

WHEN DISOBEDIENCE BECOMES HABIT: EFFECTS OF TRAVEL BEHAVIORS OF MOTORCYCLIST ON REPETITIVE TRAFFIC VIOLATIONS IN THREE INDONESIAN CITIES

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Outline

- ⦿ Introduction
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- ⦿ Modeling
- ⦿ Result and discussion
- ⦿ Conclusion



Introduction (1)

- Urban traffic in developing worlds shows an almost chaotic condition.
 - Congestion, accident, pollutions, un-equality





Introduction (2)

◎ Developing countries can be differentiated from developed countries

- **Motorcycle**

52,4 million units of MC out of 70,7 million unit of motorized vehicle in Indonesia in 2009 (BPS, 2009)





Introduction (3)

◎ The possible causes

- Disobeying traffic rules, Careless, Dangerous behaviors





Introduction (4)

- Motorcyclist behaviors are judged as have different attitudes and behaviors from other road users (Tunnickliff, 2006), especially in developing countries.
 - Excessive number in road (Paulozi, 2005)
 - Risk taking behaviors (Dandona et al, 2006)
 - Poor vehicle condition
 - Unlicensed driving
 - Young and male (Chang & Yeh, 2007)

Cross the stop line



Using pedestrian facility



Disobeying traffic sign



No driving license
(too young)



Overweight



No helmet
Park and stop anywhere



Too many passengers
No helmet
Unsafe passenger

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Crossing red light
Too many passengers
No helmet
Crossing stop line





Contra flow

Pushing MC between cars





Introduction (5)

- It has already accepted that disobedience, errors, and road violations are the main reason of traffic accident
 - Rothengatter (1997a), Yagil (1998), Rimmö & Åberg (1999), or Forward (2006, 2009a)
- Traffic violations have certain relationships with **personal travel behaviours** and increase the risk of accidents as well.
- Most of the studies are employed data from developed cities.

Aim of study



- to explore the effects of travel behaviour of motorcyclist on traffic violations
 - by utilising datasets from three metropolitan cities in Indonesia
 - Bandung, Yogyakarta, and Surabaya.



Hypotheses

1. The way people travel influence type of violence they involved.
2. Different culture (city) also differentiates type of violence
3. Each city has different type of frequent violence.



