

A Black Spot on Driving Safety Measures in Dera Ghazi Khan, Pakistan Case Study: Road Traffic Accidents (RTAs)

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ABSTRACT

Health and safety are two major issues, but it is an unfortunate fact that these issues do not give much importance as the issue preservers in Pakistan. The purpose of this study is to explore the dangerous impact of road traffic accident (RTAs) on society and factors that cause the road traffic accidents RTAs in Dera Ghazi Khan, Pakistan. The objectives of this study were to identify the traffic safety problems in Dera Ghazi Khan, Pakistan, to determine effectiveness of education and awareness programs and law enforcement regarding traffic safety rules to control the road traffic accidents. The methodology used is empirical, quantitative and data are represented in percentage, pie, bar, scatter and line graphs. Five year secondary data from 2010 to 2014 of RTAs damage was collected from Punjab emergency service Rescue 1122 and District Head Quarter (DHQ) hospital Dera Ghazi Khan. In addition, primary data were collected through the questionnaires from sectary RTAs, Police officers, officials, and common people of Dera Ghazi Khan regarding RTAs control. The findings show that the RTAs results large number of deaths, serious injuries and property losses in Dera Ghazi Khan, Pakistan.

KEY WORDS: RTAs, RTAs causes, Vehicles, Injuries, safety measures

INTRODUCTION

Every day, drivers and other people die in road traffic accidents (RTAs). The traffic safety problem in Pakistan is very critical. The road users are not well aware of the standard, updated and even the basic road safety knowledge. Road traffic accidents (RTAs) fatalities have been on an increasing trend for the last decade or so in Pakistan. Hence, the road traffic safety management has emerged as a topic of discussion for researchers all over the world. It is an unfortunate fact that two key problems, containing safety and health are not given as much importance as the issue perseveres. In this context road safety is an important agenda for the developing countries and the situation has become worsened particularly in Pakistan. It is noted that an increasing incidence of morbidity and mortality resulting from road traffic accidents(RTAs).[1] Due to RTA injuries an average of 3242 persons die each day around the world.[2] Road accidents are very common all over the world and annual global road crash statistics (Association for Safe International Road, Travel, 2013) argues that, the ratio of deaths in road crashes each year is approximately 1.3 million, on average 3,287 deaths a day with an additional 20-50 million are injured or disabled. Unless action is taken, RTA injuries are anticipated to become the fifth leading reason of death by 2030. [3] A road traffic accident (RTA) is defined as an accident which took place on the road between two or more moving vehicles or objects. [4] RTA is an unexpected and harmful event, with no reasonable cause and RTAs are clashes that might and must have been avoided. There are many miscellaneous types of RTAs that concern in several personal damages and fatalities. Road traffic accident (RTA) is a multifactorial phenomenon that affects victims to different degrees subject on the type of accident.[5] A Road Traffic Accident (RTA) is when a road vehicle collides with another vehicle, pedestrian, animal or an architectural or geographical hurdle. The RTAs can result in injury, property damage, fatal, minor and death. The World Health Organization estimates RTAs results in the deaths of 1.2m people worldwide each year and injuries about four times this number and the road accidents will become the world's third foremost cause of death by the year 2020 if no effective action and measures are taken. [6]In Punjab 325134 RTAs were reported that causes 9440 people killed and 276231 were seriously injured due to RTAs from 2010 to 2014. In Dera Ghazi Khan 18063 RTAs reported in which 540 people killed 14237were seriously injured due to RTAs and shifted to district head quarter hospital (DHQ) during 2010 to 2014. [7] In Nigeria, trauma is the main reason for the majority of deaths and RTAs are responsible for these losses. [8] Nearly 27000 people lose their lives in Iran due to

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RTAs. The incidence of death resulting from RTAs is 30/100000 in Iran, which in comparison with the world-wide incidence, is one of the highest RTAs mortality in the world. [9, 10] Traffic safety and accident studies were in the research area for the last two decades extensively as the rise of accidents have been alarming across the world. According to researchers, it can be said that traffic accidents are caused due to the following factors. Personal or human behavioral factors, road and vehicle factors. Personal or human factors, mainly include the age, gender, drunken driving of the driver or victim, etc. Similarly, Road engineering includes the type of junction or intersection, then the horizontal slope, curves, one way or two way roads etc. present on the road, due to which, RTAs may occur. The other factors that mainly embrace are the speed, density, traffic flow limits that may lead to RTAs. [11] The environmental factors also cause serious RTAs like, rain and fog. In the fog, visibility reduces to 1/4 mile or less, creating hazardous driving conditions. RTAs, tragically, are not often due to weightlessness, but are due to negligence, over confidence and inattentiveness. William Haddon (Head of Road Safety Agency in USA) has pointed out that road accidents were associated with various glitches, each of which required to be addressed distinctly. [12] One aspect of human cause's traffic violation has essential social traffic behavior. The aim of "social traffic behavior" is level of responsibility and duty band of persons to traffic laws which are sanctioned by transportation and traffic authorities and traffic responders. The literature show that the part of human is the most important reason of traffic violation, specifically in RTAs. [13, 14, 15, 16] It is currently entrenched that numerous African and Asian countries have a severe road accident dilemma. [17] Causes of road accidents can be well tacit with the assistance of investigation of RTAs data, which can existent indications to many concerns of RTAs. [18] A lot of researchers counting Smeed (1968) have dedicated their investigation to the area of road accidents and account groundbreaking work on the examination of road accidents. [19] Violating traffic laws is one of clear social harm sign in cities. [20] Parker, et.al (1995) found that over and above other variables such as the driver's gender, age and annual distance driven, planned driving violations made an independent significant influence to traffic accident involvement. [21] Attitudes toward driving violation and traffic safety have been found to be significant predictors of the intention to violate, and significantly correlated with accident risk. [22] Violating traffic laws can be stated to have lack of feeling social link between citizen and society. This fact is an outcome of lack of feeling social involvement among persons and social institution. [23] Traffic behavior, examining is done in two parts so, enhanced training track on influence domestic traffic behavior on traffic violation is done in two social and cultural aspects. [24, 25] The social trait of traffic behavior is involving of feeling duty and responsibility on base of moral order against "others". [26, 27] The corrupting is also a cause of traffic rules violation in Pakistan. A lot of literature present on this matter that traffic rules violator give bribe to the law enforcement personnel and save themselves from fines. [28, 29, 30] Education level of drivers also cause of road traffic rules violation. The majority of the drivers had an inferior level of education which explained the fact that drivers in this socio-educational class have little knowledge of road safety rules and learned to drive on their own. [31, 32] Shabir, 2014 argued that health and safety are the key issues but in Pakistan these issues are not given much importance. So the violation of the safety rules results serious loss. The traffic rules violations are controlled through the general education; traffic rules awareness programs, road and vehicle infrastructure and also effective law enforcement. [33]

