European Commission

Thematic Report

Children

Mobility and Transport

This document is part of a series of 20 thematic reports on road safety. The purpose is to give road safety practitioners and the general public an overview of the most important research questions and results on the topic in question. The level of detail is intermediate, with more detailed papers or reports suggested for further reading. Each report has a 1-page summary.

The topic "Children" is also addressed in the "Facts and Figures - Children", presenting more detailed and up-to-date European data in addition to this qualitative analysis.

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Contents

Summary

The number of road fatalities among 0–14-year-olds in the EU decreased by 28% between 2013 and 2023. However, child safety remains a pressing issue, with 430 children losing their lives on European roads in 2023. Children are, along with elderly people, the most vulnerable road users with boys being most at risk due to greater exposure and risk-taking behaviour. As vulnerable road users, children should be protected by the entire traffic system but factors such as poor infrastructure, the increasing number and size of cars, speeding and insufficient attention by adults put them permanently at risk.

Although the safety of children in traffic is up to the age of 14 mainly influenced by the lack of child-friendly traffic environment, their mobility behaviour and their not yet fully developed physical and cognitive abilities also play a role. The latter requires that children up to 4 years be supervised at all times. Between ages 4-7, children gain some traffic awareness but still rely on an egocentric viewpoint. So, supervision is up to 7 still necessary. By ages 7-10, children develop selective attention and a basic ability to anticipate risks, yet they struggle in complex traffic situations. Accordingly, their independent routes should lead through traffic-calmed areas and should be practiced. From the age of 10, children can recognize and avoid risks which translates into safer traffic behaviour. Once they are 13 or 14, they show adult skills in many areas of traffic competence, nevertheless their some skills are not fully developed until late adolescence, respectively early adulthood. In addition, 13–14-year-olds may begin to take deliberate risks as they approach adolescence. Due to children´s preconditions serious injuries and fatalities can only be eliminated by putting vulnerable road users first and providing them a safe system.

Countermeasures are needed at different levels. These range from road infrastructure, appropriate speed limits, vehicle design, technology and protective equipment to traffic law enforcement, traffic and mobility education and child-specific post-impact care measures. Irrespective of the measure, the responsibility for children's road safety should lie with adults and not with children themselves. However, children must be involved in decision-making and planning processes.

- Authorities must design road infrastructure that prioritizes vulnerable users. In addition, 30 km/h zones should be widely implemented and enforced, especially around childcare facilities.
- Vehicle safety must be further enhanced by passive (e.g. side-impact airbags) and active technologies (e.g. advanced emergency braking system) that prevent collisions.

- Protective equipment like child restraints, bicycle helmets and scooter/skate gear should be mandatory, or the usage at least be actively encouraged.
- Enforcing traffic laws with strict penalties, especially in cases that endanger children, alongside public awareness campaigns, are essential to ensure compliance with traffic rules.
- Traffic Safety and Mobility Education in schools must be a matter of course in every school level. In addition, informal education by legal guardians is necessary.
- Specialized post-crash care for children, addressing unique physical and emotional needs, is important to reduce long-term injury impacts.
- Evaluation of safety measures is fundamental to ensure positive outcomes for children's safety and to identify areas for potential improvement.

1. What is the problem?

1.1 Definition of a child

In this report a child is defined as a person younger than 15 years (0 -14). The same age limit is also used in the scientific literature (e.g. ETSC, 2022). This age covers the development of a person between birth and early adolescence. Children therefore do not form a homogenous group. Age differences are related to different levels of physical and cognitive development (see chapter 2.3). Nevertheless, children up to 14 have in common, that their traffic competencies[1] are not fully developed yet which limits their possibilities of travelling and makes them more vulnerable in traffic (Schützhofer, Rauch & Stark, 2018).

