



Defining a Vulnerable Road User- What Makes them so Vulnerable?

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Global Road Safety Partnership

Working for a world free of road crash death and injury



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Presentation Outline

- What makes a road user vulnerable?
- Who is a Vulnerable Road User?
- What can be done to protect Vulnerable Road Users?





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SUSTAINABLE
DEVELOPMENT
GOALS

Goal 3: Ensure healthy lives and promote well-being for all at all ages

3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable:

11.2. By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, **with special attention to the needs of those in vulnerable situations**, women, children, persons with disabilities and older persons.



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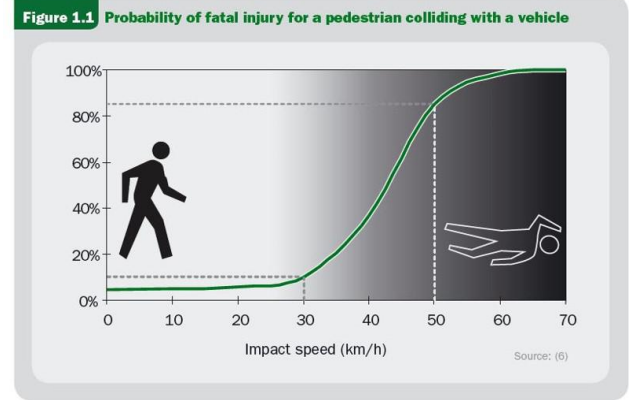


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What do we mean by ‘Vulnerable’?

- Everyone is at risk of death or injury in a road crash - **but some are more at risk than others**
- The human body can only tolerate certain physical forces
- Larger impact force equals greater injury to the body




Speed management: A road safety manual for decision-makers and practitioners (2008), GRSP



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What contributes to road users being vulnerable in a road crash?

Pedestrian safety

A ROAD SAFETY MANUAL
FOR DECISION-MAKERS
AND PRACTITIONERS

Powered two- and three-wheeler safety

A ROAD SAFETY MANUAL
FOR DECISION-MAKERS
AND PRACTITIONERS

- Lack of external protection to reduce forces on the body
- Limitations of road user
- Human frailty, recovery time & access to post crash care
- Traffic mix & road environment



Definitions



‘Vulnerable road users’ usually relates to

1. Amount of protection from physical forces

- road users exposed to greater danger in a crash because of no protection from impact forces (no physical ‘shell’ protecting them)
 - pedestrians, 2 & 3 wheeled riders/passengers

2 Amount of task capability

- road users most at risk of death/injury due to physical capability
 - Children, elderly, disabled
 - Inexperienced road users (e.g., young or novice drivers/riders)



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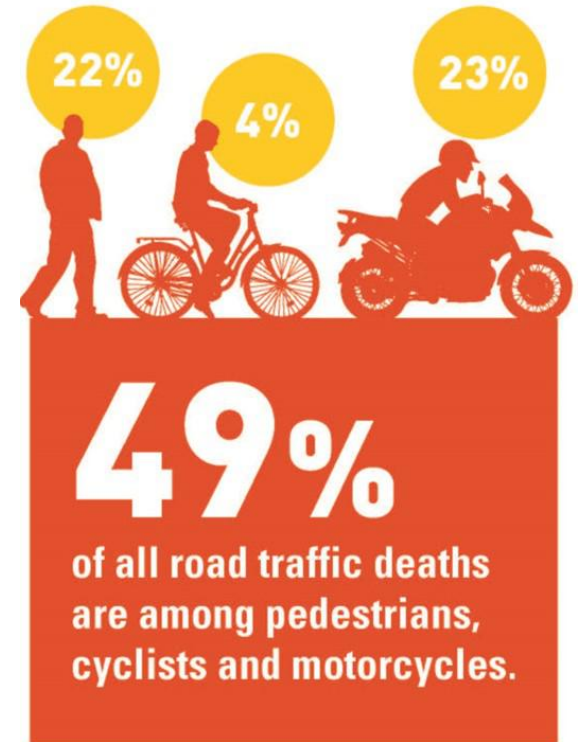
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The Numbers



Source: World Health Organisation. 2015. Global Status Report Road Safety



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Road user group differences in fatality rates

