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Abstract

Background: Childhood road traffic injuries (RTIs) are a major public health problem worldwide. Reliable and valid information on childhood RTIs is essential to reduce the number of deaths.

Aims: To determine the burden of deaths from RTIs in children aged 0–14 years from 2006 to 2019 in Turkey.

Methods: This descriptive study examined the change in road traffic fatalities in children according to age, gender, road user type, and place. The necessary data for this study were obtained from the Turkish Statistical Institute. We used Microsoft Excel to analyse data from 4614 children who died from RTIs in 2006–2019 in Turkey.

Results: The fatality rate from RTIs per 100 000 children aged 0–14 years increased from 1.41 in 2006 to 2.13 in 2019. The fatality rate for boys aged 0–9 and 10–14 years was higher than that for girls of the same age. The fatality rate for girls aged 0–9 years was higher than that for girls aged 10–14 years. The fatality rate for boys aged 10–14 years was higher than that for boys aged 0–9 years. Among the children who died from RTIs, 6.65% were drivers, 41.31% pedestrians and 52.04% passengers. Children lost their lives mostly as pedestrians on urban roads and as passengers on rural roads.

Conclusion: The death of children due to RTIs is a significant health burden in Turkey.

Keywords: children, road traffic injury, fatality, health burden, Turkey.

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Introduction

Approximately 1.35 million people worldwide die each year due to road traffic injuries (RTIs). In addition to deaths, between 20 and 50 million more people incur nonfatal injuries each year as a result of road traffic accidents (RTAs) (1). Moreover, RTAs cost 3.0% of gross domestic product in most countries (2).

Every year, around 950 000 children aged

Children have not developed a proper awareness of traffic risks, and often exhibit immature behaviour. When RTAs occur, the consequences are often severe because of the increased vulnerability of children (4,5). Every day, 3700 people die in RTAs worldwide, and at least 500 of them are children (1, 4). This means that nearly 182 500 children lose their lives every year due to RTIs. These deaths are a major public health issue, especially low- and middle-income countries.

Globally, RTIs are the fourth leading cause of death among children aged 5–9 years, third among children aged 10–14 years and, first among children aged 15–17 years (6–8). RTIs are the leading cause of death in children aged

In addition to young deaths, financial losses from RTAs are a huge burden for the victims, their families and their countries (11). The cost of deaths from RTIs is higher in children and adolescents than in adults. According to the London School of Economics and Political Science, the socioeconomic impact of life years lost from RTAs with child victims in France, Spain, Italy, Chile, Brazil, Argentina, Puerto Rico and India is $21.8 billion annually (8).

The majority of previous studies focused on health effects of child deaths from RTIs in Turkey (12). Limited hospital data were used in most of these studies. In this study, the burden of child deaths due to RTIs was examined according to age, gender, type of road user, and accident location, and which of these is most risky.

Methods

Data on RTAs are compiled from the administrative records of the General Directorate of Security and the General Command of Gendarmerie and published annually by the Turkish Statistical Institute (TurkStat). The data for RTIs for children aged 0–14 years in 2006–2019 were obtained from TurkStat.

The following variables were used: age 0–9 and 10–14 years; gender; types of road users (driver, pedestrian and passenger); location of accident; and fatality rate per 100 000 child population by age and gender. Data on 4614 children who died from RTIs in 2006–2019 in Turkey were analysed in Microsoft Excel. Fatality rates were calculated using the cause-specific death rate formula (13,14) as follows: Cause-specific death rate = × 105

Findings from the study included a descriptive analysis of child deaths due to RTIs by age group, gender, and road user type and accident location. The study was an overview and helpful in understanding the situation of childhood RTIs for the purpose of developing strategic solutions in Turkey.

