

ROAD TRAFFIC INJURIES IN PAKISTAN: CHALLENGES IN ESTIMATION THROUGH ROUTINE HOSPITAL DATA

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Background: Injuries are becoming one of the most important public health challenges at the dawn of the new century. It is estimated that almost one fifth of the total global burden of disease is due to injuries. Road traffic injuries (RTIs) are a leading cause. **Methods:** This is a cross-sectional survey based on hospital records of Rawalpindi General Hospital for reference year 2005. **Results:** The yearly hospital record showed that a total of 119,214 persons visited the emergency during 2005. Twenty-four percent (28,679) of these cases were retained in the emergency department for treatment and 64% 18229 cases of the retained cases were shifted to concerned wards for further management. Injuries amounted to a total of 1,244 (6.8 %) cases were recorded in the ER as RTIs. The proportion of injured males was (71%). The surgical/orthopaedics presentations were 33% of the total ER cases with injuries. The amount of missing information was (11%) and the deficiency of the data regarding emergency admissions indicated flaws in the information systems. **Conclusion:** The findings surprisingly showed that RTIs have a very low proportion in the total presentations and this leads to doubts about the information systems at the hospital. The inability to follow the progress of these cases indicates that the data is under reported. Furthermore the small percentage of cases requiring retention in ER and even smaller requiring admission leads to the conclusion that a majority of the presenting cases in the ER may be outpatient cases, who for lack of an evening outpatient clinic, are coming to the ER. Further investigation is required involving other public/private sector hospitals to estimate the magnitude of the problem and comprehensiveness of the relevant data is also required.

Keywords: Emergency Room, Global burden of disease, Road Traffic Injuries, Road traffic crash

INTRODUCTION

The spectre of Injuries is insidiously taking a greater toll on human life and property worldwide. Every year more than 5 million people die of injuries, of which 25% are due to the road traffic crashes. It is estimated that 10 million motor vehicles crashes occur annually in the world.¹ About 1.26 million persons died in road traffic crashes (RTC) in the world during 2000 and out of these deaths, 35% occurred in the South East Asia.² Overall, 10–15 million people are injured every year in road traffic collisions and 90% of all RTC deaths occur in low and middle-income countries.³ In many high-income countries, RTCs are the leading cause of mortality.⁴ Injuries due to motor vehicles are the leading cause of disability and mortality particularly in young adults, and comprise 80% of the male casualties.⁵ RTIs also exert a considerable economic burden on the developing countries, estimated to cost 1–4% of a country's GNP per annum.⁶ It is projected that globally by 2020 RTCs will account for about 23 million deaths and RTIs will be the third leading cause of death and disability as compared to their present ranking of ninth.⁷

In the developing countries, relatively little research is conducted on the causes and consequences of RTIs as compared to their impact on health and population. There seems to be scarce awareness regarding the contributions of RTIs towards the Burden of Disease (BOD) and this remains a neglected area in

research and policies. RTIs disproportionately affect the poor who have little or no say in policy decisions, and the RTIs are thought to be the concern for the transport rather than the public health agencies.⁸

Pakistan is undergoing an epidemiological transition; it is facing the double burden of disease.⁹ Between the periods of 1960–1994, there has been a marked increase in the injuries and related risk factors¹⁰, possibly reflecting the changes in lifestyles, urbanization, rural development, increase in the motor vehicles and the introduction of mechanized farming in the agriculture sector. Policy makers as well as the health professionals have been slow in recognizing the public health importance of injuries.¹¹ This issue has been recognized as a public health problem in the 9th five-year plan.¹²

As regards injury management, appropriate care is of utmost importance as it improves the chances of survival.⁵ It is estimated that about 10–30% of hospital admissions in the world are due to injuries thereby increasing the burden on health systems in terms of both cost and time.¹³ Hospitals in Pakistan are already deficient in resources to meet the needs. Twenty-two percent of the emergency visits in public hospitals are injury related; with RTIs contributing a significant proportion.¹⁴ Emergency Medical Services comprising of ambulances and trained paramedics are available only in 5% of the urban areas.¹⁵

RTIs are not appreciated as a public health issue by a majority of health professionals and public policy experts because of limited knowledge in this field, and no reliable estimates of the current levels. The aim of study was to assess availability of information to estimate the burden on hospitals caused by Road Traffic Injuries and the objective was to assess the distribution of RTIs presenting in emergency department of a teaching hospital in Pakistan through a review of records.

MATERIAL AND METHODS

The study was conducted in Rawalpindi General Hospital. It is situated on a main road with easy access to highways from all sides. The reference year for the study was 2005.