1.2 Extent of problem

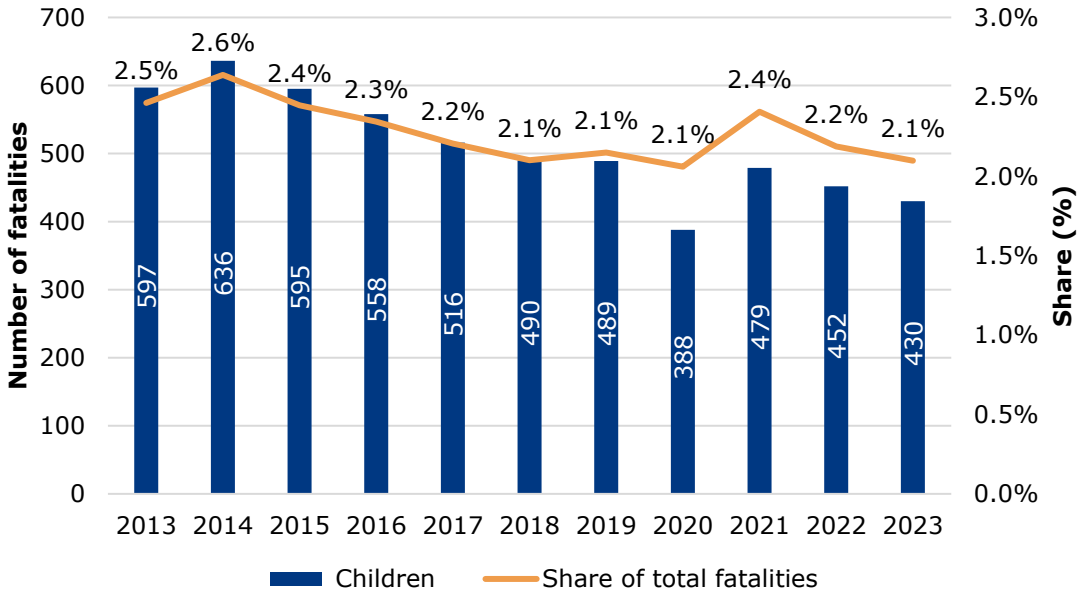
Over the last decade, road safety for children has improved in almost all European countries as the community database on road accidents in Europe (CARE) shows.[2] By now children have fortunately the lowest road mortality rate[3] compared to other age groups. And yet, 430 children were killed on European Union (EU) roads in 2023 alone and 5,630 have been killed between 2013 and 2023.

[1] essential skills and knowledge for safe participation in road traffic
[2] The following numbers are extracted from the CARE database in November 2024. Some countries did not provide data for all years and/or all variables up to this date. When data were missing for specific combinations of years and countries, imputation was used to fill in the empty cells.
[3] Number of road fatalities per million inhabitants.

Figure 1 shows the evolution in the number of child road fatalities in the EU between 2013 and 2023. The data is extracted from the CARE database. The number of road fatalities among children decreased by 28%, from 597 fatalities in 2013 to 430 fatalities in 2023. As the total number of road fatalities was decreasing less rapidly, their relative share decreased slightly from 2.5% to 2.1%. An obvious explanation for the decrease may be that many children are killed as car occupants (see section 2.2) and that both the active and passive safety of cars has improved significantly since 2013. The increase of traffic-calming measures could also have contributed to this positive development.

Children are generally most at risk when travelling in cars or walking: 45% of all deaths are car occupants and 31% pedestrians, reflecting the mobility behaviour of 0-14-year-olds and the dangerous traffic conditions for unprotected road users. Fatal bicycle crashes seem to only be an issue for boys under 14 and in countries like the Netherlands where the proportion of cyclists is remarkably high.

Figure 1. *Evolution of the number and share of road fatalities between 0 and 14 years in the EU27 (2013-2023) (Source: CARE, Nov. 2024)*



Note: In 2020, mobility was strongly influenced by the COVID-19 pandemic, especially children's mobility due to e.g., home-schooling in many countries. This might partly explain the strong decrease between 2019 and 2020.