Data collection

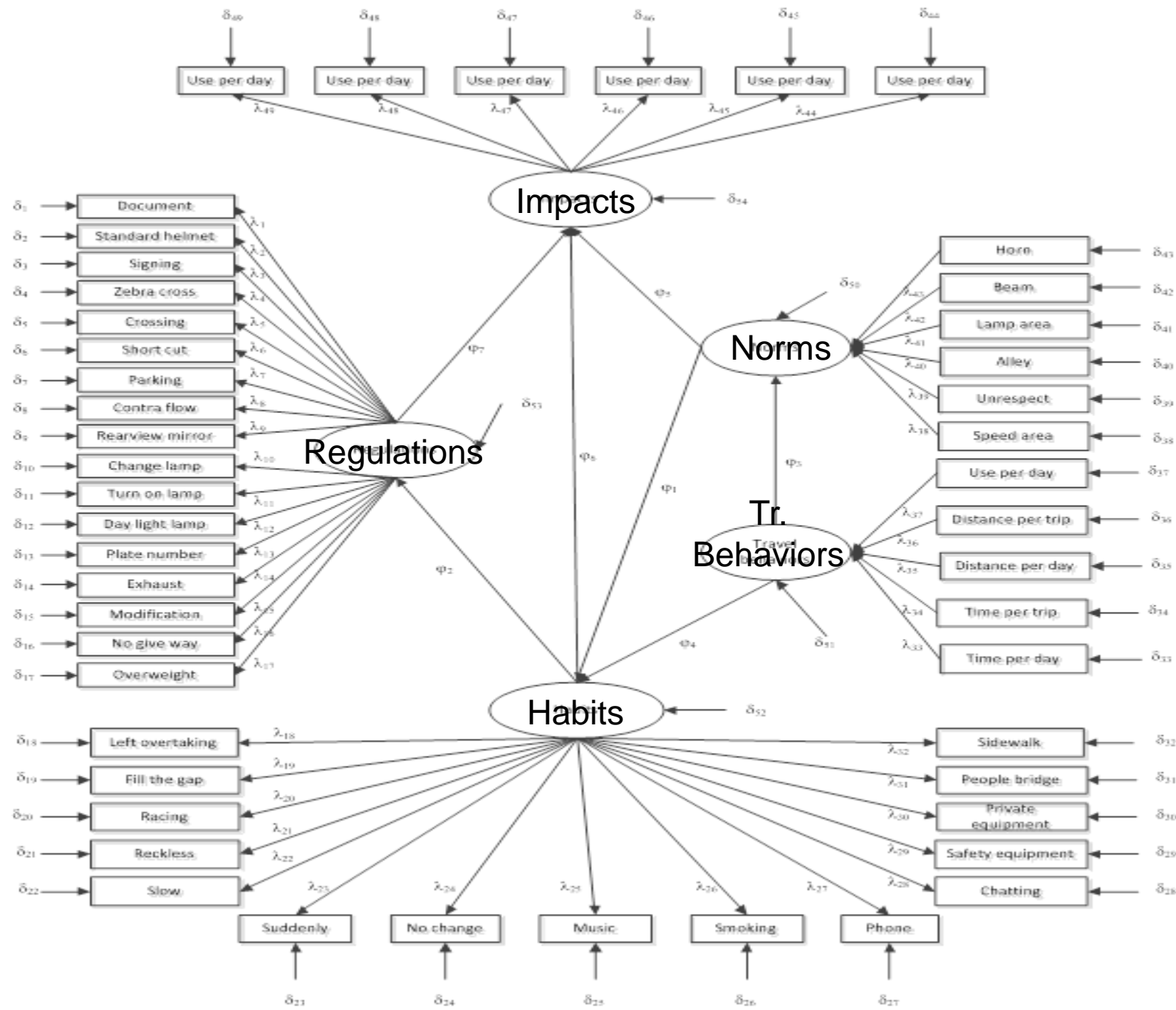
- ◎ Questionnaire survey
 - 20-29 September 2010, Bandung
 - 22 Sept – 1 Oct 2010, Yogyakarta & Surabaya
- ◎ 1000 respondents in each city

Characteristics		Proportion		
		Bandung (n=983)	Yogyakarta (n=980)	Surabaya (n=978)
Age	Younger than 17 years old	3.8	4.2	3.1
	17-29 years old	64.4	49.3	49.1
	30-39 years old	20.2	25.6	33.9
	40-49 years old	8.7	12.1	10.1
	50-59 years old	2.6	7.3	3.3
	60 years old or older	0.2	1.4	0.5
Gender	Male	82.1	62.8	57.2
	Female	17.9	37.2	42.8
Marital status	Single	65.4	61.1	58.5
	Married	34.6	38.9	41.5
Education	Elementary or lower	1.9	2.4	1.0
	Junior high school	7.4	8.2	6.1
	Senior high school	48.6	48.4	51.9
	Diploma	7.4	8.9	7.8
	Undergraduate	30.9	28.7	29.7
	Graduate	3.7	3.5	3.5
Occupation	Students	52.0	39.9	27.8
	Civil servants /soldiers	6.9	8.0	7.1
	Private employee	17.7	25.2	42.1
	Entrepreneurship	17.7	19.6	16.8
	Housewives	3.4	4.7	4.3
	Retired / unemployment	2.3	2.7	1.9
Type of driving license owned	Not owned, Not suitable	10.6	14.1	22.6
	For motorcycle (SIM C)	47.4	68.1	56.4
	More than one	41.9	17.8	21.0





