Use of Helmets:
Uganda must tighten the regulations on the use of helmets

A Policy Brief

CEPA CENTRE FOR POLICY ANALYSIS

1. Introduction

Road traffic injuries are a major public health problem and a leading cause of death and injury around the world. The most recent Global Status Report on Road Safety indicated that two and three-wheelers make up 28% of all global deaths.[1]

In many low-income and middle-income countries- such as Uganda, where motorcycles and bicycles are an increasingly common means of transport, users of two-wheelers make up a large proportion of those injured or killed on the roads. Motorcycle riders are at an increased risk of being involved in a crash. This is predominantly because they often share the traffic space with fast-moving cars, buses and trucks, and also because they are less visible.[2]

In addition, their lack of physical protection makes them particularly vulnerable to being injured if they are involved in a collision.

In Uganda, motorcycle taxis, known as boda bodas, are responsible for a growing proportion of (Road Traffic Injuries) RTIs. According to Uganda Police Crime Reports, RTI motorcycle contribution rose steadily from 24.5% in 2009 to 33.9 in 2017. In the casualty ward at Mulago Hospital, RTIs accounted for a greater proportion of patients and traumas in 2018 compared to 2015 (10%/ 41% and 36%/ 64%), respectively.[3] In 2020, motorcyclists accounted for 31 % of road fatalities (1,146).[4]

2. Methodology

This policy brief was informed by the desk review research by the Centre for Policy Analysis: Assessment of the Legal and Regulatory Framework for Road Safety in Uganda. The study predominantly adopted a desk review approach to identify the gaps in the legal and regulatory framework for road safety. A systematic review of the documents concerning the road safety policies, laws and regulations was conducted. The analysis was also informed by consultations with the key stakeholders in road safety in Uganda.

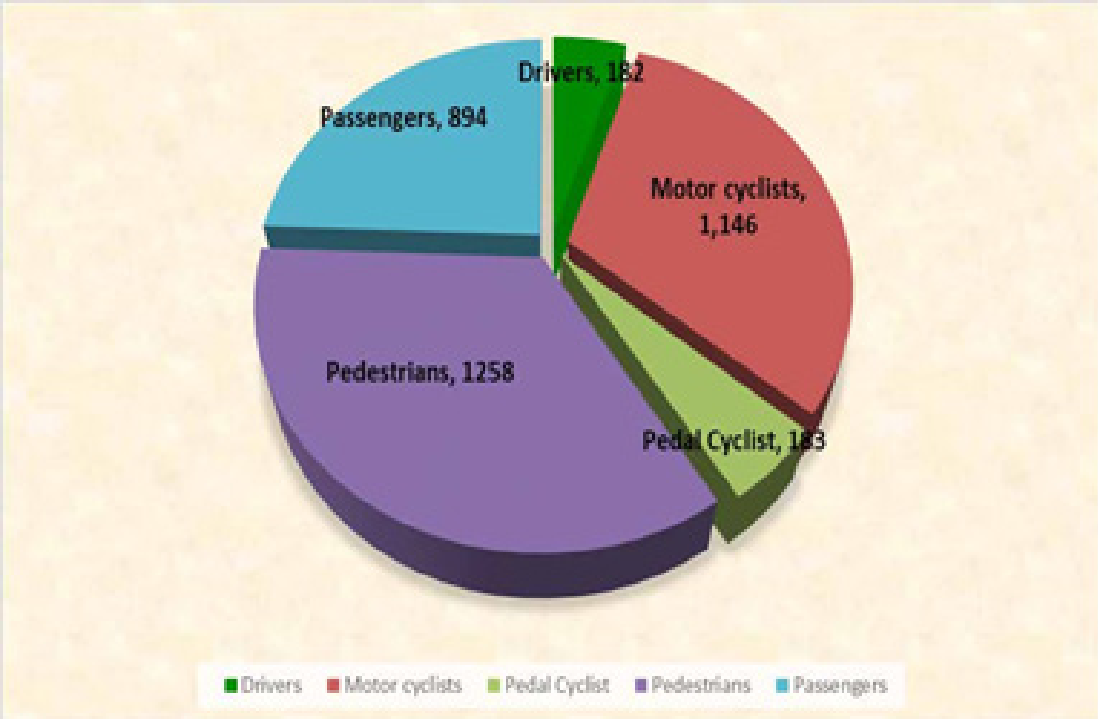
3. Assessing the relationship between helmet use and road traffic injuries

