European Commission

Children 2018
Summary

European Road Safety Observatory
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Transport

Children - Summary

What is the problem?

Children, defined here as persons aged from 0 to 14 years, are the most vulnerable road users along with elderly people. Children are less able than adults to perceive a traffic situation or negotiate traffic when cycling, walking etc., since their physical and cognitive skills are still under development. Furthermore, although children are physically very active, their mobility is increasingly restricted because of parent's safety concerns.

How big is the problem?

Risk exposure: In general, children are highly mobile. Although they carry out fewer trips per day compared to other age groups, because they do not have obligatory ways, they are outside the house more regularly. However, there is a lack of good quality data regarding children's mobility behaviour and exposure to risk.

Risk of accident involvement: Hardly any data are available regarding the risk of children involved in accidents, compared to other age groups.

Size of accident injury problem: In Europe, in 2015, 654 children died in road traffic. The number of children killed annually in road accidents fell approximately by 50% between 2006 and 2015 in the EU countries. This could possibly indicate that safety is improving drastically, but it could also be attributed to the falling birth rate across Europe or the fact that children are more often accompanied in road traffic and are less often independently mobile.

What does science say?

Age and Gender

Children aged between 8 and 14 are easily distracted and therefore are at higher risk in traffic. Until the age of 14 no significant gender differences are observed in the number of fatalities; however, at age of 14 the number of road fatalities amongst children rises steeply and almost three quarters of them are boys.

Modes of Transport

Transport mode choice for children largely depends on traffic density and distance to school or child care facility. In 2015, in the EU about 48% of child road fatalities were car occupants, 30% were pedestrians and approximately 13% were cyclists. As far as mortality rates are concerned, data in the Netherlands indicate that child cyclists in the 12 to 14 age groups have the highest mortality rate followed by the 10 to 11 age groups. Data from Vienna illustrate that children up to the age of 9 are at high risk as pedestrians.

Child cognitive development in relation to road safety

Up to the age of 6, children have a limited awareness of perspective and their attention is often centred on one characteristic, e.g. the colour of an oncoming car rather than its speed or proximity. At the age of 6 to 12 traffic education can be attempted but in actual or simulated conditions rather than theoretically in a classroom. Difficulties at this age arise when dealing with complex or combinatorial situations, e.g. determining whether it is safe to cross the street between two parked cars (learned as dangerous) when the cars are located on a crossing (learned as safe). Very important in the traffic education process of children is the mobility behaviour of parents, since they are role models and their attitudes, mobility and interactions influence their children's behaviour.

Children safety and social equity

Statistics show that children whose parents are from lower income groups are more frequently involved in road accidents. The child road traffic injury mortality rate per 100.000 population in Europe in 2004 was 1,5 times higher for children from low and medium income families than for children from high income families. The situation is even worse in less developed countries, and it has been estimated that 96% of children who are killed in road accidents are living in less-developed countries.

Use of safety belts and child restraints

The safety gain from seat belt use and appropriate child restraint use is enormous. An accident at 50Km/h without child safety seat has been estimated as equivalent to a free fall from a height of 10m and even a collision at only 15Km/h without a child safety seat can be fatal for children. Rearward-facing systems have been shown to reduce injuries by between 90% and 95%, and forward-facing systems by approximately 60%. The use of child safety seats has been shown to reduce infant deaths in cars by approximately 71% and deaths of small children by 54%. Despite these facts, studies indicate that a large percentage of children, ranging from 20% to 40% are not appropriately secured and restrained when travelling as car passengers.

What are the solutions?

A variety of recommendations for action has been made in the literature:

Education:

- New strategies aimed at educating children on the dangers they face in everyday life need to give more weight to the influence of parents, peers and teachers.
- Due to difficulties in ensuring that education at home matches the levels of discipline of that in school, schools and parents need to work together.

Intervention programmes - campaigns, such as the following exemplary ones:

- "Gehen geht" (walking works), is an Austrian project aiming to encourage parents of pre-school children to use environmental friendly modes for home to kindergarten journeys. The project improved traffic safety firstly by making children accustomed to the traffic environment and teaching them how to behave safely in traffic, and secondly by reducing traffic around kindergartens and schools.
- European Project EUCHIRES, encouraging the use of seat belts and child restraints.
- "Car Free School" campaign in Denmark, promoting walking and cycling for the journey to and from school.

Road infrastructure:

- Traffic calming measures, aiming to reduce vehicle speed.
- Crossing measures, such as regulating parking near crossing locations and installation of "pavement buildouts" at junctions to reduce crossing distances.

Equipment:

- Vehicle equipment, such as improved Emergency Braking Systems, ESC/ESP, Intelligent Speed Adaptation (ISA), Seatbelt warnings or ignition interlocks for all seats, etc.
- Use of protective equipment, such as bicycle helmets, seat belts and appropriate child restraint seats.

Notes

1. Country abbreviations

Belgium	BE	Italy	IT	Romania	RO
Bulgaria	BG	Cyprus	CY	Slovenia	SI
Czech Republic	CZ	Latvia	LV	Slovakia	SK
Denmark	DK	Lithuania	LT	Finland	FI
Germany	DE	Luxembourg	LU	Sweden	SE
Estonia	EE	Hungary	HU	United Kingdom	UK
Ireland	IE	Malta	MT		
Greece	EL	Netherlands	NL	Iceland	IS
Spain	ES	Austria	AT	Liechtenstein	LI
France	FR	Poland	PL	Norway	NO
Croatia	HR	Portugal	PT	Switzerland	CH

2. This 2018 edition of Traffic Safety Synthesis on Children in Road Safety updates the previous version produced within the EU co-funded research project DaCoTA (2012). This Synthesis on Children in Road Safety was originally written in 2012 by K. Ausserer, E. Füssl, S. Rosso, A. Risser and then updated in 2015 by K. Ausserer and E. Füssl, FACTUM.

3. All Traffic Safety Syntheses of the European Road Safety Observatory have been peer reviewed by the Scientific Editorial Board composed by: George Yannis, NTUA (chair), Robert Bauer, KFV, Christophe Nicodème, ERF, Klaus Machata, KFV, Eleonora Papadimitriou, NTUA, Pete Thomas, Un.Loughborough.

4. Disclaimer

5. Please refer to this Report as follows:
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