

Association of a few interventions by police with changes in traffic injuries in Iran

SOORI H, ROYANIAN M, ZALI AR, MOVAHEDINEJAD A
Safety Promotion and Injury Prevention research center, Tehran- Iran



Session: C8- Road Safety Interventions
Date: Wednesday 22 September 2010
Time: 15.00PM



Safety 2010 World Conference

21st-24th September 2010 - Queen Elizabeth II Conference Centre, London, UK

Iran (Persia)

- ❑ **Located in Eastern Mediterranean Region**
- ❑ **Capital: Tehran** (with about 12 Million Population)
- ❑ **Population:** 71 208 384
- ❑ **Total Area:** 1,649,000 (sq km)
- ❑ **Currency:** Iranian rial (IRR)
- ❑ **Income group:** Middle
- ❑ **Gross national income per capita:** \$3 470
- ❑ **Number of Provinces=** 30

- ▣ **Life expectancy at birth m/f (years):** 69/73
- ▣ **Probability of dying under five (per 1 000 live births):** 35
- ▣ **Total expenditure on health per capita (Intl \$, 2006):** 731
- ▣ **Total expenditure on health as % of GDP (2006):** 7.8



Scope of problem:

- Greatest number of vehicles in EMR with about 17 000 000 (32% of total vehicles in the region)
- Iran has the third largest population in EMR (About 13% of total population of EMR)
- High percentage of 2-3 wheels vehicles:
- Reported road traffic fatalities (2007–2008 Iranian Calendar): 22 918 (80% males, 20% females)
- (About 30% of all fatal injuries of the region)
- Fatal RTI rate per 100 000 population= 35.8
- Fatal RTIs per 10000 vehicles: 13.5
- Reported non-fatal road traffic injuries (2007–2008 Iranian Calendar): 685 611

Comparison of some figures between Iran, the Eastern Mediterranean Region (EMR) and the World on RTIs

	Population numbers for 2007 (*1000)	% of population number	Reported number of road traffic deaths	% of total traffic deaths	GNI per capita for 2007 in US dollars	Number of registered vehicles (*1000)	% of total registered vehicles	Estimated road traffic death rate per 100 000 population
Iran	71 208	0.11	22 918	1.9	3470	17 000	0.13	35.8
EMR	546 000	8.3	76 912	6.4	11528	52 700	4	32.2
World	6 550 000	100	1 270 000	100	7,995	1 317 500	100	18.8

Why did RTIs in Iran increase to such a large number?

- ***Geopolitical characteristics of the country***
- **Young population (68% of the country's population age between 15 and 64 years old)**
- ***The paradox of gas subsidy*** (approximately, 0.1USD/liter)
- ***Public transportation in Iran: a failure*** (Inter-city public transportation shows no growth in a 10-year period from 1997 through 2006 and in the whole country was only 7.1% of total)
- ***Rapid increase of vehicle manufacturing*** (The most significant increment in car and motorcycle production can be seen after 1994 which coincides with the end of the Iraq-Iran war and the start of construction period.)
- ***Safety equipments of vehicles and unsafe motorcycles (e.g. only <6% of the cars produced are equipped with driver-side airbags and Antilock Braking System (ABS) OR Helmet use is reported from only about 10% of motorcyclists.***
- ***Unsafe roads (The road safety in our country is still far from the desired condition. Ranked 8th among 11 selected country in Asia)***
- ***Unsafe and risky behaviour (e.g speeding, Non-use of crash helmets by two-wheeled vehicle users, Non-use of seat-belts and child restraints in motor vehicles)***

In Iran there are about 65 deaths per day from road traffic injuries (RTIs). Despite some interventions having been implemented during the past 5 years, the impacts of these interventions on mortality and morbidity rates have not been well evaluated.

Objective:

To ascertain and describe the epidemiological pattern of RTIs in Iran for the years 2004 to 2007 and to compare the epidemiological trends of RTIs, before and 2 years after four road safety programs were put into place.

Methods:

A 4-year database from two sources, the traffic police and medico-legal data, was employed.