Head injuries are the leading cause of death and major trauma among two or three-wheeled motor vehicle users.[5]

1 WHO 2018. Global Status Report
2 Global Road Safety Partnership
3 Vaca, S. D., Feng, A. Y., Ku, S., Jin, M. C., Kakusa, B. W., Ho, A. L., ... & Grant, G. (2020). Boda bodas and road traffic injuries in Uganda: an overview of traffic safety trends from 2009 to 2017. International journal of environmental research and public health, 17(6), 2110.
4 Annual Police Crime Report 2020
5 MacLeod JBA, DiGiacomo JC, Tinkoff G. An evidence-based review: Helmet efficacy to reduce head Injury and mor-

These would be prevented or reduced with the use of safety helmets. As aforementioned, motorcyclists and passengers in motorcycle crashes account contribute greatly to the total number of road crashes. In 2019, they contributed 41.8% of road fatalities in Uganda and accounted for 31 % in 2020. This is further illustrated in the figure below.

Figure 1: Fatalities by Road User Category in 2020



Source: Liu B et al 2005

When a motorcycle or bicycle is involved in a collision, the rider is often thrown from the cycle. If the rider's head hits an object, such as the ground, the head's forward motion is stopped, but the brain, having its mass, continues to move forward until it strikes the inside of the skull. It then rebounds, striking the opposite side of the skull.[6] This type of injury can result in anything from a minor head injury, such as concussion, to a fatal head injury.[7] Head injuries that result from either contact or acceleration-deceleration injuries are themselves divided into two categories: open or closed head injuries. Most traumatic brain injuries are the result of closed head injuries – that is, there is no open wound to the brain.[8]

Fact: Wearing a motorcycle helmet correctly reduces the risk of death by 40% and the risk of severe injury by 70%.

tality in motorcycle crashes: EAST practice management guidelines. J Trauma. 2010 Nov;69(5):1101–11.

6 Helmets: a road safety manual for decision-makers and practitioners. Geneva, World Health Organization, 2006: https://www.grsproadsafety.org/wp-content/uploads/Helmets_English.pdf

7 WH0. https://www.who.int/roadsafety/projects/manuals/helmet_manual/1-Why.pdf

8 Ibid

Published systematic reviews summarized the available evidence on helmets and their impact on mortality, as well as on head, face and neck injuries, following motorcycle crashes.[9]

This is summarized below.

Summary of systematic review of effectiveness of motorcycle helmets	
Not wearing a helmet	Wearing a helmet
Increases the risk of sustaining a head injury;	Decreases the risk and severity of injuries by about 72%;
Increases the severity of head injuries;	Decreases the likelihood of death by up to 39%, with the probability depending on the speed of the motor-cycle involved;
Increases the time spent in hospital;	Decreases the costs of health care associated with crashes
Increases the likelihood of dying from a head injury	

3.1 Essential Facts about the use of helmets:

A. Helmets work in preventing the risk of serious brain injury and death in the following ways:
   - Absorbing crash energy and dissipating it across a greater surface area so the impact is not concentrated in a particular area of the head.
   - Acting as a mechanical barrier between the rider's head and any external object and thus preventing direct contact.
   - Reducing the deceleration of the skull, which results in the brain hitting the skull with much less force.

B. Motorcycle helmet use can lead to an estimated 42% reduction in risk of fatal injuries and a 69% reduction in risk of non-fatal head injuries.

C. Full face helmets are the most effective at preventing head and cervical injuries and provide significant protective effects on the outcomes compared with either half-coverage helmets or open helmets.

D. Helmets should be correctly fitted and fastened to ensure their effectiveness. They should provide adequate head coverage and remain in place during normal riding

E. Substandard helmets might not provide adequate protection to the head, because they lack the protective layers to absorb and dissipate the energy from impacts

F. Helmets should be worn by motorcycle operators and passengers from all age groups.

G. The use of motorcycle helmets by adult riders is significantly associated with the use of helmets among child passengers

H. Helmet use does not affect the likelihood of a crash. However, it reduces the risk of serious injury and fatality when a crash occurs, adding to the financial burden created by motorcycle crashes.

9 Liu B et al. Helmets for preventing injury in motorcycle riders. The Cochrane Database of Systematic Reviews, 2005 (4).

4. Gaps in the regulations on the use of helmets in Uganda.

The regulations are silent on the minimum age/height/size at which children are allowed to ride as passengers on motorized two-wheelers. The law does not specify the minimum age to be a pillion rider. The law does not establish the minimum height/size for a child to be a pillion rider.