In Dera Ghazi Khan, Pakistan the factors over-speeding, careless, wrong turns, wrong over-taking, driver diversion, under-age driving, harsh braking, vehicle engineering, one wheeling, over-loading, drunken driving and road engineering were noted that causes the RTAs from 2010 to 2014. Except this some other factors relate to the RTAs like the drivers' decision is influenced by a series of demographic characteristics (age, gender, profession, driving skill, among others), by a sequence of psychosomatic aspects or factors (observations, insolences, passions, inspirations, views, driving behaviors, etc.) as well as by the involvement and responsibility in traffic violations, among others. [34] Similarly, sometimes the drivers, bad habits also caused the RTAs. There are a number of things that other drivers do that can be extremely irritating and dangerous. Bad Tailgating, not indicating, undertaking and poor lane discipline are the bad habits that frequently and are very annoying. These habits create problems for the other road users and are also very dangerous. These are just a few of the things that can be particularly irritating about other drivers and their habits and some other annoyances are; cutting corners, particularly at junctions, no headlights in conditions that require them, throwing cigarettes out the window, leaving main beam on, or dipping only at the last minute, inappropriate use of the horn and impatient people Pushing in ahead of a queue of traffic. Developed countries in the world have undertaken accident cost analysis. The road traffic accidents (RTAs) in Vietnam have caused a significant and increasing loss in terms of monetary and pain, grief and suffering. So Vietnamese study the costs of road accidents by using accident data and cost figures of the year 2002, 2003 and 2004. [35]

Emergency Medical Services in Europe evolved during military conflicts from the need to transport a patient from the battle camp to a physician who could provide definitive care. Over time, individual countries developed systems that best meet the needs of that community, based on culture, local welfare state approaches and relevant

laws. Nonetheless, the availability of health care resources and finance had an impact on the development of such systems. Regarding Emergency Medical Services (EMS), some systems concentrates interventions on the scene of the emergency, whereas others focus on minimization of transport time and are based on the central role of emergency physicians. In Pakistan, the role of the private sector, philanthropists and non-government organization like Edhi is very much important and duly acknowledged by the government. In earlier days, emergency services were being provided only with the means of road transport, but now air ambulance services are also available in the country. Although the government had established tertiary care health institutes and Trauma Centers, but a major share is also being provided from NGOs and private sector.

To combat with emergencies, government of Punjab had established Punjab Emergency Service: Rescue 1122. This service currently operates via an emergency contact system with a dedicated telephone number, 1122. To date, few studies had been conducted to examine the strengths and weaknesses of emergency health services (EHS) in Pakistan. This study was designed to evaluate the RTAs risk factors in the region Dera Ghazi Khan; Pakistan. The traffic safety problem in Pakistan is very critical. The road users are not well aware of the standard, updated and even the basic road safety knowledge. So the least important factor should be more improved and accomplished which is basically the education of road safety knowledge.

METHODOLOGY

The methodology used is empirical, quantitative and data are represented in percentage, pie, bar and line graphs. Five year secondary data from 2010 to 2014 of RTAs damage was collected from Punjab emergency service Rescue 1122 and District Head Quarter (DHQ) hospital Dera Ghazi Khan. Also primary data were collected through the questionnaires from sectary RTAs, Police officers, officials and common people of Dera Ghazi Khan are regarding causes and control of RTAs. The random sampling technique was used for collection of data. Closed ended and Likert scale questionnaires were entertained for data collection. The sample size was 100 and the response rate was cent percent after follow-up. Data is analyzed through empirical study and SPSS software.

Data analysis

The data collected from the targeted allocations are given below; the data shows that the major reasons behind the RTAs in Dera Ghazi Khan are over-speeding, careless, wrong turns, wrong over-taking, driver diversion, under-age driving, harsh braking, vehicle engineering, one wheeling, over-loading, drunken driving and road engineering. The year wise percentage and graphical representation of total numbers of RTAs, RTAs victims treatment, RTAs victims injuries and RTAs causes in Dera Ghazi Khan are given below.