The morbidity and death rates per 10,000 vehicles and per 100,000 populations were calculated as were the odds ratios (ORs) for before and after these national interventional programs.

The four interventions concurrently/simultaneously put into place in 2005 were (1) enforcement of laws on the mandatory fastening of seat belts, (2) enforcement of the laws on use of motorcycle helmets, (3) enforcement of general traffic laws, and (4) mass media educational campaigns on national radio and television.

Results:

In the years 2004 and 2007, there were 26,089 and 22,921 deaths from RTIs in Iran, respectively.

In 2007, males were found to be more susceptible to mortality from RTIs than females (81.4% vs. 18.6%). The mean age of victims was 35.2 years.

The majority of deaths from RTIs occurred outside of urban areas (61.2%).

On inner roads most victims were car drivers (49.1%) and pedestrians (43.3%). There was a dramatic increase from 6,949,381 to 9,945,140 (69.9%) in the numbers of cars in Iran from 2004 to 2007; the number of all types of road motorized vehicles also showed an increase rate during these years, from 10,791,459 to 17,059,938.

However, overall a significant negative trend of deaths from RTIs in Iran was observed between the years 2004 to 2007 ($P < 0.001$).

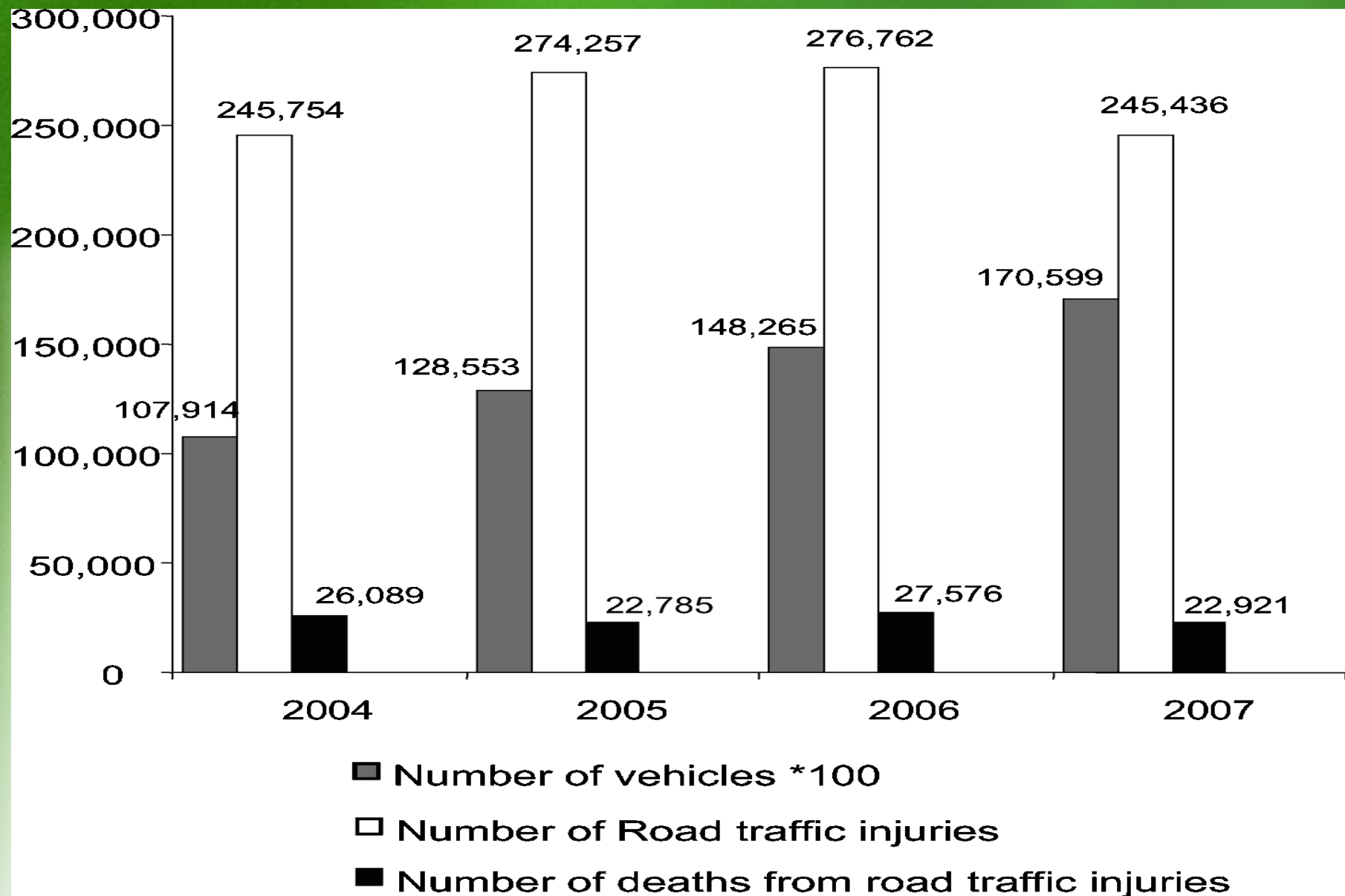


Fig 1. Distribution of fatal and nonfatal road traffic injuries and number of vehicles ($\times 100$) in Iran, 2004–2007.

Table I Epidemiological measures of death and morbidity rates of road traffic injuries (RTIs) before and after the obligatory rules for use of seat belt for drivers and car occupants, educational program campaign, police enforcements of laws, and legislation programs and mandatory helmet laws for motorcyclists in Iran.

