

Institute for Transport Studies

Faculty of Environment



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Understanding aberrant driving behaviour in Nigeria using the Traffic Conflict Technique

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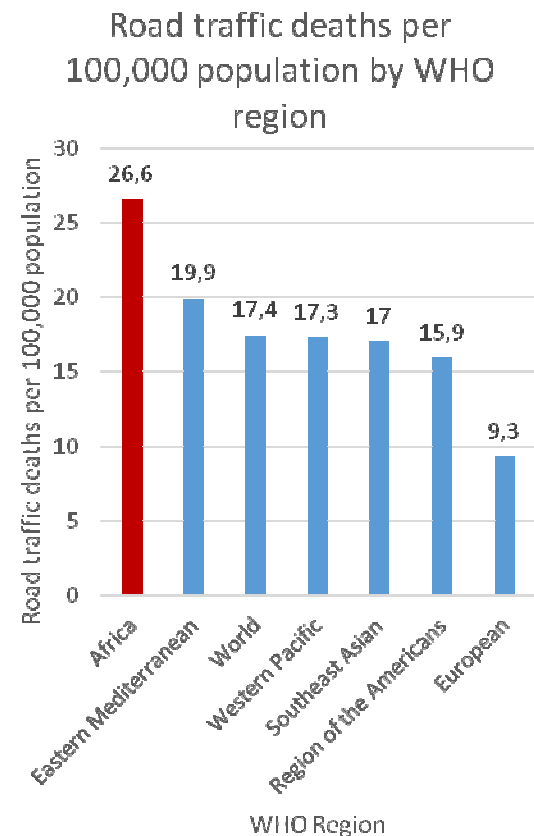
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Background



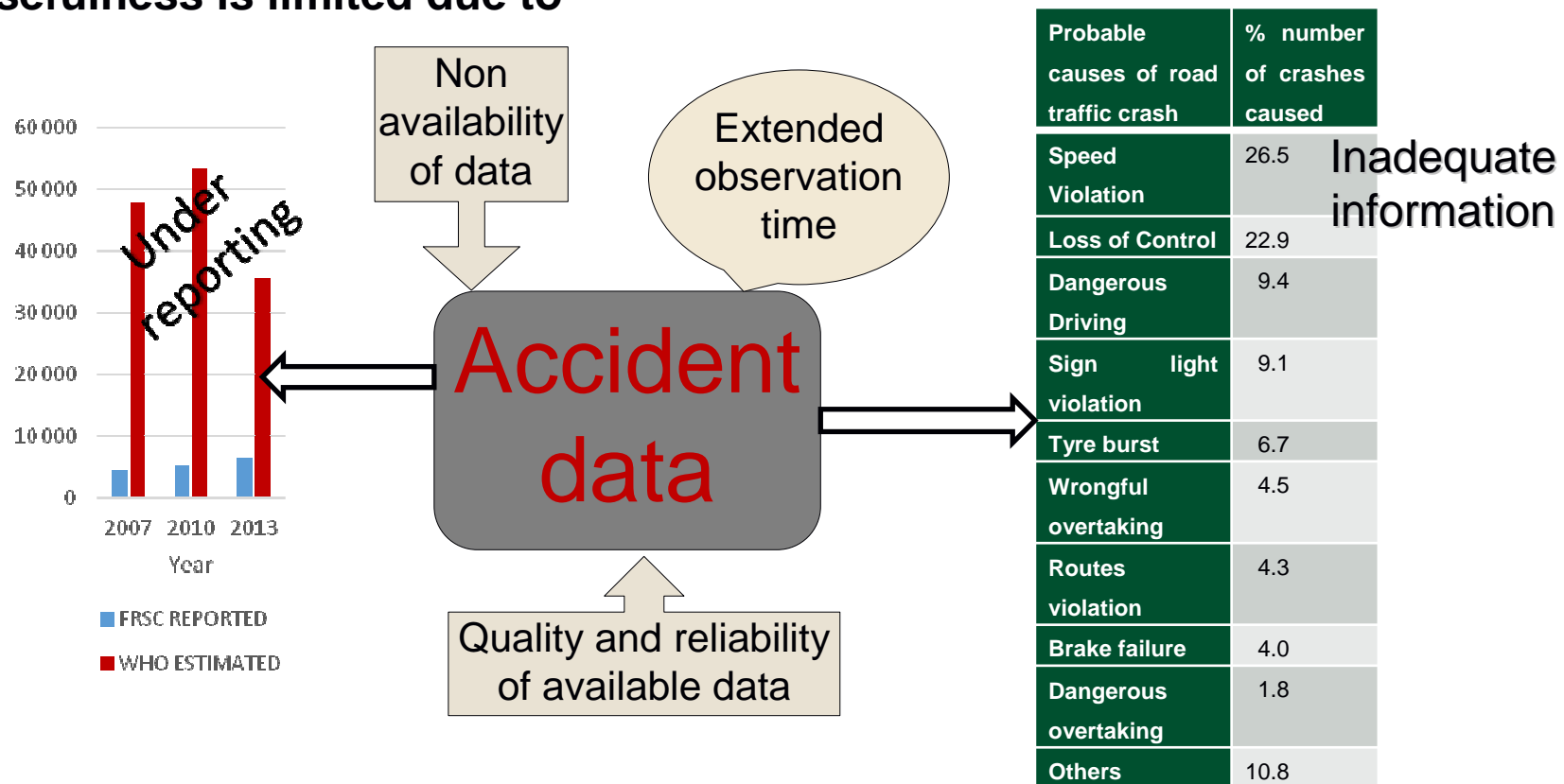
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- Road traffic fatality rates in developing countries are more than double those in developed countries (WHO, 2015)
- Africa region has the highest estimated road traffic fatality rate of **26.6 per 100,000 population** (WHO, 2015)
- WHO (2013) recorded Nigeria as having the highest fatality rate of **33.7 per 100,000** population in Africa.
- Data for research is scarce and not available
- Empirical research and quality data recommended for intervention purposes