The collected data shows that there are reported 18063 total numbers of RTAs from years 2010 to 2014 and per year data shows RTAs of 2805 in year 2010, 2786 in year 2011, 3517 in year 2012, 4242 in the year 2013 and 4713 in the year 2014.

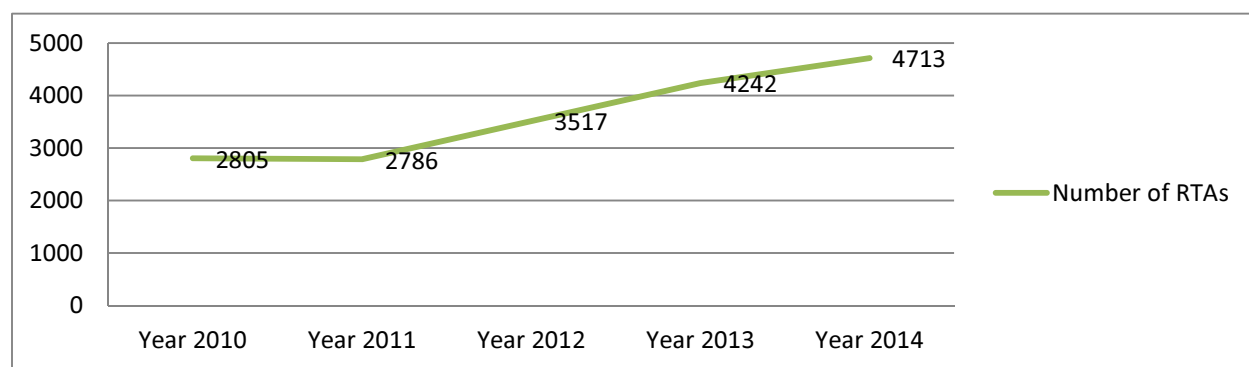


Figure-1 shows the yearly data of the RTAs.

The above figure clears that the numbers of RTAs increasing in every next coming years since 2010 in Dera Ghazi Khan. This rapid increase of RTAs is a question mark on administration of Dera Ghazi Khan.

The percentage distribution of number of RTAs during the years 2010 to 2014 were 16%, 15%, 19%, 24% and 26% respectively. Its graphical representation is given as,

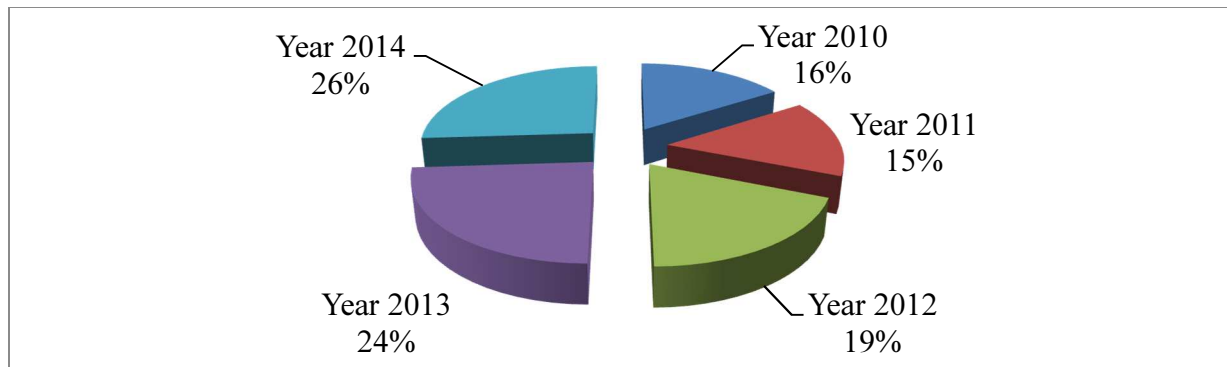


Figure-2 shows the %age distributions of 5years RTAs data.

The figure-2 explains that the ratios of RTAs are increasing from year 2010 to year 2014 in Dera Ghazi Khan.

The RTAs victims from years 2010 to 2014 were 22729 and their yearly percentage distribution are 18% reported in year 2010, 16% in year 2011, 19% in year 2012, 22% in year 2013 and 25% reported in the year 2014.