It was a cross-sectional survey, where hospital records were analysed. The data sources comprised of various records such as emergency outdoor registers (*purchee* registers), emergency admission registers, case histories, emergency-nursing registers and emergency/ hospital activity reports.

For the study, any person who was treated in ER and was entered in the hospital records as Injured or RTI/RTA has been declared as injured or RTI. The study universe comprised of all cases that presented in the emergency department during the year 2005. The cases with no records were excluded like those received dead in the emergency room.

For data collection, the year 2005 was divided into 4 quarters, selecting one month randomly from each quarter and tabulating all entries for the first 15 days of the selected months. Structured data collection tools were developed to collect information about the variables like age, gender, number of cases, referral etc.

All patients coming to the ER have to register and obtain a *purchee* and the information required for the entries in the *purchee* registers includes name, age, sex, address and the concerned wards but in actual situation the address box is completely ignored.

After collection, the data were coded and entered in computer and analyzed using Epi Info 6.04 for windows. Microsoft Excel was used for graphical depiction of the results.

RESULTS

A total of 119,214 persons visited the emergency during 2005. Twenty-four percent (28,679) of these cases were admitted in the emergency for treatment (retained for 24 hours) and 18229 (64%) of the admitted cases were shifted to concerned wards for further management. Details are given in Table-1.

Table-1: Hospital Report for the year 2005

Categories of cases	Statistics
Total Emergency cases presenting in Emergency for treatment	119214*
Total Emergency admissions retained in Emergency	28679 (24%) of Total emergency**
Total Emergency cases shifted to wards cases admitted in wards from emergency	18229 (64%) of retained cases**
Treated but neither retained in emergency nor referred to ward for admission.	90535 (76%) of Total emergency*

Sources: *RGH Statistical Report for 2005, **Annual ER Report for 2005

The total number of cases presenting in the ER during the survey period were 18,229. Fifty-seven percent (10414) were males and (43%) (7,815) were females. The mean age for males was 27.9 years and it was 29.7 years for the females. About 31% of the cases were treated in surgical wards followed by medicine (24%). Proportion of the missing cases (11%) is also evident probably for minor cases hence inflating the denominator (Table-2).

Table-2: Distribution of cases by Age

Speciality	Age					%
	<1	1-4	5-14	15-44	>45	
Surgery	13	355	941	3361	904	30.58
Orthopaedics	NA*	47	100	185	128	2.52
Medicine	NA	5	154	2519	1775	24.43
Gynae/Obs	NA	NA	3	663	15	3.74
Paediatrics	1224	1006	685	1	0	16.00
Others	8	52	179	1329	658	12.21
Missing	0	31	229	1175	484	10.53

*NA: Not Applicable, Source: ER registers 2005

A total of 1,244 (6.8%) cases were recorded in the ER as RTIs. Mean age for females (31.9 years) was higher compared to the males and the overall mean age was 30.43 years. (Table-3).

Table-3: Age and Gender distribution of RTIs

Gender	Cases	Mean Age	Percentage
Male	878	30.43	70.58
Female	366	31.93	29.42
Total	1244	30.87	100

Source: ER registers 2005.

Table-4: Distribution of RTIs by Gender and age group

	Age					Total	%
	<1	1-4	5-14	15-44	>44		
Male	2	26	118	592	140	878	4.82
Female	2	20	41	218	85	366	2.01
Total	4	46	159	810	225	1244	6.83

Source: ER registers 2005

Males comprised 71% of RTIs while they were 57% of the total cases (Figure-1).

The percentage of RTIs as presented in the ER during the survey period was extrapolated to obtain the yearly estimates, the RTIs constituted 20% of the cases coming to the surgery and orthopaedics wards (Table-5).

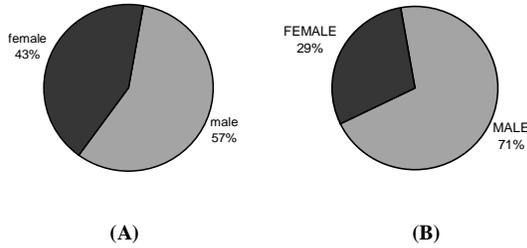


Figure-1: Gender distribution (A) Total Cases, (B) Road traffic injuries

Table-5: Distribution of surgical, orthopaedics and RTIs cases presenting in ER

	Cases (%)	Total (Extrapolated)
Surgery	5574 (30.58)	36456
Orthopaedics	460 (2.52)	3004
Total Surgery & Orthopaedics	6034 (33)	39460
Total Cases presenting in ER	18229 (100)	119214
RTIs	1244 (6.82)	8130
RTIs As Percentage of Surgery & Orthopaedics cases	20.62	20.62