Accident data

Accident data used over the years has proved very beneficial but its present usefulness is limited due to



A potential solution



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Due to an urgent need to improve safety of road users especially in developing countries

- Traffic conflict Technique in addition to
 - Onsite behavioural observation
- could offer a solution.
- Shorter time
 - Gives information and idea of processes
 - Inexpensive and locally available resources could be used
 - Readily applied to identify specific traffic problems and interventions developed to tackle such problems

Study Objective



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To understand the underlying factors which contribute to unsafe driving behaviour in Nigeria

- by comparing different road users
- at different road layouts (signalised, Un signalised and link)

- during peak and off peak hours
- using observational, non-crash data



- **Conflict studies**

- Manual and video recording
- Swedish Traffic Conflict Technique (severity level based on speed and time to accident at the start of evasive manoeuvre)

- **Behavioural observations**

- Speed
- Behavioural measures (overloading, eating/drinking, seat belt off, cell phone and head phone use)
- Give way violations (vehicles moving into major traffic stream without slowing down)



Methodology



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- Data collected during June-July 2016
- Observation time: 7.30-9.00 (peak); 11:00-12:30 (off peak)
- Camera recording: 3hours a day for 7days; traffic volume was counted from recordings
- Observation of behaviour and speed measurement made at site during observation time
- Focus of observation:
 - Motor vehicles
 - Tricycles
 - Pedestrians

Study Location



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Due to time limitations, focus will be on an:

