left turn, no right turn, No "U" turn, No entry for lorries, no waiting, etc, you must obey them without hesitation.

Conclusion

Road safety is a shared responsibility. Reducing risk in the world's road traffic systems requires commitment and informed decision-making by government, industry, non-governmental organizations and international agencies. It also requires the participation of people from many different disciplines, including road engineers, motor vehicle designers, law enforcement officers, health professionals, educators, and community groups.

Road traffic crashes are predictable and can be prevented. Many countries have shown sharp reductions in the number of crashes and casualties by taking actions including:

- Raising awareness of, legislating and enforcing laws governing speed limits, alcohol impairment, seat-belt use, child restraints and safety helmets.
- Formulating and implementing transport and land-use policies that promote safer and more efficient trips; encouraging the use of safer modes of travel, such as public transport; and incorporating injury prevention measures into traffic management and road design.
- Making vehicles more protective and visible for occupants, pedestrians and cyclists; using daytime running lights, high-mounted brake lights and reflective materials on cycles, carts, rickshaws and other non-motorized forms of transport.

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