Source: ER registers 2005

DISCUSSION

Over a million people died from road traffic injuries (RTI) globally in the year 2000 and as many as 50 million were injured. Yet there has been little work focused on the South Asia region. Road traffic injuries were the 11th leading cause of death worldwide and accounted for 2.1% of all deaths globally. Furthermore, these road traffic deaths accounted for 23% of all injury deaths worldwide.¹ In this study the road traffic injuries constituted about 7% of the total cases presenting in the emergency during the survey period. Males constituted nearly 3/4th of the cases and the age group (15-44 years) were more affected (48%) probably due to their greater exposure. WHO reports state that more than half of all global road traffic deaths occur among young adults between 15 and 44 years of age and 73% of all global road traffic fatalities are males. Gender distribution for cases presenting in the ER showed almost equal proportions. The surgical and orthopaedics cases amounted to 33% of the total cases of RTIs contrary to the findings of other studies.¹⁶

RTIs are the major contributor according to available evidence. However, they present a negligible proportion of cases when investigated from hospital record. In order to understand this fact we have to look at the data and assess the numerator and denominator separately.

It was found that RTIs are reporting to the government hospitals but are being misclassified possibly due to the poor data entry and record system and also to avoid involvement of the police and other legal hassles. It can be argued that the cases presenting in the emergency are not the true emergency cases but

minor cases seeking consultation as is evident from the proportion of cases (76%) that never required emergency admission. It can be further argued that the minor RTIs may seek treatment elsewhere but the major RTIs require hospital management. The findings stir up the suspicion of under-reporting of the RTIs presenting in the ER as the hospital record showed many discrepancies in this regard, the proportion of missing information being higher than that for the RTIs. Another flaw noted is the aspect of the missing information regarding the diagnosis/ward particularly during the night shifts.

The distribution of the cases as per wards with particular emphasis on the RTIs was not available in the registers. There were discrepancies regarding identification of cases, incomplete/deficient data entries and multiple registers in the same department.

The information systems of the hospital showed a lot of information missing or deficient. All the necessary information required to be recorded in the registers but in most instances the specified columns are left blank or are incomplete, reflecting the low importance of the issue for the hospital and data entry people. Furthermore, there seems to be a non-uniformity of the registration system that is evident from the fact that multiple identification numbers for each case are issued in the same emergency department. World report On Road Traffic Injury Prevention (World Health Organization Geneva 2004) states that despite the growing burden of road traffic injuries, road safety has received insufficient attention at both the international and national levels. The reasons include lack of general awareness and specific information on the scale of the problem, on the health, social and economic costs of road traffic crashes, and on the interventions that can prevent crashes or reduce the harm they cause.

The information about the RTIs admitted in the emergency ward was also missing further creating the impression of under-reporting of the RTIs. The academic reports of the concerned wards were sought to cross check and validate the information but the reports were unavailable or deficient further aggravating the impression of misreporting of the RTIs. The importance of the teaching hospitals is paramount as these should serve as the data providers and research centres. In comparison to the magnitude of the problem in developing countries there has been relatively little study on the RTIs and their consequences. This seems to be the case of under-reporting for the RTIs reflecting the low concern of the administration as well as the staff of the teaching hospital towards the public health issue of importance in particular and towards the research work in general. This creates doubt on the integrity of the hospital reports and the absence of the information regarding the performance level of the hospital. The study was cross-sectional hospital record survey with its

inherent limitations. All the RTIs might have not been captured, as the sampling was time restricted to 15 day's period for each month.

CONCLUSION

On assessing the information in the emergency registers, RTIs appear to be a problem of trivial nature with a very low burden and proportion of RTIs presenting in the emergency. However, the data is liable to under-reporting, misclassification or may be unduly influenced by the large number of non-emergency cases, as was evident from the fact that 76% of the cases presented in ER. Only the major/serious are being received in hospital probably due to the legal aspects of the issue. The notion of under-reporting is strengthened by discrepancies that emerged during the data collection, i.e., incomplete columns in registers, missing information, incomplete records and the unavailability of various academic/ward reports for cross-checking of the findings.

There is under-reporting of RTIs, or on the other hand the government hospitals may not be the first choice for emergency care.

RECOMMENDATIONS

To improve the situation of the information system of the hospital:

- Further insight is required involving other public/private sector hospitals and the community surveys, to estimate the magnitude of the problem.
- Qualitative research to establish the preferences and the health seeking behaviour of the community for RTIs.
- Recording of complete information about the RTIs including the identification and labelling of the cases in the ER.
- Realization of the public health importance of the RTIs on part of the hospital administration by ensuring the comprehensiveness of the relevant data.

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