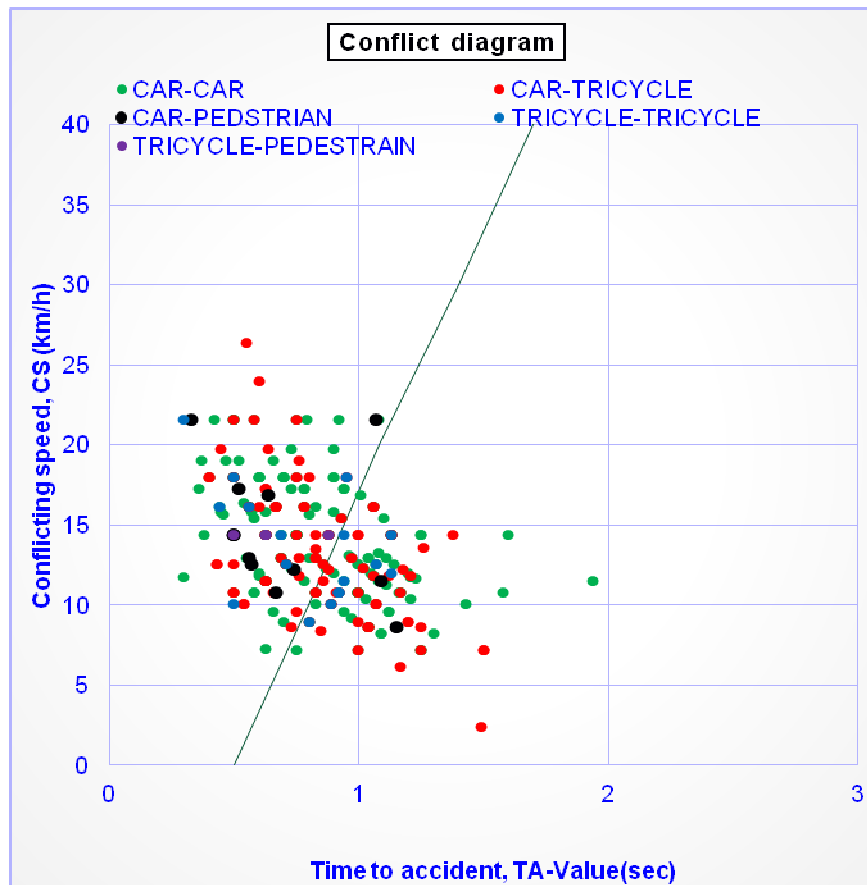
- Un signalised four arm intersection
- Mixed traffic (Vehicles, tricycles, pedestrians)
- Speed limit 50km/hr
- Manual and video
- Six observers (two: conflict recording; two: speed measurement; two: behavioural observation).



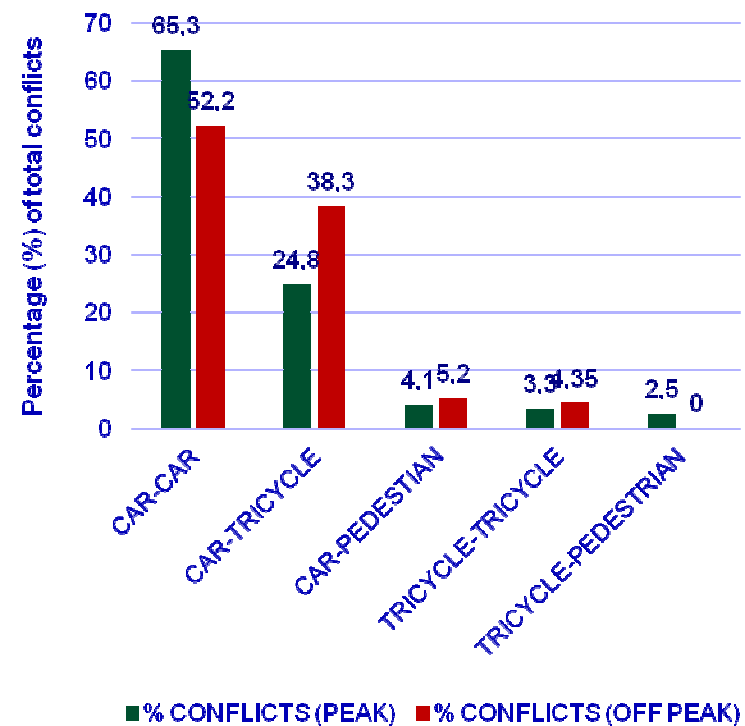
Results - Conflicts



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Serious conflicts for Peak and Off peak Hours

