Analyses of Road Traffic Vehicle Crashes, Kingdom of Saudi Arabia, 2007 – 2012

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Introduction

- An increasing number of motor vehicles has led to a growing number of road traffic vehicle crashes (RTVCs)
- In the Kingdom of Saudi Arabia (KSA), RTVCs accounted for 80% to 85% of total trauma cases
- Annual costs associated with RTVCs are estimated to comprise 2.2% to 9% of the GDP, equal to 21 billion Saudi Riyals (USD $5.6 billion)

Objectives

We studied the epidemiology of RTVCs in KSA between 2007- 2012 by examining:

- Trend of RTVCs, including both injuries and fatalities
- Trend of RTVCs in the morning and at night
- Trend of IRs of Saudi and non- Saudi drivers
- Trends of IRs of injuries and fatalities in KSA regions

Methods

- Yearly, aggregated RTVC data for the 13 administrative regions of KSA were analyzed over time
- Population data were obtained from Ministry of Economy and Planning, Central Department of Statistics and Information
- IRs calculated on yearly basis to observe trends

Figure 1. Administrative Regions in Kingdom of Saudi Arabia

Results

- Total of 2.77 million RTVCs between 2007 and 2012
- Upward trend in the incidence rate (IR) of RTVCs (24.63 to 39.47 per 1,000 vehicles) and fatality rates (0.24 to 0.26 per 1,000 population)
- Downward trend in RTVC-related injuries (1.48 to 1.41 per 1,000 population)
- IR of RTVCs occurring in the morning increased from 14.2 (per 1,000 vehicles) in 2007 to 25.4 in 2012.
- At night, IR increased from 10.4 in 2007 to 14.1 in 2012
- Saudi citizens had a lower IR (25.5 to 26 per 1,000 population) in comparison to non-Saudis (51.8 to 45.5 per 1,000 population)
- Makkah region had greatest cumulative number of RTVC-related injuries and fatalities
- Highest IRs for injuries (9.9) and fatalities (1.6) observed in the Northern Border region in 2007
- Lowest injury and fatality IRs observed in Riyadh region

Table 1. Number of road traffic vehicle crashes and incidence rates, by year, Kingdom of Saudi Arabia, 2007 – 2012

Year	# RTVCs (IR °)	95% CI *
2007	283,648 (24.6)	24.5 - 24.7
2008	435,264 (35.9)	35.8 – 36
2009	485,931 (38)	37.9 - 38.1
2010	484,805 (36.1)	35.9 - 36.2
2011	498,203 (35.2)	35.1 - 35.3
2012	589,258 (39.5)	39.4 - 39.6
Total	2,777,109	95% CI *

RTVCs = road traffic vehicle crashes
°IR = incidence rate per 1,000 vehicles
* CI = confidence interval

Results (continued)

Table 2. Number of injuries and fatalities and incidence rates due to road traffic vehicle crashes, by year, Kingdom of Saudi Arabia, 2007 – 2012

	Injuries			Fatalities	
Year	#	(IR°)	95% CI*	# (IR°)	95% CI*
2007	35,884	(1.4)	1.4 - 1.5	5,883 (0.2)	0.2 - 0.2
2008	36,025	(1.4)	1.4 - 1.4	6,358 (0.3)	0.2 - 0.3
2009	36,489	(1.4)	1.4 - 1.4	6,458 (0.2)	0.2 - 0.3
2010	34,605	(1.3)	1.2 - 1.3	6,142 (0.2)	0.2 - 0.2
2011	38,595	(1.4)	1.4 - 1.4	6,596 (0.2)	0.2 - 0.2
2012	41,086	(1.4)	1.4 - 1.4	7,638 (0.3)	0.3 - 0.3
Total	222,684			39,075	

°IR = incidence rate per 1,000 population
*CI = confidence interval

Figure 2. Incidence Rates°of Road Traffic Vehicle Crashes Occurring in the Morning or at Night, Kingdom of Saudi Arabia, 2007— 2012

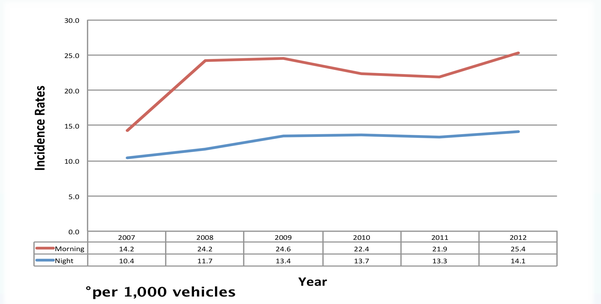


Figure 3. A Comparison of Trends of Incidence Rates °of Injuries Due to Road Traffic Vehicle Crashes to the Total Population, by Region, Kingdom of Saudi Arabia, 2007 – 2012

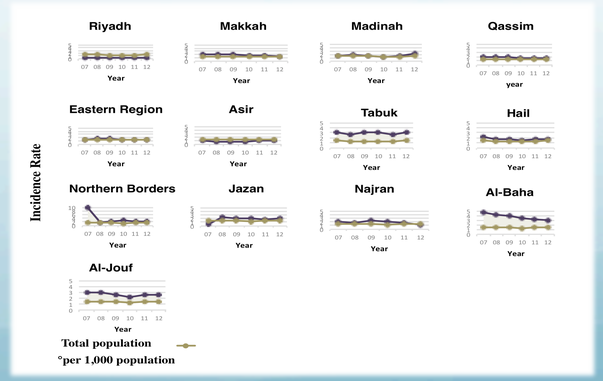
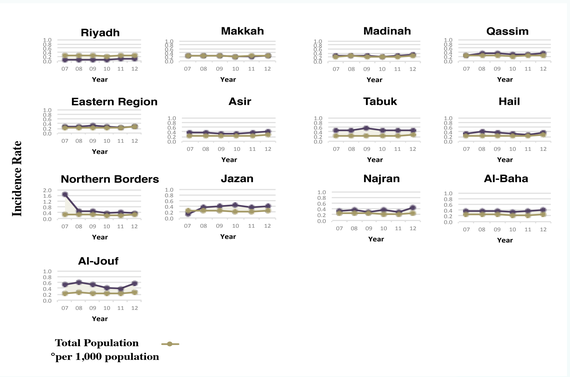


Figure 4. A Comparison of Trends of Incidence Rates°of Fatalities Due to Road Traffic Vehicle Crashes to the Total Population, by Region, Kingdom of Saudi Arabia, 2007 – 2012



Conclusion

- KSA has high number of RTVCs, with significant morbidity and mortality
- RTVCs have become a serious public health burden that require creation of appropriate policies

Recommendations

- Adopt more traffic policies and regulations in addition to existing rules
- Develop standardized data collection system for all regions in KSA to facilitate RTVC studies on an ongoing basis
- Initiate more collaboration and additional scientific studies in fields of health, engineering, and education
- Improve design and construction of some roads
- Implement public health education about RTVCs, especially for young people
- Raise awareness around traffic safety protocols and promote use of safety equipment among people of every age

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