

Original Article

Road traffic accidents; An observational and analytical study exploring the hidden truths in Pakistan and South East-Asian Countries

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Abstract

Despite national traffic legislation and known safety benefits of traffic laws, awareness remains low in Pakistan. Study aim was to determine level of knowledge about traffic legislation and attitudes towards their observation in capital city Islamabad to provide baseline data for formulation of an intervention aimed at strengthening road safety law enforcement. Survey-Analysis with Random Observational study was conducted by using standard survey questionnaire focusing Road-safety awareness levels and use of helmets/seatbelts on MainRoads and StreetRoads. Drivers/passengers/pedestrian were randomly selected to participate in face-to-face interview to ascertain attitudes. Overall, Deficient Road-Safety Awareness was at top(27%) followed by wrong use/no use of seatbelts/helmets(21%) and legislative aspects were at last(17%) including under-age driving, vehicles without fitness and licensure problems exploring the bitter hidden truths. Actions areas for preventing Road Traffic Accidents(RTAs) include interventions to improve road-safety education, identification /implementation of safety measures for traffic black-spots, enforcement of seatbelt/helmet laws and the development of highway ordinances. PRECAUTION IS BETTER THAN CURE as Road Traffic Accidents are 100% preventable.

Keywords: Awareness level, road safety education, road traffic accidents (RTAs), survey analysis, traffic legislation.

Introduction

Road traffic accidents and injuries related to them are the biggest threat coupled with a challenge to the upcoming world. In year 2000, Road traffic accidents(RTAs) and related injuries alone were the 10th leading cause of death worldwide and is suspected to increase gradually till it will become the 3rd leading cause of disability adjusted life years lost worldwide by 2020 ^(1,2,3). 90% of the global RTAs related deaths occur in middle and

low income countries, where 85% of the world's population lives ^(2, 3). Developing countries especially Asia Pacific region is widely hit by this problem ^(1, 2) (Appendix 1). Road traffic accidents, traffic legislation and awareness regarding road safety with their implementation make a close triangle where every corner has its own vital importance. Aim of this study was to determine level of knowledge regarding traffic laws and its correlation to the incidence and prevalence of RTAs in the capital city of Pakistan, Islamabad so as to provide baseline data and specific evidence for formulation of an intervention aimed at strengthening road safety law enforcement. Previous research studies ^(4,5) (Appendix 2,3,4,5) conducted in Asia Pacific region shows direct collinear relationship between decline in RTAs and associated injuries with increase in awareness of traffic safety laws among general public (China, Singapore, Thailand, and Taiwan). Taiwan witnessed a 14% decline in motorcycle fatalities and a 22% reduction of head injury fatalities with the introduction of a helmet law. In Thailand, after enforcement of a helmet law, helmet-use increased five-fold, the number of injured motorcyclists decreased by 33.5%, head injuries decreased by 41.4%, and deaths decreased by 20.8%. There is considerable evidence that mandatory traffic laws with enforcement alleviate the burden of traffic injuries greatly ⁽³⁾.

Traffic legislation is vital for road safety all around the world. The biggest burden of RTAs is in South East Asia .Nearly 50 % RTAs occur in Asia pacific region (Appendix 6). Pakistan, a South East Asian country has also its own proper certified traffic safety legislature but despite national traffic legislation and know safety benefits of traffic laws, awareness and judgment regarding importance of traffic rules remains very low as shown by previous studies due to multifactor causations ⁽⁶⁾(Appendix 7).

In Pakistan traffic law and legislation is based on two grounds. one pillar is standing on standard

ground i.e., the international traffic safety rules and regulations, the second pillar is based on local customs and social setup of Pakistan like right handed driving(Appendix8). Awareness of traffic safety rules vary from region to region having different percentage(rural and urban).In South East Asian countries ⁽⁷⁾(Appendix 6) like India, Pakistan and Bangladesh pattern of awareness nearly remains same as in past it was one country and one nation having very close culture, customs and socio-economic backgrounds(all having right handed driving).