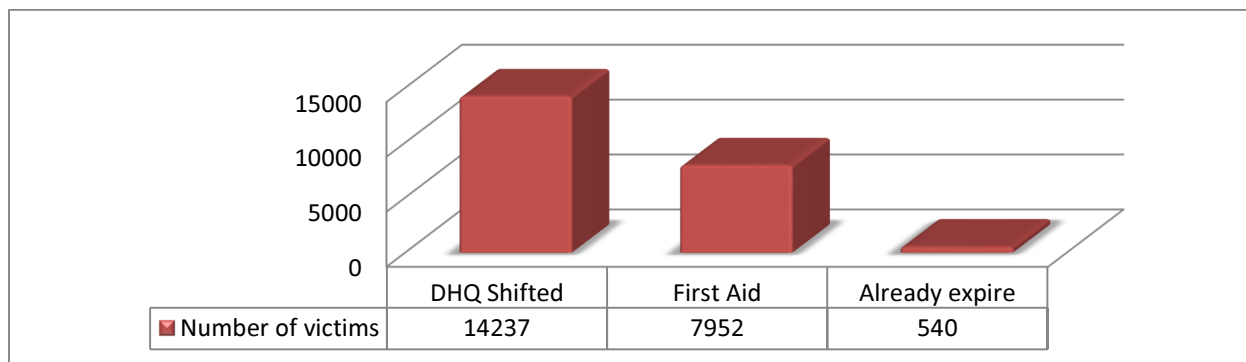


Figure-3 shows the victims shifting and expire report

According to figure-3 data 14237 victims are shifted in DHQ, 7952 are treated as first aid, 540 were already expire from 2010 to 2014. Data shows that there three categories of dealing the RTAs victims, first given first aid at the spot, second if serious injuries then shifted to DHQ hospital for further treatment and in last category victims find dead then in these cases no treatment given to victims and also handed over to police for further legal proceedings.

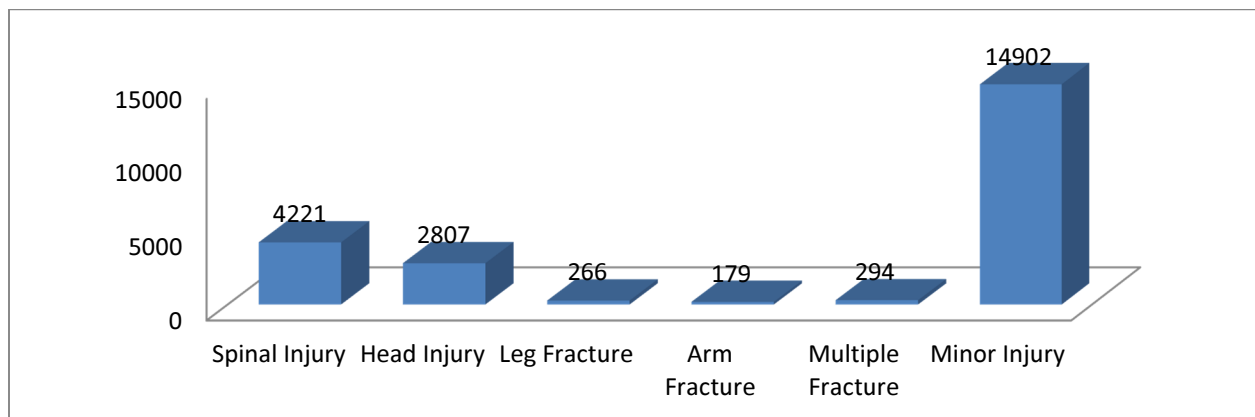


Figure-4 shows the RTAs victims injuries.

Data shows that 60 victims suffered in spinal injury, 4221 victims suffered in head injury, 2807 suffered in leg fracture, 266 suffered in arm fracture, 179 suffered in single fracture, 294 suffered in multiple fractures while 14902 reported as minor injuries according to the rescue 1122 and DHQ records.

The data shows that the numbers of RTAs victims regarding their age from 2010 to 2014 are 2266 victims of 1-10 years old, 4872 victims of 11-20 years, 7606 victims of 21-30 years old, 4145 victims of 31-40 years old, 2047 victims of 41-50 and 20936 victims above 50 years of age.

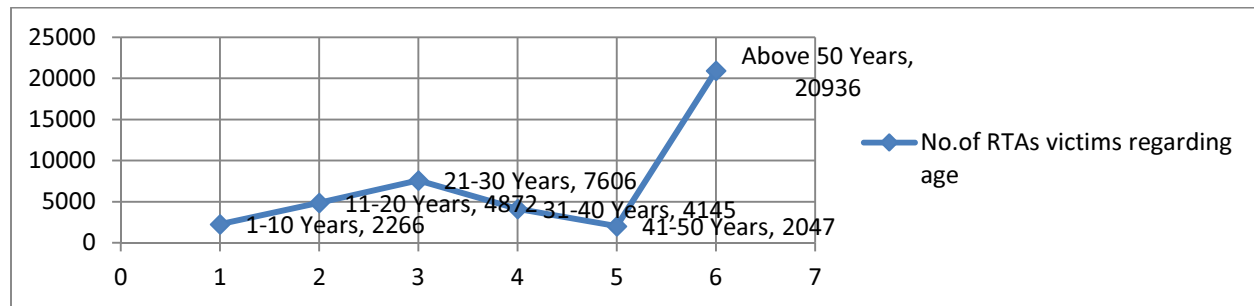


Figure-5 shows the No of RTAs victims regarding age

Aspects related to the vehicle and factors related to the road environment as well as traffic regulations that differ from one country to another. [36, 37] The collected data shows that in Dera Ghazi Khan, Pakistan 10934 RTAs occurred due to over-speeding, 4696 due to carelessness, 701 due to wrong turns, 634 due to wrong over-taking, 347 due to driver diversion, 245 due to under-age driving, 171 due to harsh braking, 92 due to vehicle engineering, 79 due to one wheeling, 63 due to over-loading, 53 due to drunken driving and 48 due to road engineering. The graphical representation of these causes is given as,

