



# TRAFFIC VIOLATIONS BY YOUNG MOTORCYCLISTS IN INDONESIAN URBAN ROADS

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# Outline

- Introduction
- Objective
- Material and method
- Results and Discussions
- Conclusions

# Introduction (1)

- Motorcyclist has been one of the main focus of safety researchers for decades.
- Motorcyclists are essentially the traveler group with the high(est) probability of serious injuries and fatalities when they involve in accident.
- Literatures said
  - The reason that motorcyclists have a high level of risk of road injuries is because many of them frequently ignore traffic rules.
  - Younger motorcyclists are the most likely group disobey traffic regulations.

# Introduction (2)

- There is a need for an in-depth study to investigate motives and decision-making processes behind risky behaviors and attitudes of motorcyclists.
- Steg and van Brussels <sup>[11]</sup> noted that violations are deliberate actions that result from social and motivational factors.
- Most of these studies were carried out in developed countries context.
- Little is understood about the motorcyclist attitudes and social norms on their habit of violating traffic rules in developing countries.

# Objectives

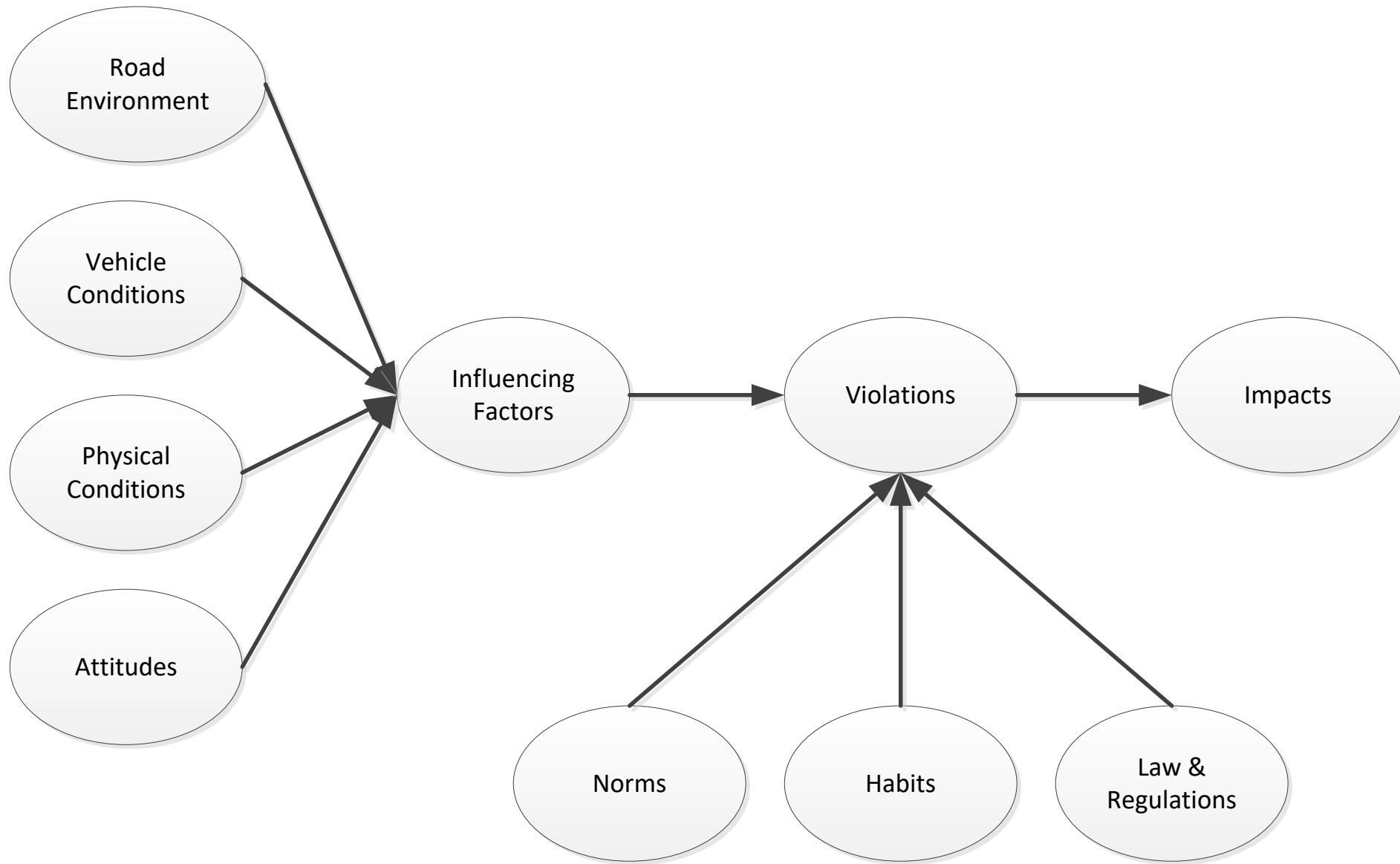
- to investigate
  - the factors underlie traffic violation behaviors and
  - the type of traffic violations by young motorcyclists in urban roads in developing cities,
- to investigate the relation among constructs