Methods

Over a period of 1 year from March 2009 to March 2010, random observational study along with survey analysis was conducted in Islamabad, capital city of Pakistan regarding RTAs prevention focusing legislative aspects, road safety awareness levels and use of helmets/set belts to make a suggestive report in minimizing RTAs.

Standardized traffic safety awareness level check survey form with grading scale (Table.1 and Table.2) was designed while keeping in view all international and localized traffic safety rules.

Table: 1

No	GRADE	RESPONSE
1.	Excellent	Answering at least 9 questions out of 10(9/10)
2.	Very good	Answering 7-8 questions (7-8/10)
3.	Good	Answering 5-6 questions (5-6/10)
4.	Verge	Answering 3-4 questions (3-4/10)
5.	Below average	Less than 3

Two kinds of roads were selected for this purpose. Main roads including highways with traffic flow of 50 vehicles per minute involving both heavy traffic vehicles (HTV 20/min) and light traffic vehicles (LTV 30/min).

Street roads near residential areas were second with traffic flow of 20 vehicles per minute on average (only light traffic vehicles).Drivers, passengers and pedestrians were randomly selected from service stations, elementary schools and supermarket car parks to participate in a face to face interview to ascertain attitudes.

Questionnaire body was a combination of 10 basic and 5 supplementary questions including biographic details of the participants being interviewed.

Based on 10 basic questions, grading score was given to ascertain level of traffic safety knowledge

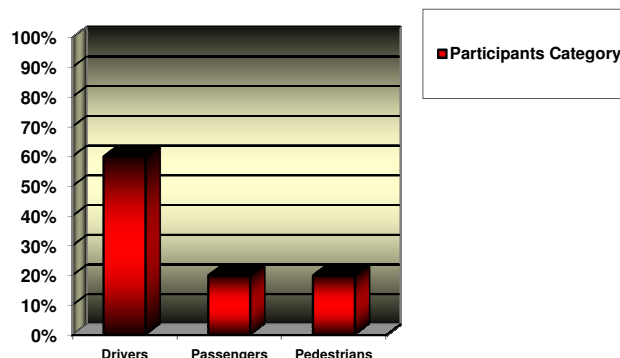
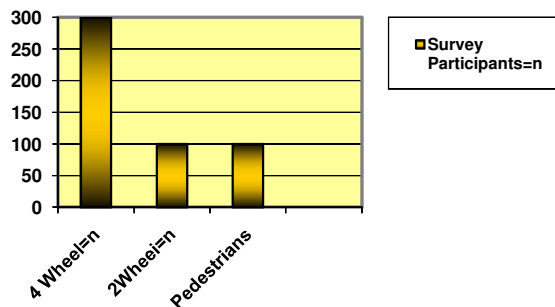
among the participants of the survey so as to make a final report.

Observational study was also conducted regarding behavior of drivers and passengers in use of set belts/helmets and other precautionary measures.

In parallel to questionnaire, data from Emergency departments of 2 big tertiary care hospitals of the city was also collected. 300 cases of RTAs were collected over the study period and cases were individually studied while keeping in view the medico legal reports regarding incident trace evidence, injury site evidences and possible causation of accidents.

Results

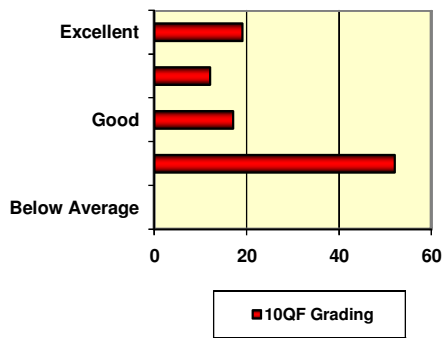
Every Questionnaire was scrutinized individually. Out of 500 questionnaires, 300 were filled by 4 wheel vehicle holders (both drivers/passengers), 100 were filled by 2 wheel vehicle holders (both drivers and passengers) i.e. motorcyclists and 100 were pedestrians. Overall 300n (60%) were drivers, 100n (20%) were passengers and 100n (20%) were pedestrians



(Graph.1 & 2).