1.3 Participation of children in traffic

Children either ride passively in the car as a passenger or they use active and/or independent ways of travelling like walking, biking and public transport. In this context, the preferences of the legal guardians

are most important for the choice of transport mode. Especially, how guardians travel themselves and how they perceive the safety of their area as well as the accessibility of different forms of mobility have an impact (Tristram, Reimers, Renninger, Beck, Demetriou & Marzi, 2023, Masoumi, van Rooijen & Sierpiński, 2020).

Generally, children travel more often as pedestrians or cyclists (vulnerable road users) than other age groups, whereas cycling plays a greater role, the older the children get (European Commission, 2021). Unfortunately, no comparable data are available on the mobility (exposure) of children in the EU, which makes it impossible to calculate the relative risk across the EU[4]. Nor is it possible, to assess whether changes in transport modes might be the underlying factor in the slight decrease in fatalities among children over the years. More obvious, however, is that some local governments as well as cities have implemented solutions to calm traffic (e.g. by limiting speed) leading to fewer crashes, respectively less serious ones.

2. Children and road safety

2.1 Crash and injury risk

Road safety of children is to a very large extent influenced by adults (e.g. parents, other carers and road users as well as decision makers). For a long time, decision makers put motorised vehicles first when planning and adapting traffic (Clarke & Draisin, 2023). Nowadays, there is a consensus that children are vulnerable road users which need to be a) put first and b) protected by the entire traffic system (roads, vehicles and road users) to reach zero fatalities or even zero serious injuries (European Commission, 2018).

Due to their lack of skills and abilities as well as their body size, it is difficult for adults to judge children's behaviour and realise them in time (ETSC, 2022). Additionally, poor infrastructure, high speed limits as well as the unsafe behaviour of adults themselves increases their risk of a collision. The injury and fatality risk are highest when a child walking or cycling is hit by a larger vehicle, such as a truck, bus or an SUV which is often the case in blind spot crashes (Swedler, Ali, Hoffman, Leonardo, Romano & Miller, 2024). Regarding car crashes, an up to 7 times higher risk of a fatal crash can be assumed when driving with a child passenger as opposed to without, as children are a substantial source of distraction (Dunn, Tefft & Romano, 2022).

[4] the number of deaths and injuries per kilometre or time spent

The crash as well as the injury risk are strongly depending on the exposure rates. The time spent in traffic, the infrastructure used as well as the amount and place of road crossings have a direct impact on the risk. In addition, distraction while walking, particularly texting on the cell phone or listening to music, has become a growing concern for road safety (Hossain, Zhou, Sun, Hossain & Das, 2024). As all those habits vary between countries, different crash and injury risks can be assumed (Bly, Jones & Christie, 2005).

2.2 Characteristics of crashes and victims

Road fatalities among children differ from all other fatalities combined in the following respects (European Commission, 2024):

Gender. Among children, more boys than girls die in traffic crashes (60% to 40%) due to their greater exposure to traffic as well as their tendency towards more risky behaviour from about 12 years onwards.

Transport mode. Compared with all other age groups, children are more likely to be killed as pedestrians (31% of all fatalities among children, 18% for all age groups in 2023). In addition, slightly more children died in 2023 as cyclists than people 15+ (9% vs. 13%). In some EU countries the proportion of children killed as pedestrians and cyclists is much higher than in others, reflecting the differences in mobility and safety. In Germany, for example, pedestrians account for 50% of all child fatalities, while the EU average is 31%. In the Netherlands 45% of all child fatalities are cyclists[5], while the EU average is 13%. The variation in child fatalities as car occupants is less different: Except for the Netherlands, Germany and Italy, where about 30% of the children died in cars (compared to 45% for the EU average).

Time of the crash. Compared with all other road fatalities, fatalities among children generally occur more often during daytime with a slight peak each day between 4 pm and 6 pm.

Location. In comparison with all other road fatalities, children have proportionally more fatalities on urban roads and fewer fatalities on rural roads. About 80% of all fatal crashes occur outside of junctions which similarly applies to the age category 15+.

[5] The increased use of electric bicycles by adolescents in the Netherlands could explain the very high number of cyclist fatalities in comparison with other EU countries, although there is still too little data to verify this hypothesis (Westerhuis et al., 2024).