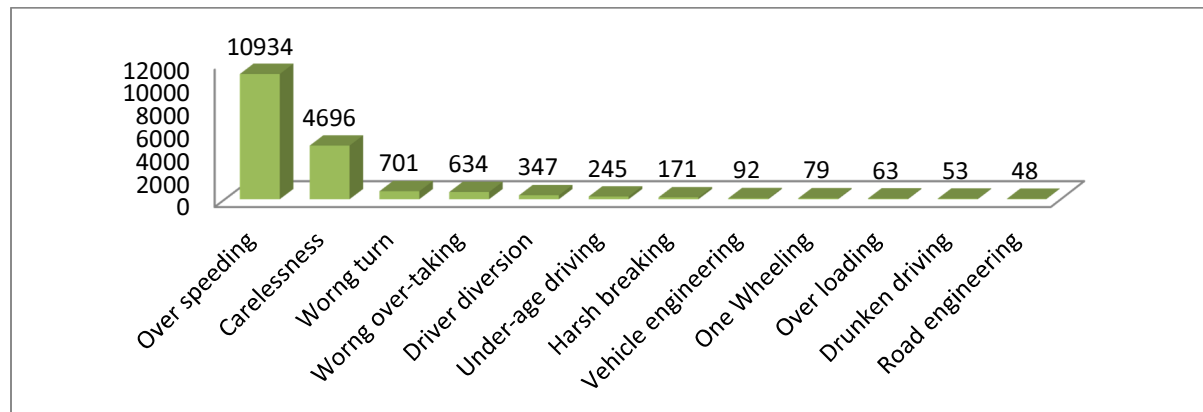


Figure-6 shows the causes of RTAs in Dera Ghazi Khan.

Traffic speed strongly influences the impact speed in crashes and therefore has major implications for public health.[38] Speeding, which is considered a direct attitude of drivers, mostly adds to the risk and rigorosity of RTAs and to the level of road traffic accident related mortality.[39,40] Among the factors that contribute to the speed accidents relation is the driver's characteristics (demographic and psychological factors).[41] It is estimated that one third of deaths (32%) from accident is correlated to over speeding, and this figure is increasing every year.[42,43] According to Fieldwick and Brown (1987), it was originated that speed limits have a substantial effect on RTAs.[44] Wedagama and Dissanayake (2010) studied the impact of RTA related factors on road fatalities in Indonesia considering Bali province as a case study. They argued age was also significant to influence all vehicle fatalities. Age was accounted for about 50% to influence all vehicle fatalities in RTAs. [45] Eighty-five (22.8%) drivers had met with an accident while under the influence of alcohol. This figure is higher than the 18% recorded by Jha et al. 2003. [46] Ghosh PK, 1992 and Sood S, 1988 argued, that 15% of the drivers involved in RTA had consumed alcohol. This was a greater part related to 4.6% and 8% as described from Delhi. [32, 47] The role of alcohol in impairing driving ability is glowing acknowledged. Also the loss rises as the blood alcohol level upsurges. In addition, the risk of accidents is higher in youngsters and elderly people in the same blood alcohol levels. [48] More RTAs occurred on single ways for two dimensional traffic than on dual ways.[49] So the type of road has a large bearing on the occurrence of accidents and thus Jacobs, et al (2000) believes there is a high prevalence of road accidents in less developed economies.[50] The morbidity and mortality burden in developing countries like

Nigeria is rising due to an amalgamation of factors, with fast motorization, traffic infrastructure and poor road as well as the behavior of road user.[51] Oskam et al,1994; argued that Nigeria, a heavily motorized country with poor road conditions and transport systems has a high degree of road traffic accidents (RTAs) and the tendency is on upturn.[52]

The graphical representation of vehicles involved in RTAs from 2010 to 2014 are given below,

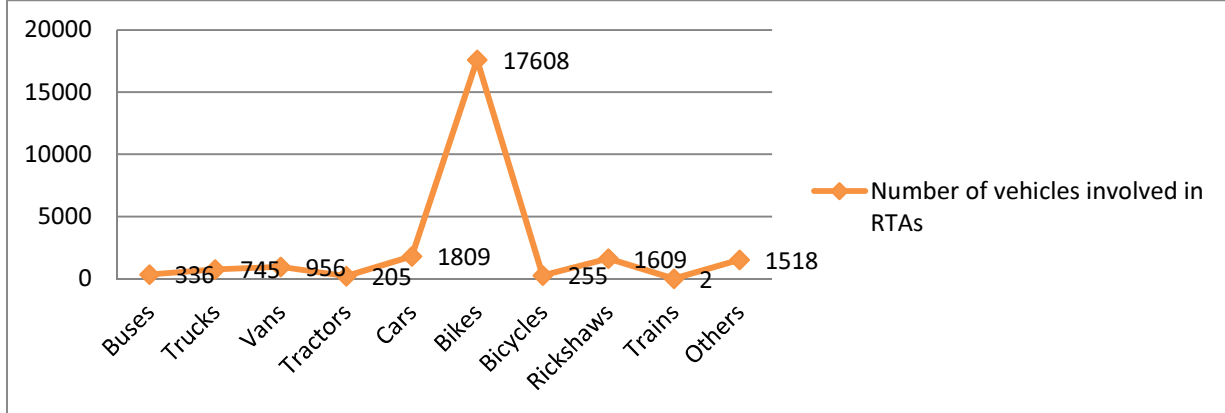


Figure-7 shows the number of vehicles involved in RTAs

The collected data shows that the number of vehicles involves in these RTAs are 336 buses, 745 trucks, 956 vans, 205 tractors, 1809 cars, 17608 bikes, 255 bicycles, 1609 rickshaws, 2 trains and 1518 others. The data show that in a large number of RTAs the vehicle involved in Dera Ghazi Khan is the motorbike. Hauque et al. (2010) accomplished a comprehensive study of RTAs and severity crashes involving motorcycles as vehicles. [53]Seva et al. (2012) studied the motorcycle RTAs in the Philippines considering personal and environmental aspects. [54]Although motorcycle accidents were the main RTAs in Iran. [55]