Characteristics		Proportion		
		Bandung	Yogyakarta	Surabaya
Trip purpose	Sight seeing	19.4	16.6	15.8
	Working	31.6	42.3	54.5
	Studying	37.4	28.6	22.0
	Visiting friends or relatives	2.5	3.9	1.9
	Religion activities	0.8	0.7	1.0
	Others	8.1	7.9	4.7
Frequency per day	Once time	18.0	11.2	16.4
	Two times	36.3	31.3	39.7
	Three times	16.6	18.0	19.3
	Four times	8.0	9.7	6.5
	More than four times	21.1	29.8	18.1
Travel distance per trip	Less than one kilometer	9.8	5.5	8.1
	1 - 2 km	21.3	17.9	29.8
	2 - 3 km	19.5	15.9	18.3
	3 - 4 km	11.2	13.4	12.1
	More than four kilometers	38.3	47.3	31.8
Travel time per trip	Less than 15 minutes	17.1	14.7	11.5
	15 - 30 minutes	40.5	51.0	43.4
	30 minutes - 1 hour	30.9	22.1	29.0
	1 - 2 hours	7.3	6.8	9.7
	2 - 3 hours	0.9	2.1	3.4
	More than three hours	3.3	3.2	3.1



Goodness of fit indices



Indices	Statistics		
	Bandung	Surabaya	Yogyakarta
χ^2	1706.240	1778.517	1234.390
df	268	271	294
p-value	0.000	0.000	0.000
χ^2/df	6.367	6.563	4.199
RMR	0.049	0.048	0.036
GFI	0.871	0.856	0.904
AGFI	0.843	0.827	0.886
CFI	0.870	0.835	0.901
RMSEA	0.074	0.075	0.057



Regression weights

Relationships	Bandung		Surabaya		Yogyakarta	
	Est.	p-value	Est.	p-value	Est.	p-value
Habit ← Norm	1.057	.000	.612	.000	.910	.000
Habit ← Travel behavior	.048	.027	-.112	.000	-.097	.029
Impact ← Norm	.325	.000			.369	.000
Impact ← Habit	.234	.001	.539	.000	.219	.000
Regulation ← Habit	.268	.000	.202	.000	.248	.000
Norm ← Travel behavior	-.050	.035				
Impact ← Regulation	.097	.000				



Standardized weights (1)

Factors and Attributes		Loadings		
		Bandung	Surabaya	Yogyakarta
Violation to regulation				
	zebracross	.615	.690	.773
	obeysign	.778	.799	.786
	rearview	.726	.803	.865
	standhelmet	.728	.773	.738
	turnonlamp	.728	.670	.810
	platenumber	.762	.805	.873
	document	.641	.592	.518



Standardized weights (2)

Factors and Attributes		Loadings		
		Bandung	Surabaya	Yogyakarta
Violation as an habit				
	other	.706	.555	.558
	music	-	.574	.530
	smoke	-	.570	.498
	phone	-	.638	.605
	chatting	-	.574	.563
	suddenly	.584	.561	.571
	reckless	.682	.677	.630
	racing	.681	.696	.697
	pushingmc	.799	.662	.765
	leftovertake	.741	.526	.633
	sidewalk	.582	-	-



Standardized weights (3)

Factors and Attributes		Loadings		
		Bandung	Surabaya	Yogyakarta
Violation to norm				
	speedresd	.659	.720	.607
	unrespect	.715	.795	.691
	alley	.525	-	.521
Impact of violation				
	accident	.689	.659	.657
	police	.665	.655	.637
	hitrun	.749	.570	.654
	escape	.703	.630	.527
Travel behavior				
	timeday	.696	.408	.714
	disttrip	.872	.970	.402
	distday	.914	-	-
	timetrip	.539	-	-



Conclusion

- The way motorcyclist travel has significant influence on the construct of repetitive violations.
- It can be found a general relationships pattern as well as variation of the effect of motorcyclist's behavior.
 - Good respect to norm, responsible, and mature, it can be expected to violate less
 - Less experience tend to be more frequent to violate
 - Different cultural background have different influence.



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Thank you
Dank u
Terima kasih