An Overview of Road Traffic Injuries and Fatalities Among Children in Jordan

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ABSTRACT

Road accidents account for a large number of deaths and injuries each year in Jordan and remain the leading cause of accidental death for children. They can cause life-changing injuries including loss of limbs, spinal injuries and head injuries.

Children and young people aged 0–17 years constitute about 45% of the total population of Jordan which amounts to about 6.4 million. Children use roads as pedestrians, cyclists, motorcyclists, and car occupant. With a range of risk factors, notably immaturity, risk taking behaviors and small body stature will increase the risk susceptibility of children to traffic injury and fatality. Figures published by the Public Security Directorate show that among a total of 704 casualties, 175 children under the age of 17 were killed in 2012 on Jordan’s roads- an average of 2 children every day.

This paper provides an overview of the magnitude and the various characteristics of the children road safety in Jordan. These include such characteristics as gender, age and the types of road user which are most at risk (e.g. car occupant, pedestrians, etc). The patterns of traffic injuries and fatalities among children in Jordan over the period (2007 – 2012) are also presented and discussed. Finally, some measures to combat this carnage and prevent children and young people from dying on the roads are outlined.

Introduction

Roads have always been a dangerous place for children. Child traffic injuries are a global public health problem. Children use roads together with pedestrians, cyclists, motorcyclists, and other vehicle users. They even use the roads as playing fields, especially when they live close to the roads. With a range of risk factors, notably immaturity, risk taking behaviors and small body stature that make their visibility to road users very low, interaction with the roads and other road users will increase the risk susceptibility of children to traffic injury.

Jordan is a developing country that experienced a high level of traffic accidents. There were more than 13000 fatalities from all ages between the years 1989 and 2012. Children below the age of 18 years constitute about 21.5% of total fatalities in 2012. (1)
This study applies the definition of child as “every human being below the age of 18 years.” However, as the risk, exposure, and injuries are different for different age groups, standard age groupings are needed to obtain an accurate profile of child injury and to recognize the different characteristics of the different age groups.

Jordan has been experiencing persistent growth in population, economy, and motorization level. The annual population growth rate remained constant at 2.2% over the past decade. Children of the age group of 0–17 years constitute about 45% (2,874,600) of the total population (6,388,000) in 2012. For the same year, 704 children of the same age group were killed or seriously injured on Jordan’s roads—on average of 2 children every day. This study aims to provide a detailed overview of road traffic injuries and fatalities among children in Jordan.

**Vulnerability of Children**

Vulnerability of children is affected by two main factors: Age and Gender.

At a young age, children (2):

- Are less able to assess risk
- Overestimate their abilities
- Have a high level of sensation seeking behavior
- Are influenced by their peers

Safety experts consider children as vulnerable road users due to the fact that they are inexperienced, immature and fragile. A child’s body parts are all in a state of growth that makes a child physically more vulnerable to any contact as compared to an adult. The small physical stature of children limits their ability to see or to be seen by other road users. (3)

Gender is also an important factor affecting children safety. All around the world, males are more inclined to risk-taking and sensation seeking behavior. Males are more likely to overestimate their abilities. Young men are almost three times as likely to be killed as their female counterparts.

This is in addition to the factors that put all age groups at greater risk, including lack of laws for road safety, insufficient law enforcement and worn out roads and vehicles. (2)

**A Global View on Child Road Safety**

Globally, more than 350,000 children die as a result of road traffic accidents each year, and it is estimated that up to 12 million more are injured. Looking at this problem by age group, death due to road traffic accidents is a leading cause of death for children aged 15–19 years and the second leading cause of death among 5–9 and 10–14 years old groups. WHO reports indicate that in the Western Pacific Region, child transport injuries are one of the top causes of death for children aged 5–14 years old. In the South East Asia Region, road traffic injuries account for
12% death among children aged less than 14 years old with a mortality rate of 7.4 per 100,000 children. (3)

A study in Bangladesh reported that one third of the pedestrian dying in road accidents is under the age 16 years, therefore, A Child road safety strategy was developed to reduce child injuries and fatalities. The strategy focused on three key areas: education, training and publicity; the road environment; and vehicle standards and safety equipment particularly emphasizing safety of children as pedestrians. (4)

In India, road accidents accounted for 55% of all accidental death in children and in almost all of these, the unsafe behavior of child was considered to be at fault. (5)

In Malaysia, child road traffic injuries (age 0–19 years old) account for 35.5, 35.3, and 35.2% of total admission to Ministry of Health hospitals due to road crashes in 2003, 2004, and 2005 respectively. They are the top leading cause of hospital admission among children (0–19 years) due to injuries in Malaysia for 2003–2005. (3)

Characteristics of Children Fatalities

Police-based databases are available for analysis from the Public Security Directorate. This section presents the burden and patterns of traffic fatality among children in Jordan within the study period between 2007 and 2012.