Conceptual Framework

The conceptual framework is designed to understand the main causes of RTAs in Pakistan. According to framework the main factors that influenced the RTAs are over-speeding, careless, wrong turns, wrong over-taking, driver diversion, under-age driving, harsh braking, vehicle engineering, one wheeling, over-loading, drunken driving and road engineering.

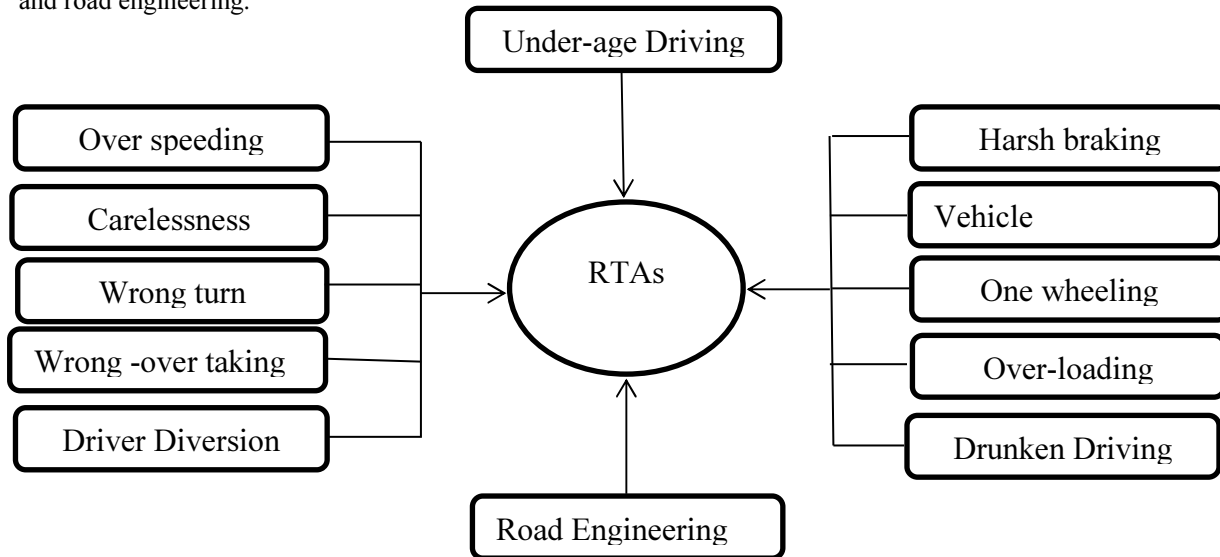


Figure-8 shows the conceptual framework of the research.

The model shows the factors that influenced on the RTAs.

Additive model is used here. The equation for the representation of the models is given as,

$$Y_i = \beta_0 + \beta_i x_i + \epsilon_i$$

Here is, Y_i represents the dependent variable, β_0 denotes the constant, β_i is a regression coefficient of independent variables, x_i represents the independent variables also called as explanatory variables and ϵ_i denotes the random error.

So equation representing our conceptual framework is given as,

$$RTAs = \beta_0 + \beta_1(OS) + \beta_2(CR) + \beta_3(WT) + \beta_4(WO) + \beta_5(DDiv) + \beta_6(UD) + \beta_7(HB) + \beta_8(VE) + \beta_9(OW) + \beta_{10}(OL) + \beta_{11}(DD) + \beta_{12}(RE) + \epsilon_i$$

Equation-1 represents the Additive model of the research.

Here is, (RTAs) represents the dependent variable road traffic accidents, $\beta_1(OS)$ is independent variable and represents the over- speeding, $\beta_2(CR)$ represents the independent variable carelessness, $\beta_3(WT)$ is independent variable represents the factor wrong- turns of vehicles, $\beta_4(WO)$ represents the independent variable wrong- over taking, $\beta_5(DDiv)$ represents the independent variable driver diversion, $\beta_6(UD)$ represents the independent variable under- age driving, $\beta_7(HB)$ denotes the independent variable harsh- braking, $\beta_8(VE)$ represents the independent variable vehicle engineering, $\beta_9(OW)$ represents the independent variable one- wheeling, $\beta_{10}(OL)$ represents the over-loading independent variable, $\beta_{11}(DD)$ shows the independent variable drunken driving and $\beta_{12}(RE)$ denotes the road engineering independent variable.

Hypothesis:

RTAs are dependent variables while the over-speeding, careless, wrong turns, wrong over-taking, driver diversion, under-age driving, harsh braking, vehicle engineering, one wheeling, over-loading, drunken driving and road engineering are independent variables. Following hypotheses are generated on the basis of a conceptual framework.