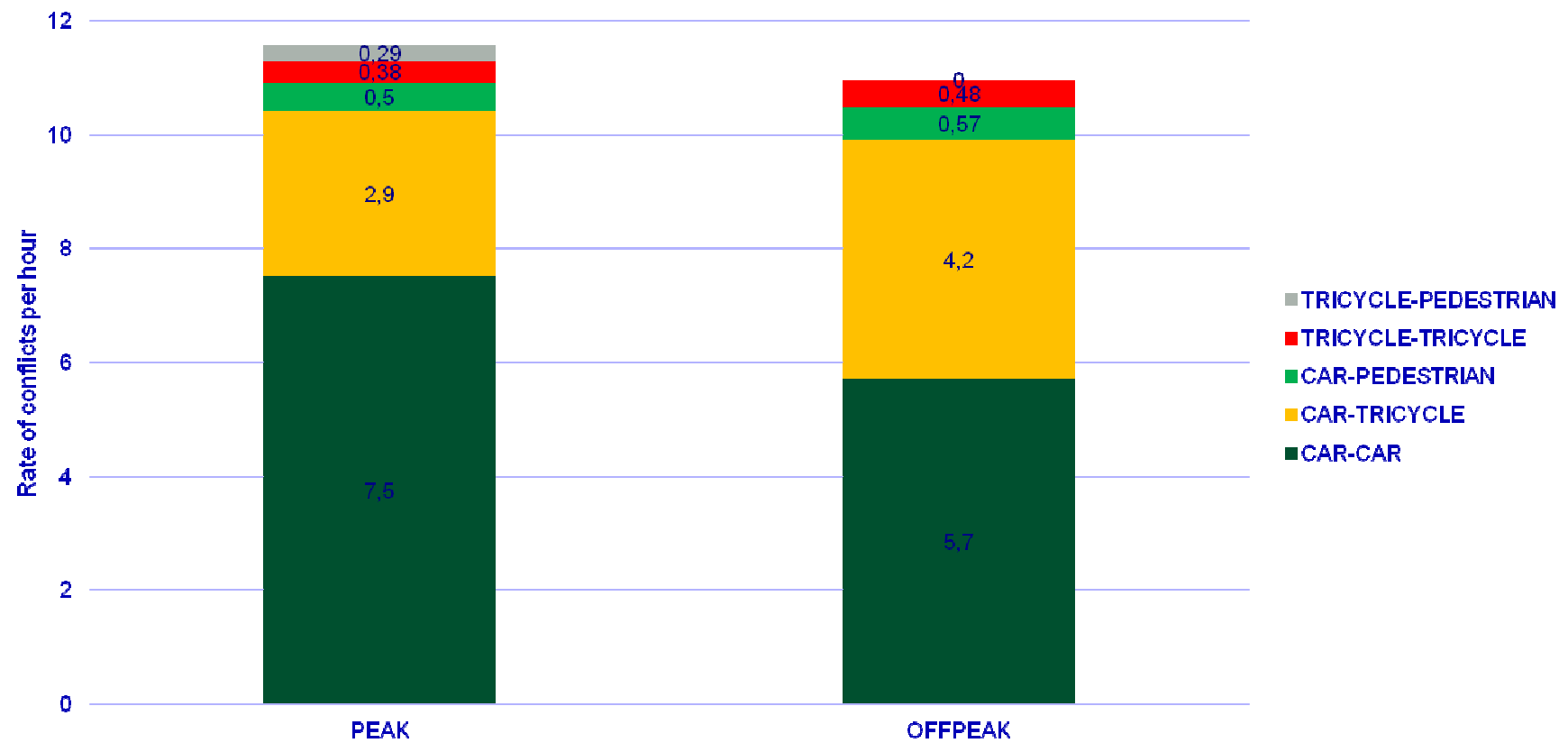


Results - Conflicts



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Rate of observed conflicts per hour



Short video of conflict situation

1



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Short video of conflict situation

2



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Short video of conflict situation

3



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Results – Behavioural Observation