# Material and Method (1)

- Data was collected using questionnaire survey
- Motorcyclist in three cities, i.e.
  - Bandung, Yogyakarta and Surabaya
- The survey
  - 20 and 29 September 2010 (Bandung) and
  - between 22 September and 1 October 2010 (Yogyakarta and Surabaya).
- A total of 3000 motorcyclists (1000 respondents per city)
- After reviewing the completeness,
  - 983, 980, and 978 samples can be used for analysis to represent Bandung, Yogyakarta, and Surabaya, respectively.

# Material and Method (2)

- In this study, the respondents were grouped into two,
  - Youngsters; younger than 30 years old
  - Matures; 30 years old or older
- The number of youngster respondents
  - Bandung = 670, Yogyakarta = 524, and Surabaya = 510
- The number of mature respondents
  - Bandung = 313, Yogyakarta = 456, and Surabaya = 468



Hypothesized Model of Influencing Factors and Types of Violations [16]



# Material and Method (3)

- The hypotheses in word form are:
  - $H_1$ : the construct of influencing factors is built by four, i.e. road environment, vehicle conditions, physical conditions, and attitudes.
  - $H_2$ : the construct of type of violations is built by three constructs, i.e. regulations, habits, and norms.
  - $H_3$ : the construct of violations is positively influenced by influencing factors.
  - $H_4$ : the construct of violations positively influences the impacts and decisions.

# Results and Discussions (1)

*Table 1. Invariance Testing for Youngsters and Mature Motorcyclists Model*

Dataset	Unconstrained Model		Constrained Model		Difference		
	chi-square	df	chi-square	df	chi-square	df	p-value
Bandung	15030.57	4270	15669.88	4336	639.311	66	0.000
Surabaya	15308.92	4270	15660.31	4336	351.388	66	0.000
Yogyakarta	12508.33	4270	13096.12	4336	587.791	66	0.000

*Table 2. Goodness of fit indices for Unconstrained Multigroups Model*

Indices	Statistics		
	Bandung	Surabaya	Yogyakarta
$\chi^2$	15030.57	15308.92	12508.33
df (degree of freedom)	4270.00	4270.00	4270.00
p-value	0.00	0.00	0.00
$\chi^2/df$	3.52	3.59	2.93
RMR (Root Mean Square Residual)	0.09	0.08	0.07
RMSEA (Root Mean Square Error of Approximation)	0.05	0.05	0.04
GFI (Goodness-of-fit Index)	0.62	0.63	0.68
CFI (Comparative Fit Index)	0.65	0.62	0.69