2.3 Development process of children

Children up to 14 years behave differently than adults in road traffic due to their not yet fully developed motor and cognitive skills as well as visual and acoustic perception (Schützhofer, Rauch & Stark, 2018, BASt, 2021). By knowing about the age-related skills respectively their developmental stage road safety behaviour can be taught and trained accordingly, and road safety measures can be designed to compensate for children's developmental lack of competencies to ensure a maximum of safety.

2.3.1 Developmental status of children aged 0-4

Very young children do not have the skills and abilities required to participate in traffic independently. Although they can ride a bicycle or scooter at about 4 and have a first rudimentary concept of danger, they still lack very basic competencies (Klöck & Schorer, 2011, Hill, Lewis & Dunbar, 2000). They cannot for example distinguish between stopped and moving cars and due to their reduced hearing ability recognize a car much later than older children or adults (Limbourg, 1995, Pieper, 1990). Additionally, they get easily distracted by irrelevant stimuli making their behaviour unpredictable for others (SWOV, 2019). Therefore, children up to 4 must always be accompanied in traffic.

2.3.2 Developmental status of children aged >4-7

Children up to 7 already face complex traffic situations on their way to pre-school or school, where they still need to be supervised (SWOV, 2019).

Up to 7 children still tend to have an egocentric perspective making them assume that other traffic participants see exactly what they view (e.g. a child seeing a car assumes the driver can see it too) (Schieber & Thompson, 1996). In addition, the peripheral perception is not fully developed yet which results in overlooking hazards (Schwebel, Davis, & O'Neal, 2012). Moreover, cause-and-effect does not exist for children up to the age of 7. They do not understand that their actions may have consequences (Schieber & Thompson, 1996). Besides, noise localization is still a problem and distraction by irrelevant stimuli common (Dordel & Kunz, 2005).

2.3.3 Developmental status of children aged >7-10

From the age of 7 onwards, children are better able to see things from someone else's perspective, enabling them to assess driver intentions based on the driver's behaviour (Limbourg, 2008, Schieber & Thompson, 1996). Additionally, selective attention and risk anticipation are well developed (Tabibi & Pfeffer, 2003, Michaelis & Niemann, 1999).

Auditory perception even reaches the level of an adult at the age of about 10 (Johnson, Hannon, & Amso, 2005). Nevertheless, they still have trouble assessing complex situations as abstract concepts such as time and speed are a problem for them (SWOV, 2019). For instance, they may still have difficulties estimating the speed at which a car is approaching, leading them to choose unsafe crossing gaps. Therefore, routes that are to be travelled alone must be practised together in advance and should, especially in the beginning, only lead through traffic-calmed areas.

2.3.4 Developmental status of children aged >10-14

From the age of 10, children can think in more abstract terms. So, they are rather in a position to recognize and avoid risks (SWOV, 2019). Despite this progress, research shows that, when leaving primary school, children still struggle on their bicycle in complex traffic situations (Twisk, Wesseling, Vlakveld, Vissers, Hegeman, Hukker, Roelofs & Slinger, 2019). Once they are 13 or 14 their field of vision, reaction time, attention and concentration reach the level of an adult (Uhr, 2015, Dorde & Kunz, 2005, Berger, 1992). However, their hazard perception abilities continue to mature until late adolescence or early adult hood. So, they still see less and react more slowly to hazards (Zeuwts et al., 2020). Also, at the age of 14, children have not yet fully matured so called "higher order skills" such as risk awareness and impulse control (Abrams, 2022). At the same time their willingness to comply with rules and behave in a risk-aware manner drops significantly and deliberate distraction by social interactions with peers and digital devices increases (Schützhofer, 2017, Walter, Achermann Stürmer, Scaramuzza, Niemann & Cavegn, 2013). Although their traffic competencies are far developed at the age of 14, they are therefore still more at risk than other age groups.