	<i>Before (2004)</i>	<i>After (2007)</i>	<i>Odds ratio (95% CI for OR)*</i>
Death rates per 100 000 population	38.2	31.8	0.83 (0.82-0.85)
Death rates per 10 000 vehicles	24.2	13.4	0.56 (0.55-0.57)
Morbidity rates per 100 000 population	361.4	345.7	0.97 (0.96-0.98)
Morbidity rates per 10 000 vehicles	227.7	155.6	0.68 (0.67-0.68)
Total population of Iran	68344730	71601159	
Total Deaths from RTIs	26089	22921	
Number of injured people from RTIs	245754	245436	
Number of vehicles	10791459	17059938	

* 95% Confidence Interval for odds ratio

** P-value<0.001 for all differences

*** Total number of cycles was 3842078 and 7114798 respectively

Conclusion:

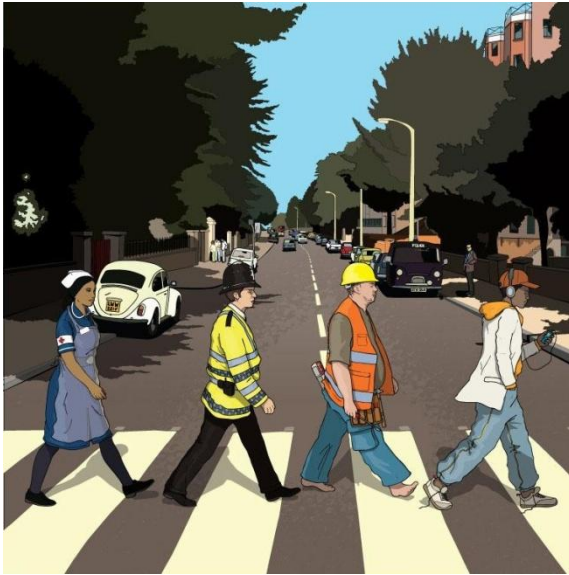
These findings showed that despite of increasing numbers of cars and lack of significant environmental modifications for roads or national vehicles safety promotion, the role of traffic police interventions in Iran particularly the enforcement and obligatory rules for use of seat belt for drivers and car occupants, wearing helmet for motorcyclists, enforcements of laws and legislations, and educational programs can be effective in RTI prevention and in lowering the current related RTI rates.

While these reductions may not entirely attributable to the police intervention, they do indicate the important contribution that enforcement and education can make. It is recommended that the long term effect of these interventions should be further investigated and the Iranian traffic officials/police continue the enforcement of legislations and educational programs.

Some photos from Iran

Thank you for your attention





Safety 2010 World Conference