

Road traffic crashes in Ramadan: an observational study

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التصادمات على الطرق في شهر رمضان: دراسة رصد

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الخلاصة: تهدف هذه الدراسة إلى بحث اتجاهات التصادمات على الطرق التي تعالجها خدمة الطوارئ، وخدمة الإنقاذ 1122 في ولاية البنجاب، باكستان في العام 2011. وُجمعت البيانات الخاصة بالتصادمات على الطرق من 35 مقاطعة بولاية البنجاب وجرت مراجعتها استعادياً. وكشف تحليل البيانات أن خدمة الطوارئ استجابت إلى 12969 من طوارئ التصادمات على الطرق خلال شهر آب/أغسطس 2012 (الذي وافق شهر رمضان)، مقارنة بمتوسط طوارئ 11573 في الشهر. وكان أفراد الفئة العمرية الأصغر سناً (من 11 إلى 27 سنة) هم الضحايا في 29٪ من التصادمات على الطرق؛ وكانت 39٪ من هذه التصادمات بسبب زيادة السرعة و43٪ بسبب القيادة في ساعات الذروة (14:00 – 18:00) قبل موعد الإفطار. وأظهرت نتائج الدراسة أن خدمة الإنقاذ 1122 واجهت مزيداً من التصادمات على الطرق خلال شهر رمضان مقارنة بالشهور السابقة عليه. وتعتبر السلامة على الطريق إحدى قضايا الصحة العمومية الهامة في باكستان. وعلى الرغم من التحسينات الكبيرة في الطرق التي شهدتها باكستان في السنوات القليلة الماضية، هناك حاجة إلى القيام بمزيد من العمل للتعاطي مع الاتجاهات المتزايدة في التصادمات على الطرق. ولا يخفى أن الوعي الجماهيري والإرادة السياسية والإنفاذ الصارم للقانون كلها عوامل بالغة الأهمية في هذا المجال.

ABSTRACT The aim of this study was to investigate trends in road traffic crashes (RTCs) managed by an emergency service, Rescue 1122, in 2011 in Punjab, Pakistan. RTC data were collected from 35 districts of Punjab and reviewed retrospectively. Data analysis revealed that the service responded to 12 969 RTC emergencies during August 2011 (Ramadan), compared with an average of 11 573 RTCs per month from January to August 2011. The younger age group (11–27 years) was victims in 29% of RTCs; 39% were due to speeding and 43% occurred in peak rush hours (14:00–18:00) before *iftar* (breakfast). Results of the study showed that Rescue 1122 faced more RTCs during Ramadan compared with the preceding months. Road safety is an important public health issue in Pakistan. Although there have been great improvements in roads in the past few years, much work needs to be done to deal with mounting trends in RTCs. Public awareness, political will and stringent law enforcement are key factors.

Accidents de la circulation pendant le Ramadan : étude d'observation

RÉSUMÉ L'objectif de la présente étude était de connaître les tendances en matière d'accidents de la circulation pris en charge par le service d'urgence « Rescue 1122 » au Pendjab (Pakistan) en 2011. Les données sur ces accidents ont été recueillies dans 35 districts du Pendjab et examinées rétrospectivement. L'analyse des données a révélé que le service était intervenu dans 12 969 urgences routières pendant le mois d'août 2011 (Ramadan), par rapport à une moyenne mensuelle de 11 573 urgences routières entre janvier et août 2011. Le groupe d'âge le plus jeune (11–27 ans) représentait 29 % des victimes d'accidents de la circulation ; 39 % étaient dus à la vitesse et 43 % ont eu lieu pendant les heures de pointe de la circulation (entre 14 et 18 heures) avant la rupture du jeûne (*iftar*). Les résultats de l'étude ont souligné que le service d'urgence « Rescue 1122 » a dû prendre en charge un plus grand nombre d'accidents de la circulation pendant le Ramadan que pendant les mois précédents. La sécurité routière est une question de santé publique importante au Pakistan. Si des améliorations majeures ont été observées sur les routes ces dernières années, il reste beaucoup à faire pour s'attaquer à l'augmentation croissante des accidents de la circulation. Les facteurs clés sont la sensibilisation du public, une volonté politique et une stricte application de la loi.