3. Countermeasures

Children are vulnerable road users which need to be protected (ETSC, 2018). This is where the Safe System Approach comes into play. The approach shifts the responsibility from vulnerable road users, such as children, to all those who design and interact with roads to completely avoid fatalities and serious injuries in traffic (Clarke & Draisin, 2023). To improve the traffic system ways to reduce risk through safe speeds, safe vehicles and safe road design have to be applied area-wide (European Commission, 2018).

General outlines of concrete countermeasures are given below. For more details on current policy recommendations at national and EU

levels see the Pin Flash 43 report of ETSC (2022).

3.1 Road infrastructure & speed limits

Within the Safe System approach the authorities are responsible for organizing mobility in a way that all, but especially vulnerable road users, are protected. As children often participate as pedestrians or cyclists in traffic, a road infrastructure that promotes the safety of those road user groups is particularly crucial.

Where vulnerable road users and motorised traffic mix, it is most important to limit the speed of motorised traffic. ETSC (2022) especially recommends 30 km/h zones in areas with large numbers of pedestrians and cyclists and near childcare facilities. In addition or instead, a speed limit reduction during school hours in school environments, where vehicles tend to exceed the speed limit, has proven to be safety-enhancing (Rahman, Abdel-Aty, Lee & Rahman, 2019). To be even more effective, Wen & Cicchino (2022) argue that trucks as well as SUV, pickups, and (mini)vans should also be banned in school areas at the beginning and end of a school day.

School streets are a good example of an even stricter measure, where roads or road sections near schools are temporarily closed to (most) motorised traffic to keep the road free for school children during drop-off and pick-up times (Mosshammer, 2023).

In addition, pedestrians and cyclists should be separated not only from motorised traffic, but also from each other, especially in areas with high foot and bicycle traffic. This means that there should be structurally or at least visual separated paths for pedestrians and cyclists (Marshall & Ferenchak, 2019).

When it comes to just walking the presence of a sidewalk/footpath is essential for children (Amiour, Waygood & van den Berg, 2022). The sidewalk should further run on both sides of the road allowing pairs and groups to comfortably walk past each other. It should also be universally accessible and continuous. To facilitate crossing, highly visible and clear crossing options must be provided along the route (e.g. refuge islands, raised zebra crossings, traffic lights), but especially at every intersection (Rockefeller Philanthropy Advisors (2016.)

To be most effective the implementation of each of the named measures has to be combined with public awareness, consistent enforcement and adequate sanctions (Vias institute, 2022).

3.2 Vehicle technology

Vehicle safety features can help protect drivers and passengers as well as other road users, especially vulnerable ones like children. Passive features such as airbags, seatbelts and deformation zones are standard today and reduce the severity of crashes (European Automobile Manufacturers' Association [ACEA], 2019). Child-specific features like automatic door locks, anti-pinch windows that stop closing when encountering an obstacle or standardized systems such as ISOFIX anchorages and a front seat airbag-disabling switch for securely installing child car seats provide additional protection for children. However, enforcement and technologies like seatbelt reminders are essential to ensure that those safety measures are applied.

In addition to passive safety systems, active ones are advancing rapidly, ensuring safe driving and preventing many collisions. Today, almost every car on Europe´s roads is equipped with the first active safety technologies such as an anti-lock braking system (ABS) or electronic stability control (ESC) (ACEA, 2019). Currently, on-board sensors, radar, cameras, GPS and lasers bring the next generation of driver assistance systems forth. Advanced driver assistance systems (ADAS) (lane-keeping assist, adaptive cruise control, and automatic emergency braking etc.) for example, use cameras and sensors to monitor the environment and automatically intervene, if a potential collision is detected. Although, there is currently little evidence for the safety benefits of ADAS, future generations of such systems are expected to significantly increase safety, especially for vulnerable road users (Isaksson & Lindman, 2023). For the protection of vulnerable road users enhanced pedestrian detection seems particularly promising. Next to ADAS driver monitoring systems (DMS) play an important role in vehicle safety technology by focusing on the driver´s alertness. As they detect drowsiness or distraction, they provide warnings or even take corrective actions, if necessary. Most recent DMS use multiple sensors to capture data on the driver´s state and artificial intelligence to better detect over time (Yang, Ridgeway, Miller & Sarkar, 2024).