- H₁:** Over speeding has a positive and significant impact on RTAs.
- H₂:** Carelessness has a positive and significant impact on RTAs.
- H₃:** Wrong turn has a positive and significant impact on RTAs.
- H₄:** Wrong over taking has a positive and significant impact on RTAs.
- H₅:** Driver diversion has a positive and significant impact on RTAs.
- H₆:** Underage driving has positive and significant impact on RTAs.
- H₇:** Harsh braking has a positive and significant impact on RTAs.
- H₈:** Vehicle engineering has a positive and significant impact on RTAs.
- H₉:** One wheeling has a positive and significant impact on RTAs.
- H₁₀:** Overloading has a positive and significant impact on RTAs.
- H₁₁:** Drunken driving has positive and significant impact on RTAs.
- H₁₂:** Road engineering has a positive and significant impact on RTAs.

Model Summary

Model	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.829	0.813	0.1752

a. Predictors: (Constant), OS, CR, WT, WO, DDiv, UD, HB, VE, OW, OL, DD, RE

Table-1 Model Summary of the Variables

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5231.563	1	5231.563	48.6	0.000 ^b
	Residual	421.23	98	38.897		
	Total	5652.793	99			

a. Dependent Variable : RTAs

b. Predictors: (Constant), OS, CR, WT, WO, DDiv, UD, HB, VE, OW, OL, DD, RE

Table-2 ANOVA Analysis of the Variables

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients		T
	B	Std. Error	Beta		
1	(Constant)	0.512	2.170		4.609
	OS	0.571	0.872	0.681	2.756
	CR	0.256	0.633	0.674	2.310
	WT	1.613	1.693	0.671	3.512
	WO	2.192	0.450	0.518	2.348
	DDiv	0.134	0.586	0.359	1.119
	UD	2.771	0.477	0.174	2.898
	HB	1.149	1.548	0.129	1.042
	VE	0.942	0.742	0.089	0.790
	OW	0.408	2.213	0.203	5.785
	OL	0.551	1.543	0.364	3.231
	DD	-0.275	0.879	0.377	7.659
	RE	-2.194	3.321	0.064	-5.242

Table-3 Regression Analysis of the Variables

Correlations													
Correlation	RTAs	OS	CR	WT	WO	DDiv	UD	HB	VE	OW	OL	DD	RE
OS	Pearson Correlation	.863**	-	-	-	-	-	-	-	-	-	-	-
CR	Pearson Correlation	.741**	.564**	-	-	-	-	-	-	-	-	-	-
WT	Pearson Correlation	.852**	.941**	.659**	-	-	-	-	-	-	-	-	-
WO	Pearson Correlation	.643**	.532**	.497**	.654**	-	-	-	-	-	-	-	-
DDiv	Pearson Correlation	.812**	.564**	.678**	.506**	.870**	-	-	-	-	-	-	-
UD	Pearson Correlation	.534**	.691**	.788**	.518**	.612**	.514**	-	-	-	-	-	-
HB	Pearson Correlation	.631**	.806**	.893**	.811**	.705**	.862**	.628**	-	-	-	-	-
VE	Pearson Correlation	.823**	.587**	.619**	.630**	.643**	.744**	.501**	.867**	-	-	-	-
OW	Pearson Correlation	.576**	.590**	.806**	.823**	.936**	.521**	.568**	.493**	.732**	-	-	-
OL	Pearson Correlation	.782**	.651**	.590**	.906**	.519**	.721**	.877**	.906**	.941**	.844**	-	-
DD	Pearson Correlation	.612**	.813**	.732**	.743**	.861**	.719**	.840**	.711**	.583**	.653**	.655**	-
RE	Pearson Correlation	.821**	.710**	.766**	.796**	.620**	.517**	.588**	.531**	.853**	.788**	.609**	.543**

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table-4 Correlation Analysis of the Variables

RESULTS AND DISCUSSIONS

In the table-1, R is .829 which means that the independent variables over-speeding (OS), carelessness (CR), wrong turns (WT), wrong over-taking (WO), driver diversion (DDiv), under-age driving (UD), harsh braking (HB), vehicle engineering (VE), one wheeling (OW), over-loading (OL), drunken driving (DD) and road engineering (RE) can explain 82.9% of change in the dependent variable. The adjusted R demonstrates that 81.3% of the variances were explained in this model. In this model standard error of estimate is 17.52% that explains the standard deviation of the estimate (Factors in this model which could not affect RTAs). The table-2 shows that the independent variables are resulting the significant variances in the dependent variable RTAs in Dera Ghazi Khan.

Bate explains the contribution of each independent variable in the explanation of the dependent variable. The table-3 shows that the independent variables (OS) over speeding with a beta coefficient of .571 and sig. value of .006 that shows its strong contribution in the explaining of RTAs in the Dera Ghazi Khan while others variables, (CR) carelessness ($\beta = .256$; $p = .023$), (WT) wrong turns ($\beta = 1.613$; $p = .011$), (WO) wrong over-taking ($\beta = 2.192$;

$p=.020$), (DDiv) driver diversion ($\beta = .134$; $p=.014$), (UD) under-age driving ($\beta = 2.771$; $p=.004$), (HB) harsh braking ($\beta = 1.149$; $p=.008$), (VE) vehicle engineering ($\beta = .942$; $p=.003$), (OW) one wheeling ($\beta = .408$; $p=.017$), (OL) over-loading ($\beta = .551$; $p=.268$), (DD) drunken driving ($\beta = -0.275$; $p=.402$) and (RE) road engineering ($\beta = -2.194$; $p=.405$). All these independent variables have a positive impact on RTAs significance and also the table-4 correlation analysis suggests there is a strong mutual relationship between independent variables and dependent variable RTAs in Dera Ghazi Khan.