The regulations do not provide for protective helmet standards directed at children in particular and are silent on helmet wearing for the various types of two-wheelers (bicycles, e-bikes and mopeds) in Uganda.

5. Recommendations

1. Amend the regulations to provide for minimum standards for helmets acceptable to be used by a motor vehicle rider and passenger and make the use of helmets mandatory. Standards – of design and materials used – should be set to give motorcyclists a high level of protection in the event of a crash.
2. The regulations should clearly state that it is mandatory to use helmets by both the riders and passengers. Laws calling for the mandated use of motorcycle helmets have proven to be the most effective means of improving helmet use.[10]
3. Provide a minimum age, height or size for children to be pillion riders. Some children are too young and therefore should not be allowed to be passengers on motorcycles. For example, it is difficult for babies to wear helmets while on motorcycles.
4. Specify the protective standards (for helmets) for the children when using two-wheel vehicles. The regulation should provide for the right sizes and standards for the helmets suitable for children.
5. Adopt a comprehensive approach to increasing helmet use including regulations, reducing the cost of helmets by waiving taxes, safety sensitization, and campaigns encouraging correct helmet use.

10 Helmets: a road safety manual for decision-makers and practitioners. Geneva, World Health Organization, 2006: https://www.grsproadsafety.org/wp-content/uploads/Helmets_English.pdf

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7. WHO 2018. Global Status Report
8. WHO Fact Sheet. https://www.who.int/violence_injury_prevention/publications/road_traffic/fact-sheet_3_web.pdf

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Child Restraints:
Why Uganda needs a regulation to guide the use of child restraints?

A Policy Brief

CEPA CENTRE FOR POLICY ANALYSIS

1. Introduction

The safest place for passenger children aged 12 years and below is in the back seat, properly restrained in an approved child safety seat.[1] Specially manufactured child restraints should be used for children. There are several types of restraints suitable for children.[2] However, currently, Uganda does not have regulations relating to child restraints. No law prescribes the use of child restraints for children passengers in Uganda. The country has a law and regulation on the use of seatbelts but does not have any that is specific on the use of seatbelts.

Children and infants need a child restraint system that accommodates their size and weight and can adapt to cope with the different stages of their development. Just like adult seatbelts, child restraints in cars are meant to keep a child firmly secured in their seat so that in the event of sudden braking or crash the child is not thrown against the car interior or ejected from the vehicle.[3] For the safety of the children, while using vehicles as passengers, they must always use restraints. This, therefore, requires that government establishes a law and regulation to guide the use of child restraints.

2. Methodology

This policy brief was informed by the desk review research by the Centre for Policy Analysis: *Assessment of the Legal and Regulatory Framework for Road Safety in Uganda.* The study predominantly adopted a desk review approach to identify the gaps in the legal and regulatory framework for road safety. A systematic review of the documents concerning the road safety policies, laws and regulations was conducted. The analysis was also informed by consultations with the key stakeholders in road safety in Uganda.

3. Assessing the relationship between the use of child restraints and road traffic injuries

Most child restraint systems are designed to be installed using the vehicle's seat-belt. There is also ISOFIX, a system that uses purpose-designed mounting points provided in the vehicle to attach the child restraint with a rigid mechanism, rather than using the seat-belt to secure the restraint.[4]

1 Seat-belts and child restraints: a road safety manual for decision-makers and practitioners London, FIA Foundation for the Automobile and Society, 2009

2 Ibid

3 Ibid, WHO

4 ISOFIX and passenger safety systems in road vehicles. International Organization for Standardization (http://www.iso.org/iso/support/faqs/faqs_widely_used_standards/widely_used_standards_other/isofix_and_passenger_safety_systems_in_road_vehcles.htm).

Table1: **Weight categories of child restraints**

Group	Description
O	For children of a mass less than 10 kg
O+	For children of a mass less than 13 kg
I	For children of a mass from 9kg to 18 kg
II	For children of a mass from 15 kg to 25 kg
III	For children of a mass from 22 kg to 36 kg

Source: Seat-belts and child restraints: a road safety manual[5]

Infants under the age of 1 year (Group 0 or 0+): The smaller the child, the lower the force needed for injury. A rear-facing child restraint system (sometimes called an "infant car seat") provides the best protection for infants until they are both 1 year of age and at least 13 kilograms (kg) weight. For the best protection, infants should be kept rear-facing for as long as possible. The safest place for infants is in the back seat in an approved rear-facing infant car seat.