In July 2024 a range of active safety systems became mandatory for all new models in the EU, including intelligent speed assistance (ISA), advanced emergency braking system (AEBS), emergency lane keeping system (ELKS), driver drowsiness and attention warning (DDAW) and reversing detection (RD).[6]

[6] Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 Nov. 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users. EUR-Lex - 02019R2144-20240707 - EN - EUR-Lex (08-11-2024)

3.3 Protective equipment

3.3.1 Child restraint systems

Transporting children in adequate and correctly fitted child restraint systems (CRS) can increase their safety as car passengers. Although CRS are widely used today, the problem of CRS misuse remains as the car seat and vehicle manual is often not read or tips get lost in everyday stress.

Child restraints are highly effective in saving children's lives. They can reduce the risk of serious injuries and fatalities among infants and toddlers by up to 70% (WHO, 2023; National Safety Council, 2024). Therefore, children should be transported in rear-facing CRS as long as possible and in forward-facing seats until they outgrow the largest models available (Durbin & Hoffman, 2018). To generally increase the use of child restraints and prevent the misuse awareness campaigns and education as well as distribution programs are needed. In addition, child restraint laws such as the regulation (EC) No 661/2009[7] and enhanced enforcement can improve the usage rates.

In addition to child restraint systems for motorised vehicles, bicycle child carriers can significantly contribute to the safe transportation of children, if they meet European standards[8] and are used correctly. However, there is still a lack of data on which transport system or cargo bicycle improves safety the most (Raftery et al., 2016).

3.3.2 Bicycle helmet

When cycling, a bicycle helmet that meets safety standards and is worn correctly can protect both, children and adults from head and brain injuries. In the event of a fall, the helmet absorbs the impact on the head with an energy-absorbing foam layer (SWOV, 2024). The hard outer shell spreads the impact of the fall over a larger area and prevents objects from penetrating. The smooth exterior allows the helmet to slide on the ground with little resistance, thus preventing injuries to the neck.

There is widespread scientific consensus about the effectiveness of a bicycle helmet in protecting the head. According to the latest meta-analysis, the risk reduction for severe head and brain injuries is up to 65% and for fatal injuries up to 85% (Høye, 2018).

[7] Regulation (EC) No 661/2009 of the European Parliament and of the Council of 13 July 2009 concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefore. Regulation - 661/2009 - EN - EUR-Lex (08-11-2024)

[8] EN 14344 for seats, EN 15918 for trailers, EN 17860 for transportation bikes

Wearing a bicycle helmet can be encouraged by public campaigns or by making it mandatory. To date, 13 European countries require children to wear a helmet: Malta (until the age of 10), France, Latvia and Austria (until the age of 12), Slovenia, Slovakia and Sweden (until the age of 15), Spain, Estonia and Croatia (until the age of 16) and Czech Republic and Lithuania (until the age of 18). Finland is currently the only country that has made helmets compulsory for all cyclists (Velco, 2022). Regardless of who the bicycle helmet legislation is aimed at, the compliance with the law should be monitored to make it effective.

3.3.3 Scooter and skate protectors

Whether skateboarding, scootering or using other wheeled devices protective gear is essential, especially for children as those devices are very popular among them and therefore lead to many injuries (Schuller et al., 2023). As with cycling, the head should be protected by a well-adjusted helmet meeting the safety standards. Knee and elbow pads as well as wrist guards also help absorb the impact of a fall, reducing the severity of injuries.

Generally, safety reflectors, retro-reflective vests or clothing are recommendable as they make vulnerable road users, especially in low light conditions, more visible, reducing the risk of a collision (Seidu, Sun & Jiang, 2023). Once again, it is important that the gear meets the safety standards.

While pre-school children need clear rules about wearing protective gear, school children should learn about the importance of such gear. An attractive design of the equipment and good role models are also crucial.