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Introduction

Road traffic crashes (RTCs) are one of the most pressing international health and development concerns in the world. Every year, nearly 1.3 million people die as a result of a road traffic collision – more than 3000 deaths each day – and more than half of these people are not travelling in a car [1,2].

In Pakistan, half of all major incidents and two thirds of all deaths in major incidents are due to RTCs [3]. Two independent population-based surveys estimated the incidence of road traffic injuries to be around 15–17 per 1000 persons per year in Pakistan [4–6].

It is estimated that approximately 40 000 people die on the roads every year in Pakistan and many more sustain serious injuries [6]. In addition to the suffering, these injuries contribute significantly to the workload in hospitals, leading to direct costs to the Pakistani economy of over US\$ 1 billion [4,7,8].

Various studies in many countries have raised the issue of the increased number of RTCs during holidays and festive periods such as Christmas and New Year [9–11]. In the United States of America for instance, the numbers of motor vehicle fatalities were usually higher in six holiday periods: New Year, Memorial Day, 4th of July, Labour Day, Thanksgiving and Christmas. Between 1978 and 2002, the three deadliest days for pedestrians were 1 January, 23 December and 31 October (Hallowe'en) [12–14].

In countries that celebrate Ramadan, Eid al-Fitr and Eid al-Adha, an increasing trend of RTCs has also been documented [15–18]. Ramadan is the ninth month of the Islamic calendar and lasts 29 or 30 days. It is the Islamic month of fasting, in which participating Muslims refrain from eating, drinking, smoking and sex during daylight hours. It is intended to teach Muslims about patience, spirituality, humility and submissiveness to God. The dates

of Ramadan vary, moving backwards by about 11 days each year depending on the moon. In 2011, Ramadan was celebrated between 1 August and 30 August [19].

This study aims to investigate the trends of RTCs that were managed by a rescue service, Rescue 1122 in 2011 in Punjab, Pakistan.

Methods

Study setting

The study was conducted at the Lahore headquarters of Rescue 1122. Rescue 1122 is an emergency service that offers ambulance, fire, emergency response teams, water rescue and safer community programme to over 80 million people in the Punjab [20,21]. The Punjab is the largest province of Pakistan, with 36 districts. Rescue 1122 is operational in all 36 districts. The service operates in urban settings and works through a toll-free number 1122. It is state funded and operates over 24 hours, 7 days a week [20,21].

Study design

In this retrospective study, RTC data for the period January–August 2011 were

retrieved and examined. The data were collected by the emergency medical technicians from the scene of the crash. The emergency medical technicians are the first responders of the Rescue 1122 ambulance service. They fill out an emergency response form at the scene of the RTC and during the journey to hospital. The emergency response form includes basic first-hand information regarding the crash (e.g. demographics of victims, type and cause of crash, vehicles involved).

The data included all RTCs reported to the service during the study period from 35 districts of Punjab. Final data analysis was carried out using statistical software SPSS version 16.

Results

Rescue 1122 attended 92 587 RTC emergencies during the 8 months (January–August 2011) of the study period. The breakdown of monthly RTCs data shows that the service responded to 10 334 RTCs calls in January, 10 351 in February, 11 957 in March, 11 394 in April, 11 885 in May, 11 708 in June, 11 989 in July and 12 969 in August (the Islamic month of Ramadan) (Figure 1).