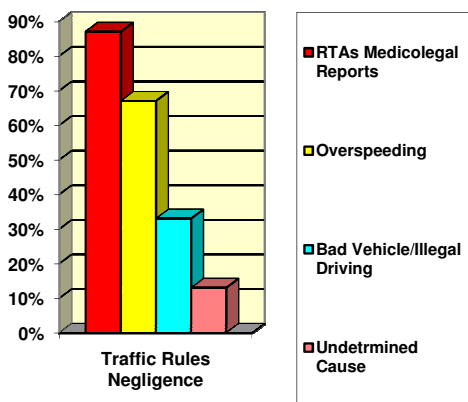
Table: 2				
Road Safety Awareness Check Survey Analysis Form				
Name	Age	Sex....M / F		
Contact Details	Driver / Passenger / Pedestrian			
Address	Tel.No	E-mail		
<p>10 Basic Questions (10QF)What do you know about</p> <p>1. Importance of traffic signals/sign boards.</p> <p>2. Importance of driving license/legalized driving.</p> <p>3. Importance of vehicle status/quality assurance.</p> <p>4. Importance of seat belts/helmets/baby sitters.</p> <p>5. Importance of over speeding.</p> <p>6. Importance of overloading (public transport)</p> <p>7. Underage driving</p> <p>8. Driving under Premorbid conditions (Angina, Epilepsy, After MI, Color blind, Night blindness)</p> <p>9. Driving under special circumstances (Rain, Snowfall, Caves, Tunnels, Bridges, Railway Crossings)</p> <p>10.Measures to carry out when you suffer from RTA</p> <p style="text-align: center;">Supplementary questions</p> <p>*****What do you know about traffic legislation of Pakistan?</p> <p>*****Do you always obey/sometimes obey/not obey at all the traffic safety rules?</p> <p>*****What is the advantage/disadvantage of obeying/not obeying traffic safety rules?</p> <p>*****Have you /your family member/relative/close friends ever suffered RTA in past?</p> <p>*****If yes what do you think what was the cause of that RTA.</p>			Response	
Seat belt/Helmet use observation during interview		Proper use	Wrong use	No use
Vehicle status observation and legalization of vehicle		Very good	Good	Bad
10 QF GRADE		10 , 9 , 8 , 7 , 6 , 5 , 4 , 3 , 2 , 1 , 0		

Excellent, Very Good, Good, Average, Below Average



On combination of data while keeping in view the formula of 10Q,grading showed that 52%(260=n) were falling in average category,17 %(85=n) were good,12%(60=n) were very good and 19 %(95=n) were excellent with no one in below average category(**Graph.3**). Overall deficient road safety awareness was at the top 27 % (mean).

Observational study on spot of interview revealed that there was either no use or wrong use of seat belts and helmets up to 21%(63=n seat belts,21=n helmets).legislative aspects were at last but not least with 17%(68=n)incidence with either under age driving, driving without license and legal documents. Data collected from hospitals reflected that 87 %(261=n) RTAs were due to traffic law negligence and remaining 13 %(39=n) with undetermined causes (**Graph.4**).



Over speeding was at the top with 67 % (175=n Avg) followed by bad vehicle status and illegal driving 33 % (86=n Avg).

Data strongly suggests that lack of awareness of traffic rules contributes the most in causation of RTAs. Actions areas ^(1,8) for preventing RTAs include interventions to improve road safety education, both types i.e. general knowledge as well as common sense of traffic laws along with specific technical terminologies related to road safety, identification and implementing of safety measures for traffic black-spots, enforcement of seatbelts and helmet laws ,development and implementation of highway ordinance, creating sense of importance of traffic laws⁽⁸⁾ and their relation to injury prevention ,enhancing the role of print and electronic media and facilitation of services for common man like traffic police-public seminars, involvement of law and security authorities at public level and medical teams in form of signboards, pamphlets and banners⁽⁹⁾. Suggestions were also posted to Ministry of Communication, Pakistan, National Highways Authority, Pakistan and Traffic Police Islamabad to improve the safety measures.