*Table 3. Standardized Regression Weights for Unconstrained Multigroups Model*

Relationships between constructs	Bandung		Surabaya		Yogyakarta	
	Y	M	Y	M	Y	M
Violations ← Influencing factors	0.643	0.613	0.708	0.616	0.705	0.580
Regulations ← Violations	0.543	0.519	0.267	0.256	0.207	0.375
Habits ← Violations	0.927	0.949	0.890	0.706	0.850	0.896
Impact and Decisions ← Violations	0.684	0.824	0.675	0.803	0.506	0.724
Road environment ← Influencing factors	0.884	0.894	0.871	0.871	0.901	0.837
Vehicle conditions ← Influencing factors	0.750	0.863	0.850	0.846	0.856	0.727
Physical conditions ← Influencing factors	0.669	0.861	0.557	0.688	0.704	0.788
Attitude ← Influencing factors	0.908	0.962	0.941	0.979	0.947	0.989
Norm ← Violations	0.824	0.931	0.750	0.662	0.754	0.880

\*Y = youngsters (younger than 30 years old); M = mature (30 years old or older)

*Table 4. Factors of Influencing Violation*

Influencing Factors			
Road environment	Vehicle condition	Attitude	Physical
· Passenger	· Vehicle maintenance	· Law obedience	· Fatigued
· Police inspection	· Vehicle modifications	· Environmental awareness	· Physical ability (e.g. visual acuity)
· Time of day	· Vehicle age	· Dress style	· Intoxicated
· Weather	· Engine capacity	· Driving manner	· Body size
· Roadside condition		· Emotional stress	
· Road sign			
· Road surface condition			
· Road geometric			
· Road width			
· Traffic condition			

*Table 5. Type of Violations and Impacts*

Type of violations	Type of violations
<b>Violations related to road rules</b>	<b>Violations related to habits</b>
• Not bringing correct document	• Overtaking on the wrong side
• Not wearing regular helmet	• Pushing motorcycle between vehicle lanes
• Disobeying traffic signs and signals	• Speeding and street racing
• Stopping beyond stop lines	• Riding reckless
• Illegal crossing at traffic signals	• Riding slow in in-appropriate lanes
• Using illegal short cuts	• Sudden turning movement without signalling
• Not parking in appropriate places	• Blocking the road lane
• Illegal contraflow	• Hearing music while riding
• Not installing rear-view mirror	• Smoke while riding
• Unstandard lamp	• Making phone while riding
• Switching off the turn signal	• Chatting while riding
• Switching off headlight during the day	• Not wearing safety equipment
• Failure to correctly display registration number plate	• Not wearing body equipment
• Using un-standard exhaust	• Riding in man bridge
• Illegal modifying the motorcycle	• Riding in sidewalk
• Failure to give right of way	
• Overweight loading	
<b>Violations related to norms</b>	<b>Impacts and decisions in the event of breach</b>
1. Speeding in residential areas	• Escape from the location when violate
• Being inconsiderate to other road users	• Take a responsibility when violate
• Turning headlight while riding in alley	• Experience no impact when violate
• Turning headlight while entering restricted area	• Attempted to hit and run
• Turning on beam in dense area	• Arrested by police
• Horning in in-appropriate place	• Involved in a crash

# Conclusions (1)

- This study investigates the difference of the behavior and psychological constructs in committing to violate road rules by young and mature motorcyclists.
- General pattern of the psychological constructs is confirmed in this study.
  - It emphasized that violations are not just an human error, but there are reasons to commit, where the decision makers are in free condition to decide whether to violate or not.
  - Provide evidence from developing countries.
  - The validity of the relationships model

# Conclusions (2)

- Important finding is
  - that there is significant difference between younger and more mature group regarding the influencing factors in the involvement in road rule violations.
- It is an indicators to the commitment to take risk.
- This study implies a need for further investigations
  - specific attributes in explaining each construct,
  - whether driver risk-taking for some young drivers is merely one aspect of a general lifestyle characterized by risk-taking.





Thank you...