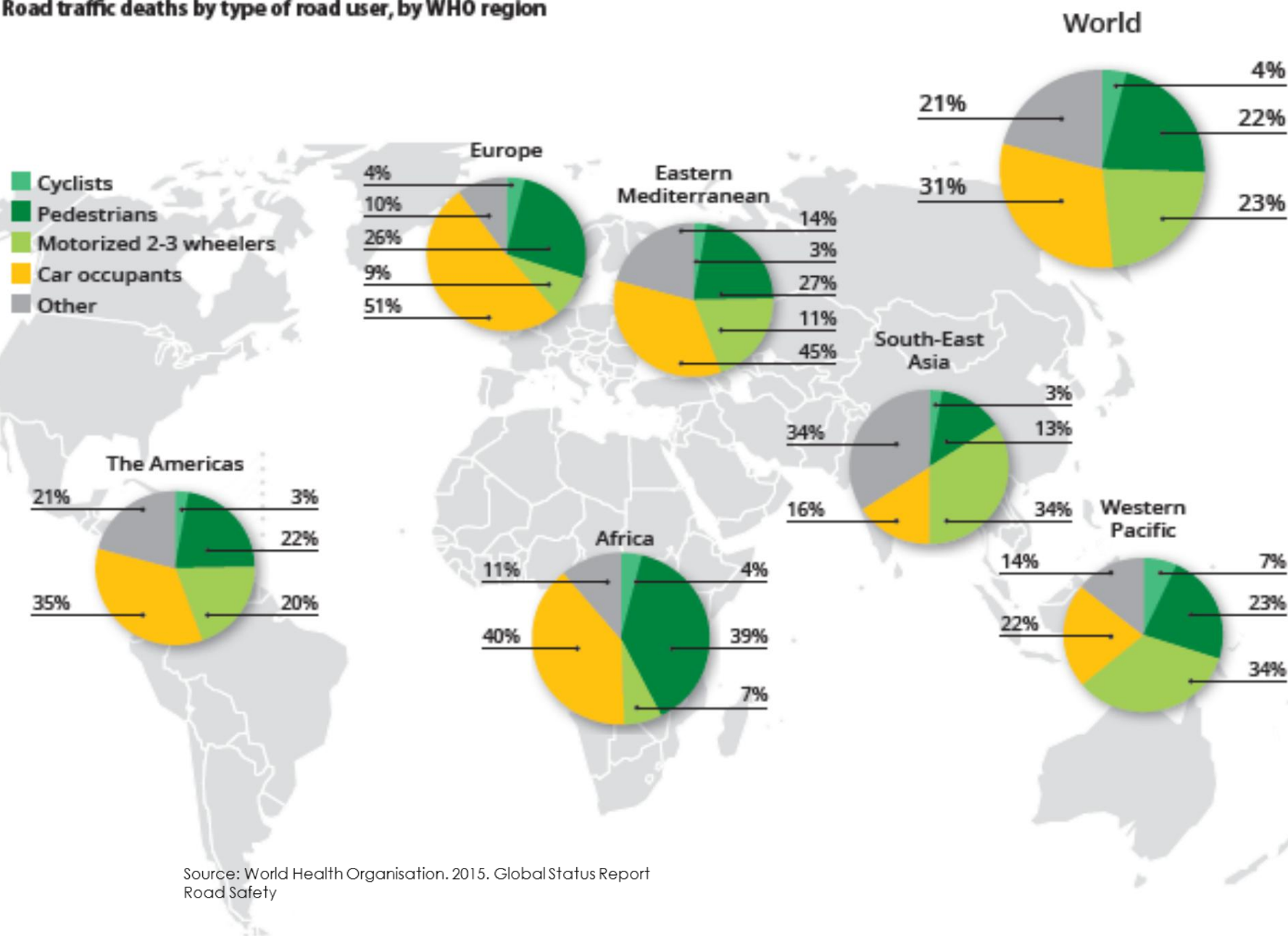


- **Regional differences shown in the WHO Global Status Report on Road Safety (2015)**
 - Differences between High income countries (HIC) and Low/middle income countries (LMIC)
- **HIC examples**
 - Fatalities more likely among drivers and passengers of 4 wheelers
- **LMIC examples**
 - Fatalities more prevalent among pedestrians, powered 2 wheelers, and cyclists
 - The likelihood of dying on the road differs by region:
 - African region highest with 43% of all deaths involving the above 3 groups



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FIGURE 6**Road traffic deaths by type of road user, by WHO region**

Vulnerable road users in LMIC



- Compared to HIC:
 - Traffic behaviour is different and complex
 - Road use and traffic mix is diverse
- Exposure to dangerous conflict for those not protected by vehicle 'shell'
- Some of the challenges:
 - Older and poorly maintained vehicles
 - Poorly designed and/or maintained roads
 - Lack of traffic separation
 - High speeds in inappropriate conditions
 - Lack of regulation of engine size and speed of some motorised 2&3 wheelers
 - Poor lighting, so people can't be seen clearly by drivers
 - Inadequate post-crash care leads to poorer health outcome



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1. Amount of Protection from Physical Forces

Which road user types are most vulnerable?