3.4 Traffic law enforcement

Consistent enforcement of traffic laws and adequate sanctions ensure that traffic laws are obeyed. They are therefore essential for achieving the targets of the Safe System Approach, which aims for zero fatalities and serious injuries on the road (Goldenbeld & van Schagen, 2024).

As children are among the most vulnerable road users due to their immature developed cognitive and physical abilities and lack of experience (Chapter 2.3), violations that endanger children (e.g. lack of child restraints, ignoring of traffic signals, speeding in urban areas) should be based on strict laws and be enforced strictly to reduce the risk of crashes involving children (Vincenten, Draisin & Sengoelge, 2022). In addition, targeted awareness campaigns should communicate laws and regulations and the need to obey them.

3.5 Traffic safety and mobility education

Just like traffic law enforcement, traffic safety and mobility education (TSME) is an essential part of the safe system approach as it teaches the basics of safe traffic behaviour. Fortunately, most European countries have already committed to providing this type of education in schools at all levels. However, TSME is in practice up to now very often non-existent in secondary education and the quality of the implemented educational programs varies widely from country to country (ETSC, 2019). To improve the situation, the European Transport and Safety Council compiled recommendations and examples of good quality traffic education for up to 18 years old within the LEARN! project (ETSC, 2020 & 2021). This shows that TSME should be directly linked to the developmental state of the children as well as their current travel modes and the associated risks.

In addition to TSME in schools, road safety education by parents or legal guardians can have a positive impact on children. They can for instance point out possible hazards in everyday life or set a good example by wearing a bicycle helmet themselves (SWOV, 2024). Because of their important role in informal education, ways need to be found to involve parents a) from low socio-economic and ethnic minority backgrounds and b) of children with additional needs who often lack the skills and/or resources to effectively teach their children (O'Toole & Christie, 2018).

Furthermore, the influence of peers should be emphasized in this context, especially for teenagers (Dodd et al., 2022). As teenagers are more sensitive to peer influence, attitudes and behaviour of friends can directly influence their own choices (Braams, Davidow & Somerville, 2019). By identifying and educating students who are respected by their peers, safety messages could therefore be spread relatively easily.

Additionally, it is important to make all adults aware of the limitations children have in traffic and the problems they face as it is also their responsibility to keep them safe in traffic (ETSC, 2019).

3.6 Child-specific post-impact care

In general, post-crash care is extremely important in reducing the severity of the consequences of an accident (see the thematic report on post-impact care [Bouwen, 2023] for more general details). However, crashes involving children are particularly challenging as their skeletons are considerably different from those of adults. Several pediatric injuries to the musculoskeletal system are for example uncommon and often misdiagnosed and mistreated. A thorough clinical and radiological assessment is therefore essential to avoid

underdiagnosis and mistreatment. In addition to physical injuries, a crash can easily lead to mental disorders and emotional distress in the child, which also need to be properly diagnosed and treated. Moreover, there may be legal implications of the crash for the adult responsible, particularly in cases involving child death, often making a medico-legal approach necessary (Popa et al., 2023).

3.7 Child participation

Children have the right to be heard in all matters that affect them. Therefore, they must have a say in the development of policies and measures that affect their own safety. They should participate, either individually or in groups, in major decisions made at home, at school, in their community etc. This commitment requires adults to enable children´s participation, but also leaves them with profound decisions and more effective outcomes, as children's individual and collective needs are considered (UNICEF, 2022). The Youth Coalition for Road Safety[9] is a good example of an initiative which gives children and teenagers a voice in road safety planning. Cities4Children[10] is another best practice involving children in urban planning and implementation of safety measures following the principle "better for children, better for all".

3.8 Evaluation of safety measures

In addition to child participation, the evaluation of safety measures is essential as every safety measure taken should have positive impacts on the lives of children and adolescents. And even when planned by children and experts, there is no guarantee for success. Therefore, data ranging from accident trends to changes in traffic safety behaviour, attitudes and knowledge are needed to determine whether and to what extend the measure introduced is helping. In addition, an evaluation will provide information on lessons learned and identify necessary adjustments (UNICEF; 2022b).

4. Further reading

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