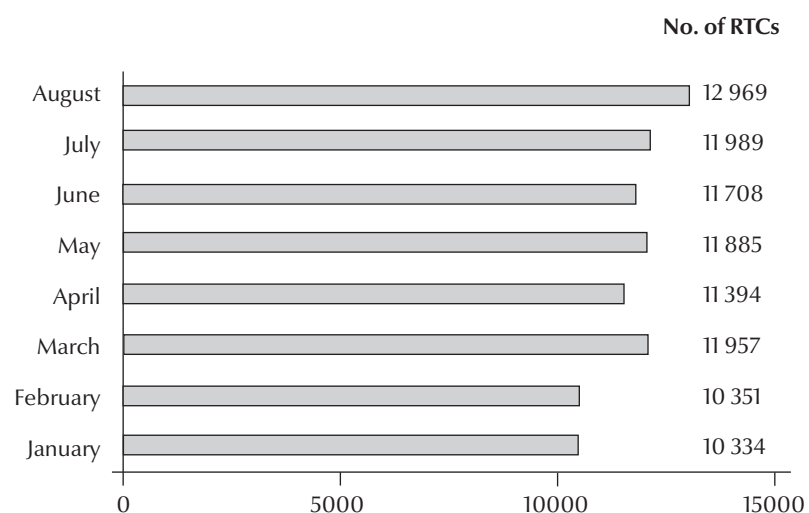


Figure 1 Road traffic crashes (RTCs) managed by Rescue 1122 from January to August 2011

Detailed analysis of Ramadan 2011 RTCs data showed that the service rescued 14 788 victims while responding to 12 969 RTC emergencies. The highest number of RTCs were reported in Lahore District (3263), followed by Faisalabad (1205) and Multan (864) (Table 1).

Males were involved in 11 633 (79%) and females in 3155 (21%) of the total crashes. The younger age group aged 18–27 years were victims in 4325 (29%), the group aged 28–37 years in 3038 (21%) and the group aged 11–17 years in 2565 (17%) of the total reported RTCs (Table 1).

Motorcycles were the most frequently colliding vehicle, being involved in 9101 (57%) crashes, followed by cars in 2118 (13%) crashes. Speeding was found to be the major cause in 4893 (39%) of RTCs and motorcycling one wheeling was reported in 117 (1%) crashes. The majority of RTCs (5516; 43%) occurred between 14:00 and 18:00. Fractured bones (3102; 22%) and head injuries (1328; 9%) were the major injury outcomes of the RTCs (Table 1).

Discussion

RTCs are the major emergency dealt with by the Rescue 1122 ambulance service. The service has attended nearly 6 million RTCs in Punjab in the past 7 years. The results of this study revealed a growing rate of RTCs in 2011. Rescue 1122 faced an increased burden of RTC emergencies in August 2011 (the Islamic month of Ramadan). In this month, the number of RTCs was 1469 higher than the average of 11 573 RTCs per month. Speeding was the leading cause of these collisions and the majority of the crashes were reported between 14:00 and 18:00.

These findings could be attributed to the fact that government offices and private businesses usually finish earlier during Ramadan than during the rest

Table 1 Epidemiology of road traffic crashes (RTCs) reported to Rescue 1122 during Ramadan 2011

Variable	No.
Total no. of reported RTCs	12 969
Total no. of victims rescued	14 788
	No. (%) (n = 14 788)
Sex	
Male	11 633 (79)
Female	3 155 (21)
Age groups (years)	
0–10	703 (5)
11–17	2 565 (17)
18–27	4 325 (29)
28–37	3 038 (21)
38–47	2 198 (15)
48–57	1 215 (8)
> 58	744 (5)
Road user groups/type of vehicle	
Motorcycle	9 101 (57)
Car	2 118 (13)
Rickshaw	1 407 (9)
Coach/van	514 (3)
Bus	352 (2)
Truck	366 (2)
Bicycle	340 (2)
Tractor/trolley	223 (1)
Non-motorized vehicle	221 (1)
Pedestrians	382 (2)
Others	958 (6)
Types of injuries sustained	
Minor ^a	8 408 (59)
Fractures	3 102 (22)
Head	1 328 (9)
Neck	64 (0.4)
Spine	119 (1)
Causes of RTC	
Speeding	4 893 (38)
Carelessness	3 769 (29)
Wrong turn	1 180 (9)
Bad road conditions	231 (2)
Burst tyre	160 (1)
One wheeling	117 (1)
Collision with structure	165 (1)
Faulty vehicle	166 (1)
Bad weather conditions	116 (1)
Other causes	2 226 (17)
Time of incident	
06:00–10:00	1 767 (14)
10:00–14:00	2 200 (17)
14:00–18:00	5 516 (43)
18:00–22:00	2 192 (17)
22:00–02:00	830 (6)
02:00–06:00	464 (4)