- Pedestrians
- Bicyclists
- Non-motorized 2 & 3 wheelers
- Motorized 2 & 3 wheelers





2. Amount of task capability

Which road users are vulnerable because of physical condition/level of capability?

- Children
- Older people
- People with a
- disability





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What contributes to Motorized & Non-motorized Two-wheeler users vulnerability



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Motorized & Non-motorized Two-wheeler users vulnerability

- Lack of lane separation between faster, heavier 4 wheelers & 2 wheelers
- Weight of 4 wheelers results in greater forces in a crash
- Limited visibility of 2 wheelers
- Lack of road safety related policies around E-bikes
- Lack of use of protection: helmets & clothing
- Head and upper body takes the force of the crash
- Lower limbs exposed and unprotected





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What contributes to Pedestrian's vulnerability?



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Pedestrian vulnerability

- Human body can only withstand limited force
- No external shell for protection
- Low visibility compared to vehicles
- Roads designed for motorized vehicles, with little safe passage for people



What contributes to Children's vulnerability?





Children's vulnerability

- Body is less able than adult body to cope with impact forces
- Inability to judge vehicle speeds
- The road network is constructed without considering children
- Children cannot always control their own safety

Children's Limitations

- Physical development
- Size, height, growth patterns, co-ordination, balance
- Cognitive development
- Mastering concepts, judgements, decision making, reasoning, impulse control
- Risk taking behaviour
- Intentional & unintentional
- Peer influence



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What contributes to the Elderly's vulnerability?



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Elderly's vulnerability

- Slower walking speeds
- Slower reactions to unexpected situations
- Impaired hearing, sight, judgement
- Frail - body is less able to cope with impact forces than younger adults
- Recovery can be difficult due to presence of other health issues



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Some consequences of vulnerability

- Links to poverty – victims, carers, families...cycle of poverty if *bread winner* is killed or disabled.
- Poor access to community, employment and future opportunities
- Burden on economy





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What can be done to protect VRUs?



- Protective equipment use
- Helmets & restraints
- Safer vehicle design and adherence to regulations
- Improved ambulance, emergency and trauma care services
- Distracted driving and walking policies



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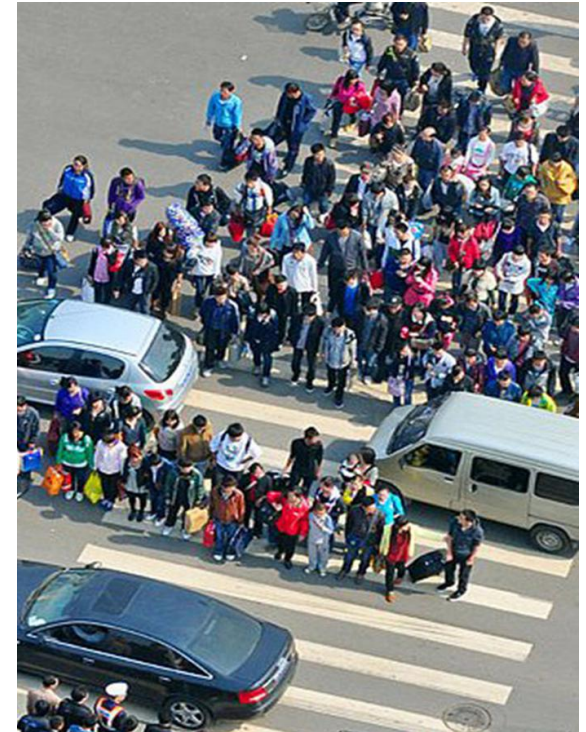


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What can be done to protect VRUs?



- Infrastructure that is built considering safety of all road users
- Appropriate (slower) speed limits & speed calming
- Reduce trading & parking on pavements to allow access for pedestrians
- Enforcement of road safety related policies and appropriate penalties (e.g. policy and enforcement of correct helmet wearing, enforcing standards relating to helmet manufacture)
- Increase availability of reliable/affordable public transport (modal shift)



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Addressing vulnerability in the local context

- Identify who is most vulnerable in your road context (evidence)
- Identify good practices that have been used and are effective and transferable to your context
- Undertake costings and feasibility
- Prioritise work to protect vulnerable road users and implement it
- Evaluate success of the intervention/s and continue monitoring and improving your practices



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Thank You

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