Conclusion

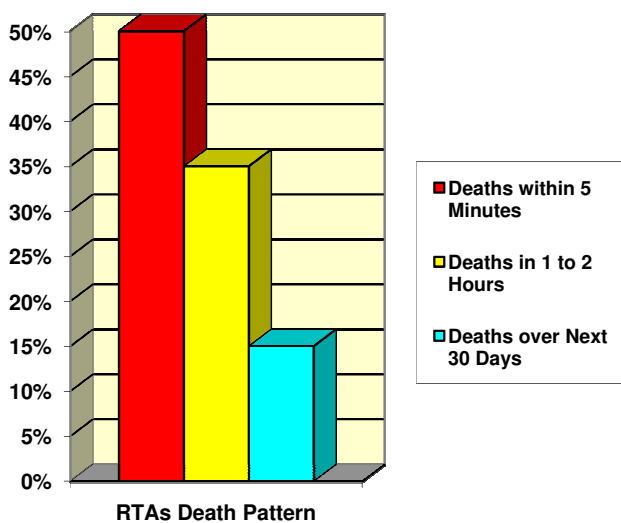
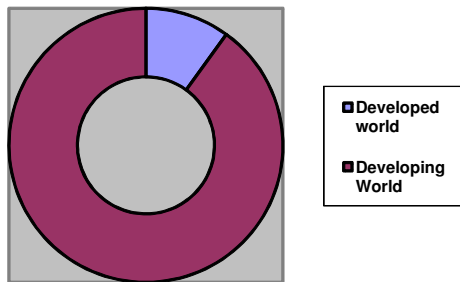
Injuries (avoidable as well as unavoidable injuries in form of natural disasters) remains the biggest burden over health system of any country. Avoidable injuries require little attention just in mean of educating the people about severity and misery of the accidents. RTAs are totally avoidable in a sense that it only needs to create a sense among people regarding road safety and to enhance its benefits in their own interests.

Prevention is superior to rehabilitation and treatment in case of RTAs. Physical as well as psychological, both aspects are involved in these cases ⁽¹⁰⁾.

Every year in the world nearly 1.2 Million road accidents occur, 90 % takes place

in developing world (Circle Diagr.8) and 50 % worldwide fatalities and injuries occur in Asia- Pacific region(Appendix)8. For every death.4 people suffer with severe disabilities,10 people require hospital admissions and 30 people require emergency room treatment ^(11,12)(Appendix 6).The economic cost ranges from 1 % to 5 % of GDP for every nation thus creating a big burden over the total budget of a country that can be utilized for other welfare works in a sense that just educating the people about traffic laws costs one tenth .Taking a look at misery of RTAs, 50 % death happen within next 5 minutes due to visceral injuries including brain, heart and major blood vessels (on spot deaths),35 % die in next 1 to 2 hours (bleeding injuries and complications) and rest 15 % die over next 30 days primarily due to sepsis and poor hospital care ^(11,12) (Graph.9).

Graph: 8 & 9



So the message is that burden over health system due to RTAs can be minimized

by simplified measures like enhancement of road safety knowledge among general public, making law applicable and quality assurance of vehicles as RTAs are 100% preventable.

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Appendix – Databases Searched (Last Accessed Sep 2010)

1. <http://www.who.int/evidence>

2. www.taiwanjournal.nat.gov.tw/ct.asp?CtNode=122&xItem=44929 - 14k

3. www.taiwanjournal.nat.gov.tw/ct.asp?xItem=14157&CtNode=118 - 6k

4. www.sciencedaily.com/releases/2008/06/080604194701.htm - 47k

5. www.iconocast.com/D1/C1/News8.htm - 28k

6. http://www.buet.ac.bd/?page_id=84

7. <http://www.nha.gov.pk/Info/info.asp/www.pakistan.gov.pk/ministries/communication-ministry/media/psdfnhmp.pdf>

8. <http://islamabad.metblogs.com/?s=+islamabad+traffic+police+>