^a"Minor injury" stands for all those injuries where sustained injuries were not very serious (e.g. small cuts, abrasions and scratches) and these victims were usually discharged from the scene of the crash after first aid.

of the year, as people wish to be at their homes before *iftar* (the evening meal when Muslims break their fast). Thus, to return home early, drivers may become impatient and violate traffic rules (e.g. signal violations, speeding, overtaking), often resulting in different forms of RTCs.

Another study [15] conducted in Karachi, which analysed frequency of injuries in Ramadan in 2009 and 2010, confirms this trend. It found that traffic behaviour changed in the approach to *iftar* and speeding was observed, increasing the chances and severity of crashes [15]. This trend was also witnessed in other countries celebrating Ramadan [16–18].

Another reason for increased traffic and busy roads in Ramadan is the increase in seasonal vendors. These vendors often occupy spaces on the main roads and pedestrian pavements, thus not only obstruct the flow of traffic but also hinder pedestrian mobility. Before *iftar*, the markets are also packed with people buying traditional foods for Eid.

In the present study, young motorcyclists were predominately involved in the reported RTCs. Fractures of extremities and head injuries were the major injuries sustained by these young people. This is in line with the

findings of WHO that young people, especially motorcyclists in low-income and middle-income countries, carry a large proportion of the global burden of road traffic death and serious injury [1–2]. Similar findings have also been reported in research studies from Pakistan [4–8,21–23], India [24–27] and other countries [28–34].

In this study, motorcycling one wheeling also contributed to the RTC toll. This phenomenon has commonly been observed in Pakistan's big cities, especially on weekends, public holidays, Chand Rat (night before Eid) and New Year's night [35–37]. One wheeling on 14 August 2011 (Pakistan Independence Day) claimed 11 lives and injured over 100 stunt bikers in 105 reported RTCs in the provincial capital, Lahore [36].

One wheelers are often underage and display dangerous stunts on busy roads, without taking basic precautionary measures such as wearing a helmet, which usually results in severe head and spinal injuries [35–37]. One wheeling is unusual in the developed world and seldom practiced as on busy roads and streets in Pakistan [36]. In Pakistan there are laws banning one wheeling and mandatory helmet wearing for motorcyclists but these have not been strictly enforced [35–37].

The socioeconomic consequences of road traffic injuries include costs of prolonged medical care, loss of the family breadwinner and loss of income due to disability; together these factors often push families into poverty [38].

Conclusion

The study has described trends of RTCs managed by Rescue 1122 at urban settings in Punjab, Pakistan. The Rescue 1122 ambulance service experienced a higher burden of RTC emergencies in the month of Ramadan 2011 compared with the preceding months of the year. This increase was mostly concentrated among younger ages, especially those driving motorcycles. Furthermore, the majority of RTCs were caused by speeding during the peak rush hours before *iftar*.

RTCs are a significant public health issue in Pakistan. These crashes and the resultant injuries have considerable physical and socioeconomic impacts; therefore, this issue needs to be addressed. Peer pressure, institutions, stringent law enforcement and personal commitment can play a vital role in improving road safety conditions.

Competing interests: None declared.

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