Results

Road traffic fatality rate

Children aged 0–14 years constitute 23.10% of the Turkish population, which was 83.2 million

as of 2019. This includes 7.63% aged 0–4 years, 7.77% aged 5–9 years and 7.70% aged 10–14 years (15). In Turkey, 5473 people died from RTIs and 283 234 were injured in 2019. Children aged

The high number of children who died from RTIs in 1995 and 2000 is noteworthy (Table 1). There was less motor vehicle traffic and mobility during these years in Turkey, and although the presence of children in traffic was more limited, the fatality rate was high. In 2006, the fatality rate of children aged

The age factor

Between 2006 and 2019, 66.06% of 4614 children who died from RTIs in Turkey were aged 0–9 years, and 33.94% were aged 10–14 years. In all years examined, the number of children aged 0–9 years who died from RTIs was higher than the number aged 10–14 years (Table 2). Data for 2006 for children aged 0–9 and 10–14 years could not be obtained from TurkStat and are not included in Table 2. Table 2 shows that the fatality rates due to RTIs in the 14 years were close to each other for both age groups. However, the number of deaths in children aged 0–9 years was almost twice that in children aged 10–14 years.

The gender factor

Boys constituted 51.32% of children aged 0–14 years in 2019 in Turkey, and girls 48.68%. Although the population of boys and girls was almost equal, the former were more likely to be involved in RTAs. Between 2006 and 2019, 63.0% of 4614 children who died from RTIs in Turkey were male and 37.0% were female. More boys than girls died from RTIs in all years studied (Table 3). Table 3 shows that boys aged 10–14 years had the highest risk in terms of RTAs. The fatality rate for boys aged 0–9 and 10–14 years was higher than that for girls of the same age. The fatality rate for girls aged 0–9 years was higher than that for girls aged 10–14 years. In contrast, the fatality rate for boys aged 10–14 years was higher than that for boys aged 0–9 years.

Types of road users

Between 2006 and 2019, 6.65% of 4614 children aged Table 4). In all years studied, most children who died were passengers, followed by pedestrians. The highest number of children who died from RTIs between 2006 and 2019 were male pedestrians aged 0–9 years, followed by male passengers of the same age. This shows that male pedestrians aged 0–9 years were at higher risk of death in RTAs than other age groups and road user types. The highest number of girls who died from RTIs between 2006 and 2019 were passengers aged 0–9 years, followed by pedestrians of the same age. For both genders, more passengers and pedestrians aged 0–9 years died than those aged 10–14 years. There were fewer children who died as drivers than as passengers and pedestrians in both genders and both age groups. Boys who died as drivers significantly outnumbered girls in both age groups.

Urban/rural roads

Between 2006 and 2019, 54.72% of 4614 children aged Table 5). In some years, the number of children aged

Discussion

The current study clearly highlighted that children aged

In Turkey, the fatality rate from RTIs in children aged 0–14 years was 1.41 in 2006 and rose to 2.13 in 2019. In comparison, for 2016, this rate was 0.82 for 27 EU countries (17), 2.04 for the United States of America (USA) and 0.52 for Japan (18). According to WHO, Africa has the highest rate of deaths in children aged

In the current study, the number of children aged 0–9 years who died from RTIs was higher than the number aged 10–14 years, but the fatality rates per 100 000 were close to each other in the 2 age groups. This differs from the World Report on Child Injury Prevention Report 2008. This report found that the fatality rate per 100 000 due to RTIs for children aged 1–4 and 5–9 years was higher than in children aged 10–14 years in low- and middle-income countries, while it was lower than in children aged 10–14 years in high-income countries (3). Again, unlike our findings, in Australia, the fatality rate from RTIs in children aged 10–14 years was higher than in children aged 0–4 and 5–9 years (20). According to the Reducing Child Deaths on European Roads Report, 30.0% of deaths from RTIs in children aged