Conclusions

From this research it is concluded that the majority of road crashes is caused by human error. Research has shown that driver error accounts for over 80% of all fatal and injury crashes on Pakistan roads. The main causes of death and injury on Dera Ghazi Khan, Pakistan roads remain over-speeding, carelessness, wrong turns, wrong overtaking, driver diversion, under-age driving, harsh braking, vehicle engineering, one wheeling, over-loading, drunken driving and road engineering. The results analysis shows that all the independent variables have the positive and significant relationship with dependent variable RTAs. Independent variables (RE) road engineering / infrastructure of the roads and (DD) drunken driving in Dera Ghazi Khan has, the less significant impact on dependent variable RTAs because the numbers of RTAs due to road engineering are less than other independent variables. In Dera Ghazi Khan the major religion of the population is Muslim and in this religion drinking of alcohol is prohibited. So for this the independent variable (DD) drunken driving has less impact on independent variable RTAs. In Dera Ghazi Khan the main source of transport is a motorbike due to this the data shows the highest involvement of bikes in RTAs noted than other sources of transport. All of our hypotheses are proved to be correct.

Recommendations

We make recommendations addressing the traffic problems of Dera Ghazi Khan in three different ways. Given that traffic is so deeply involved with many aspects of our culture one cannot expect that any individual measure alone is capable of satisfactorily solve the traffic related problems in Dera Ghazi Khan. We are suggested an ample gamut of measures that might be used to solve the RTAs problems. The measures suggested here generally object the individual concerned in traffic. The aim is to build the individual awareness of the causes and consequences of RTAs in Dera Ghazi Khan.

RTAs are the creation of several factors; the likelihood of RTAs can be reduced in a number of diverse ways. There is no distrust that the subsequent activities have prevented the increase in RTAs in Dera Ghazi Khan, Pakistan. In view of the analysis carried out in this research, to maintain safety of life of the motorist and commuter, we recommend that;

- The motorist should be progressive and well-known with road signs in the country
- Government needs to construct good road and maintain the existing once.

Public awareness is the main factor that might be helpful in reducing the RTAs and it is possible through mass media and road safety campaigns for the safe driving.

- To aware the kids in school by road traffic trainers and school educators;
- To aware the young people in the ethics of safe driving and in good driving attitudes by awareness campaigns.
- To aware the high school students about braking distance, protective driving effect time, and hazards of alcoholic drinks.
- To aware the older drivers through refresher training courses that must be improve their knowledge of traffic law.

Enforcement holds the key position in the whole gamut of traffic planning. The modern highway facilities would be powerless to knob with the RTAs without effective and proper enforcement. Enforcement by implementing rational and enforceable traffic laws which are the best planned to prevent RTAs.

- Focused the time and energy of traffic officers on the offenses, locations, and times that feature frequently in accidents.
- Government should recruit more people to the scheme so that drivers can be checkmated on our road and make sure that motorist comply with road safety signs and rules.
- The staff of the scheme should be well skilled on when to and not to stop a vehicle at high speed. Their knowledge of traffic safety laws is limited to basic hand signals used by traffic constables at street intersections. The traffic Foot Constables and even some of the officers were found to be entirely unaware of the traffic safety regulations.

- Government should distribute the staff of the scheme to both main and small roads so that minor accident across the country will be radically reduced.
- Government should implement the law that will bind the motorist on over speeding
- Government should veto under age, driving on highways
- Government should at the time of issuing license to the drivers; they must be given training in first-aid skills so that victims are attended without delay in the post-accident period.
- Reduce speed limit on general city streets to 30 km/h and introduce a general speed limit of 100 km/h on dedicated roads such as highways. Exceeding the permitted speed by more than 30 km/h automatically leads to losing the driver's license for one year. Repeated disqualification from driving due to speeding within a period of 3 years automatically leads to permanent loss of the driver's license. Driving without license in case of permanent loss of driver's license will be punished with one year of imprisonment.
- Drivers found to be drunk from alcohol or similar will lose their driving license for a period of one year. In case of recurring drunk driving the ineligibility from driving will be permanent.

Vehicle engineering is also a cause of RTAs and it comprising,

- Government should regularly inspect the vehicles minimum once in a year and this regular inspection for a "fitness certificate" to ensure that the main components of the vehicle, fitting safety equipment, such as seat belts, safety air bags are safe.

Road engineering is a cause of RTAs in Dera Ghazi Khan. Two way traffic is carried out on the single line road and there are no traffic signals and signs installed in Dera Ghazi Khan. So government should change the infrastructure of the roads to reduce the RTAs.

The road or traffic engineering comprises,

- The design of new roads which are intrinsically safe (removing cross traffic, separating opposing traffic streams and presenting wide shoulders and traffic lanes and good visibility);
- Improving existing roads by rematerializing slippery surfaces, repositioning, and improving visualization;
- Regulating traffic movement by installing regulatory signs such as "stop" and "give way" signs, road markings, traffic islands and traffic signals.
- Assisting the driver with a counsel and target signs to avoid danger and confusion.

It is necessary that the government should spend more in traffic safety database system to have better statistics and data of RTAs. It would be very helpful in the analysis and decision making in improving the road traffic safety in the country.

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