Children aged 1–4 years (Group I): A restraint system needs to limit forward head movement in a frontal impact and provide protection from intrusion in a side impact. The best type of child restraint for young children is the child safety seat. The integral harness secures the child and spreads the crash forces over a wide area. This seat will last them until either their weight exceeds 18 kg or they grow too tall for the height of the adjustable harness.[6]

Children aged 4–6 years (Group II): Booster seats are best used only when a child has outgrown a safety seat. They are designed for weights from 15 kg to 25 kg. Children should continue to ride in a booster seat until the lap and diagonal belts in the car fit properly, typically when they are approximately 145 centimetres (cm) tall. The booster seat has a back and can provide some protection in a side impact.[7]

Children aged 6–11 years (Group III): Booster cushions without backs are designed for weights from 22 kg to 36 kg, but manufacturers are now producing booster cushions with backs that cover the full 15 kg to 36 kg range. Shield booster seats, which have a plastic shield in front of the child, offer less protection and should not be used. Booster seats for children aged 4–7 years have been shown to reduce injury risk by 59% compared to seat-belts alone.[8]

5 Seat-belts and child restraints: a road safety manual for decision-makers and practitioners London, FIA Foundation for the Automobile and Society, 2009

6 Child passenger safety program. United States Department of Transportation, National Highway Traffic Safety Administration (NHTSA) (http://www.nhtsa.gov/portal/site/nhtsa/menuitem.9f8c7d6359e0e9bbbf30811060008a0c/).

7 Child passenger safety program. United States Department of Transportation, National Highway Traffic Safety Administration (NHTSA) (http://www.nhtsa.gov/portal/site/nhtsa/menuitem.9f8c7d6359e0e9bbbf30811060008a0c/).

8 Durbin DR, Elliott MR, Winston FK. Belt-positioning booster seats and reduction in risk of injury among children in vehicle crashes. Journal of the American Medical Association, 2003, 289(14):2835–2840.

3.1 How are child restraints effective?

Assessment of the effectiveness of child restraints in relation to the risk of injury to children in different seating positions in cars indicated that the restraints reduce the risk.[9] Children who sit in the rear without child restraints have around 25% lower risk of being injured than children who sit in the front without restraints. For children using restraints in both seating positions, the risk in the rear is 15% lower than in the front.[10]

Table2: Effects of child restraints in cars on child's risk of injury as a passenger

	Percentage change in risk of injury	
Type of restraint used	Best estimate	95% confidence interval
Restraining children aged 0–4 years in a forward-facing child restraint	–50	(–70; –30)
Restraining children aged 0–4 years in a rear-facing child restraint	–80	(–90; –70)
Restraining children aged 0–4 years with a seatbelt Only	–32	(–35; –29)
Restraining children aged 5–9 years in appropriate child restraint with seat-belt	–52	(–69; –27)
Restraining children aged 5–9 years using a seatbelt only	–19	(–29; –7)

Source: Elsevier, 2004 cited in the Seat-belts and child restraints: a road safety manual.

The effect of child restraints depends on the type of restraint used. A child up to 4 years of age has a 50% lower risk of injury in a forward-facing child restraint and 80% lower in a rear-facing seat. This compares with injury reduction of only 32% when an adult seat-belt is worn.

For children aged 5–9 years, child restraints reduce injury by 52%, whereas for seatbelts alone the reduction is only 19%. For older children aged 10–14 years seat-belts reduce injury by 46%.

4. Gaps in the legal and regulatory framework

Uganda, at the moment, has no law or regulation that prescribes the use of restraints for children passengers. There is no minimum age for the children to sit in the front row seat of the cars.
Because of the small size of children, some motor vehicles transport them in excess compared to the prescribed number of passengers for PSVUs and the law is silent on this.

9 Elvik R, Vaa T, eds. The handbook of road safety measures. Elsevier, 2004.
10 Seat-belts and child restraints: a road safety manual

5. Recommendations.

- Draft a regulation that explicitly prohibits children below five years from sitting in the front rows of motor vehicles.
- Draft a regulation that mandates the use of child restraints for children below 5 years while in motor vehicles and specify the type of restraints for children below 11 years.
- Establish a clear regulation prohibiting the transportation of an excess number of children as per the prescribed passenger capacity of the vehicle.

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