In Turkey, it is more likely for boys to put themselves at risk than girls. Observational studies have reported that boys are more likely to run near traffic (21), to play near traffic (22), and to choose riskier routes across intersections (23). Our finding that 63.0% of the 4614 children who died in RTAs between 2006 and 2019 were boys and only 37.0% were girls supports this situation. Boys had a higher fatality rate than girls in all the years studied (except for boys aged 0–9 years in 2011age). According to the World Report on Child Injury Prevention 2008, the fatality rate in children aged

In the current study, 6.65% of children aged

In all the years studied, we found that child passengers were the type of road users who lost their lives most often, followed by pedestrians. There is a similar situation in the 27 EU countries, where > 8000 children have died in RTAs in the last decade. Half of the 630 children who died in the EU in 2016 were passengers, one third pedestrians, and 13.0% cyclists (4,17,31). According to Ten Strategies for Keeping Children Safe on the Road Report, 38.0% of the children (aged

In Turkey, 6.65% of children aged

Between 2006 and 2019, 54.72% of 4614 children aged

The limitations of the current study were as follows. While data on deaths from RTIs included

only police data before 2013, gendarmerie data were added after 2013. As of 2015, those who died within 30 days of the accident were included in the data. These changes in data collection method complicate the analysis. In international statistics, age for deaths caused by RTIs are grouped as

Conclusion

RTIs constitute a major public health issue in Turkey. Children aged 0–9 years were almost twice as likely as those aged 10–14 years to be involved in RTAs. Almost two thirds of victims of RTIs were boys. More than 50.0% of child road fatalities were car occupants and 40.0% pedestrians. Children on rural roads were at greater risk than those on urban roads. In 2019, RTIs were the second leading cause of death for boys aged 5–14 years but the third leading cause of death for girls. Although children have physical and cognitive limitations that make them more vulnerable than adults in road traffic, children’s injuries can be prevented. The road safety of children should be a high priority for families, other road users, government and municipalities. Research on childhood road injuries is too limited in Turkey. The current study was conducted at national level and similar studies are recommended at the provincial level.

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Charge de mortalité liée aux traumatismes dus aux accidents de la circulation chez les enfants âgés de 0 à 14 ans en Turquie

Résumé

Contexte : Les traumatismes dus aux accidents de la circulation chez les enfants constituent un problème de santé publique majeur dans le monde entier. Il est essentiel de disposer d'informations fiables et valides sur ces accidents pour réduire le nombre de décès.

Objectifs : Déterminer la charge de mortalité liée aux traumatismes dus aux accidents de la circulation chez les enfants âgés de 0 à 14 ans entre 2006 et 2019 en Turquie.

Méthodes : La présente étude descriptive a examiné l'évolution du nombre de décès dus à des accidents de la circulation chez les enfants selon l'âge, le genre, le type d'usager de la route et le lieu. Les données nécessaires à cette étude ont été obtenues auprès de l'Institut statistique de Turquie. Nous avons utilisé Microsoft Excel pour analyser les données de 4614 enfants

décédés suite à des traumatismes dus à des accidents de la circulation entre 2006 et 2019 en Turquie.

Résultats : Le taux de létalité des accidents de la circulation pour 100 000 enfants âgés de 0 à 14 ans est passé de 1,41 en 2006 à 2,13 en 2019. Ce taux chez les garçons âgés de 0 à 9 ans et de 10 à 14 ans était supérieur à celui observé chez les filles du même âge. Chez les filles âgées de 0 à 9 ans, ce taux était plus élevé que chez les filles de 10 à 14 ans. Le taux de létalité des garçons âgés de 10 à 14 ans était plus important que celui des garçons âgés de 0 à 9 ans. Parmi les enfants décédés suite à des traumatismes dus à des accidents de la circulation, 6,65 % étaient des conducteurs, 41,31 % des piétons et 52,04 % des passagers. Les enfants ont perdu la vie principalement en tant que piétons sur les routes urbaines et en tant que passagers sur les routes rurales.

Conclusion : Les décès d'enfants causés par des traumatismes dus à des accidents de la circulation constituent une charge sanitaire importante en Turquie.

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