Figure 1 shows the number of road traffic fatalities among children over the study period. In general, some age groups show an increasing trend beginning from 2007 while other groups show a decreasing trend. Similar trends are also shown by the rate of fatality per 100,000 populations of age-specific group as depicted in figure 2.

Figure 1: Number of fatalities by age group of children, 2007–2012
For the age group of 6–8 years old, the increasing trend is alarming, starting from 0.37 per 100,000 populations in 2007 and increasing to 0.63 per 100,000 populations in 2012. This is a 70% increase over the five-year period.

For children aged 15 – 17 years old, the fatality rate increased from 0.14 fatality per 100,000 population in 2007 to 0.48 fatality per 100,000 population in 2012, which is about 2.5 folds in 5 years.

For children aged 3-5 years old, the fatality rate per 100,000 populations declined from 2008 to 2011. However the trend increased again in 2012. Over the five-year period of study, the highest fatality rate was among age group 3-5 years old.

The fatality rates for all ages under 18 years are shown in figure 3. It can be seen that 2009 witnessed a significant decrease in fatality rate. This may be attributed to the series of measures taken in that year to address the problem of traffic accidents after a series of severe traffic accidents occurred at the end of 2007 and the beginning of 2008 especially the popular bus accident on Amman- Irbid road resulting in 20 fatalities and 50 injuries. (6)
The fatalities among children distributed by road users are shown in figure 4. It can be seen that most of children fatalities occur among pedestrians. This can be explained by using the roads as playing areas and the random movement of children on the road.

Figure 4: Number of fatalities among children (0-17 years) by road user, 2007 - 2012

Other characteristics refer to those involving the proportions of child road traffic fatalities as compared to all fatalities due to road traffic accidents. These are shown in figure 5 which illustrates that fatalities among children increased from 12.7% of all fatalities in 2007 to 21.5% of all fatalities in 2012.

Figure 5: Proportion of road traffic fatalities among children, 2007–2012

As mentioned earlier, Gender plays an important role in children vulnerability. Figure 6 shows the proportions of children road traffic fatalities by gender during the study period.
Figure 6: proportion of child fatality due to road traffic accidents by gender

Figure 6 clearly shows that fatalities among male children are much higher than fatalities among females. In general, road traffic fatalities among children affect more male than female. The ratio of male to female as a whole, regardless of age, is 3:1. (3)

Further characteristics are depicted on figure 7 which illustrates the change in risk exposure over the study period. Risk exposure is defined as fatalities per age group population. It can be seen that the highest risk exposure occurs is the one of the 0 – 4 year age group. This may be attributed to the high risk taking behaviors taken by children of this age group specially 3 and 4 years old children.

Figure 7: risk exposure of age groups

**Characteristics of Children Injuries**

The numbers of road traffic injuries among children for the period from 2007 to 2012 are depicted in figure 8. It can be seen that age group 3 – 5 years is the most affected by road traffic injuries. The age group 12 -14 years witnessed a large increase in traffic injuries in the last two years while other age groups witnessed a significant decrease in 2012.
Figure 8: Number of injuries by age group of children, 2007–2012

The injury rates for all ages under 18 years are shown in figure 9. The injury rate increased from 42.8 injury / 100,000 populations in 2007 to 61.7 injury/100,000 populations in 2012. This alarming increase calls the need for remedial measures implementation to prevent children from being injured on the roads.

Figure 9: injury rate per 100,000 populations for ages from 0 to 17 years

Similar to fatalities, most of children injuries are among males. Figure 10 shows the proportions of children road traffic fatalities by gender with males having a significant share of about 80% of total.
Conclusion

Road traffic accidents constitute a major cause of Jordan’s childhood fatality and injury of ages up to 17 years. The results of this research showed that childhood deaths and injuries involve mainly males and whose proportion was found to increase over time reaching 83% of total deaths and 81% of total injuries.

The number of children killed and seriously injured on the roads each year was found to be increasing in recent years. Both fatality and injury rates showed increasing trends over the study period. In 2007, the fatality rate was 2.18 fatality/100,000 person increasing to 2.74 fatality/100,000 person in 2012 and Injury rate was 42.8 injury/100,000 person in 2007 increasing to 62.3 injury/100,000 in 2012.

For the age group of 6–8 years old, the increasing trend is alarming, starting from 0.37 per 100,000 populations in 2007 and increasing to 0.63 per 100,000 populations in 2012. This is a 70% increase over the five-year period. The highest fatality and injury rate was noticed among the age group 3-5 years old calling for the need to implement safety measures to combat these early childhood casualties. Such measures require children to be educated about traffic rules. They should be separated from high-speed highways and safe playgrounds should be provided for their recreation.

The results of this work dictates that Jordan needs to adopt a stronger and more widespread approach towards child road safety and more consideration should be given to the introduction of legislation on driver responsibility for pedestrian. There should be more national support for promoting safe and sustainable travel of children. A Child road safety strategy is necessary to be developed to reduce child injuries and fatalities.

References