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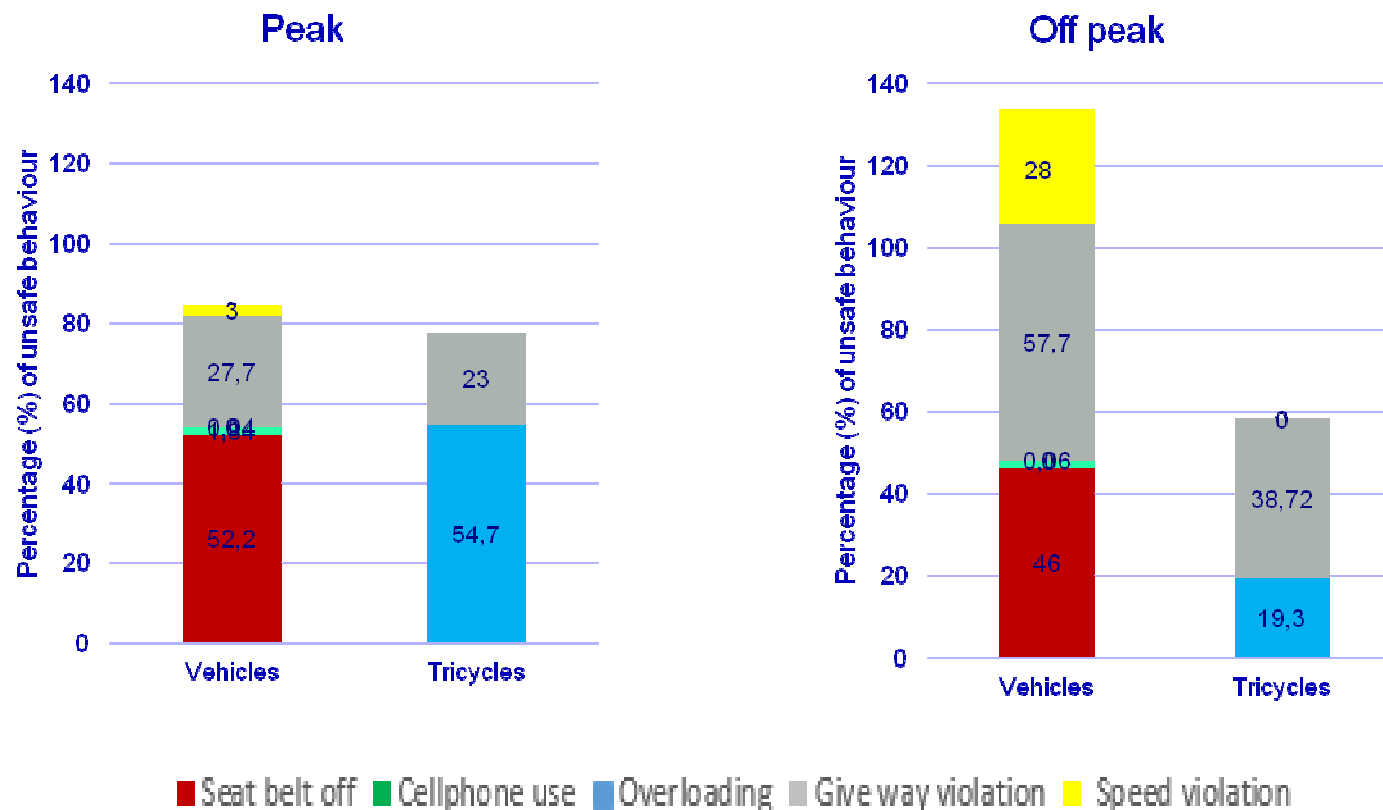
	Vehicles		Tricycles	
	Peak (%)	Off peak (%)	Peak (%)	Off peak (%)
Seatbelt off	52.7	46.0	-	-
Cell phone use	1.84	1.88	0.02	0.18
Eating/drinking	0.04	0.06	-	0.22
Headphone use	0.04	0.07	0.08	0.11
Overloading	0.82	1.05	54.7	19.3
Give way violation	27.7	57.7	23.1	38.72
Speed violation	3	28	-	-

Results – Behavioural Observation



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Of all unsafe behaviours recorded, the most prevalent are shown below:



SUMMARY



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Conflict situations:

- Frequency of vehicle-vehicle conflicts higher during the peak period.

Contributing factors: Higher traffic density, insufficient traffic regulation/enforcement

- Whereas the off peak period had more vehicle-tricycle, vehicle-pedestrian and tricycle-tricycle conflicts compared to the peak period.

Contributing factors: low traffic volume leading to slightly higher speed, give way violations, vehicles not yielding to tricycles and no traffic regulation

- No tricycle-pedestrian conflict was observed during the off peak period.

Contributing factors: low pedestrian density

SUMMARY



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Behavioural observation

- Peak period recorded more:

Seatbelt violations (vehicles);

Overloading (tricycles)

- Off peak period:

Higher frequency of give way violations;

Vehicles exceeding the speed limit

Summary



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- Vehicles do not often slow down while approaching the intersection especially during off peak hours.
- Vehicle drivers do not often give way to tricycles even when they (tricycles) had priority
- There is confusion about priority which is not properly defined
- Seatbelt compliance rate is very low

Intervention: Better education including enlightenment programmes and campaigns, training and retraining.

- Pedestrian paths and crossing not provided
- Speed limits, priority and right of way not properly defined and posted

Intervention: Engineering/Infrastructure including better signage, and traffic calming measures.

- Traffic regulations not usually obeyed

Intervention: Better, more effective and stricter regulations and enforcement.

Next steps



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- Detailed comparison with other locations to identify additional unsafe behaviours and risky road locations
- Comparison with the UK and foreign drivers



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Thanks for your attention!

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