

# Reducing Fear of Crime to Encourage Public Transport Use

## Determining Variables of Crime Perception in Pedestrian Area in Jakarta City Center

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### 1. Introduction

#### 1.1 Background

Jakarta is Indonesia's capital city with 10,162,659 populations. This number increases by around 3 million people during daytime due to commuters from the surrounding cities. About 90% commuters use private transportation that is estimated to cause 6 trillion rupiah loss<sup>1)</sup>. Jakarta increased the quality of its public transportation by improving the commuter train and the establishment of Rapid Bus Transit (RBT) system. However, commuter survey showed that the number of private vehicle users increases from 33% in 2002 to 50% in 2010<sup>1)</sup>.

Walking is often the option to cover this distance to move between transportation hub and other place. When people think that the city is unsafe, it means that they do not feel safe on the sidewalks<sup>2)</sup>. Despite that Jakarta is considered as a dangerous place, the total number of reported crime showed decline in the past three years<sup>3)</sup>.

It is suggested that fear of crime is among the most important reasons why people choose not to use public transport<sup>4)5)</sup>. Therefore there is a need to reduce the fear of crime in order to promote the use of public transportation among middle-upper class.

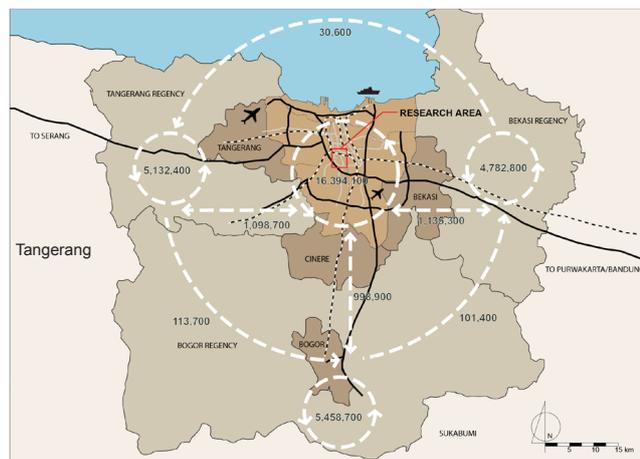


Fig. 1 Location of Research Area in Greater Jakarta (Jakarta, Bogor, Depok, Tangerang, Bekasi)  
Adapted from Kata Fakta Jakarta

#### 1.2 Purpose and Objective

The purpose of this research is to find out how to reduce fear of crime while keeping functional fear in pedestrian area in order to promote the use of public transportation within sustainability perspective. This research intends to find the relationship between people's perception of crime in pedestrian area and choosing public transport. This research also aims to find the what influences people's perception of crime.

### 2. Previous Researches on Perception of Crime

Previous researches suggested that fear of crime is among the most important reasons why people choose not to use public transport<sup>4)</sup>. Fear of crime has more effect on people compared the crime itself<sup>6)</sup>. Fear of crime is influenced by knowledge and experience of criminal realities, environmental context, and biographical features of a person<sup>7)</sup>.

Previous researches show that there is a relationship between environmental design features and fear of crime<sup>8)9)</sup>. People tend to like places that give them opportunity and safety<sup>10)</sup>. Lighting and availability of police and escorts are said to give safety, physical features such which are preferable during the day could cause fear during the night<sup>11)</sup>. Presence of other people gives different perceptions, for example people in charge gives higher perception of safety compared to stranger<sup>12)</sup>. Places that look unmaintained such as neglected building and empty land lots also give feeling of danger<sup>13)</sup>.

### 3. Methodology

Setiabudi area in South Jakarta is chosen as study area. It is selected because of its location as Jakarta's prime business area, where the condition of the pedestrian area is expected to play a bigger role compared to community cohesion. The area is also served by three RBT lines, one railway, and other buses.

### 3.1 Mapping of Crime and Environment Quality

Occasions of street crime and unsocial behavior in the research area are mapped on 200m x 200m grids. Environment condition of the street and pedestrian area such as building and land use, disorders such as littering, graffiti and vandalism, and other qualities such as possible hiding places, lighting, and security personnel are also plotted on the same map.

### 3.2 Questionnaire

Respondent for the questionnaire on this research is limited to people who are working within the research area and should have private motorized vehicle or deemed to be able to afford one. This limitation is considered because they have options between using public and private transportation.

Respondents are asked to answer which part within the research area is considered dangerous from crime. The questionnaire also measures their Attitude, Intention, Subjective Norm, as well as their perceived easiness on using public transportation. The respondents are also asked if they have been a victim of crime before and to measure their perception of crime on the environmental condition of the pedestrian area, namely, lighting, place to hide, cleanliness, vacant building, graffiti, maintenance, presence of other people such as unknown group of people, street hawkers and buskers, police or security, restaurants and food stalls, as

Table 1 Statistic Control  
Description of Samples (N = 137)

Variable	Frequency	Percent
<b>Sex</b>		
Male	61	44.5
Female	76	55.5
<b>Education</b>		
Junior High School/Equal	3	2.2
High School/Equal	10	7.3
Program Diploma (D1-D4)	12	8.8
Bachelor Degree	93	67.9
Master' s Degree	17	12.4
Doctoral Degree	1	0.7
Others	1	0.7
<b>Employment</b>		
Employee of Private Owned Company	115	83.9
Civil Servant	4	2.9
Freelance/Entrepreneur	1	2.9
Employee of State Owned Company	13	0.7
<b>Average Monthly Income</b>		
Less than Rp 3.000.000,-	18	13.1
Rp 3.000.001,- up to Rp 5.000.000,-	40	29.2
Rp 5.000.001,- up to Rp 7.000.000,-	29	21.2
Rp 7.000.001,- up to Rp 9.000.000,-	8	5.8
More than Rp 9.000.000,-	20	14.6
No Answer	22	16.1
<b>Vehicle Ownership</b>		
No	35	25.5
Yes	102	74.5
<b>Use of Public Transportation</b>		
No	70	51.1
Yes	67	48.9

well as CCTV camera.

### 3.3 Analysis

Finding the relationship between perception of crime and the choice of transportation is done by using model from Theory of Planned Behavior<sup>14)</sup>. This theory argues that a person will commence behavior when one has intention and control to do it. Intention is based on people' s Attitude towards the behavior, pressure from other people (Subjective Norm), and the perceived sources and opportunity to perform the behavior (Perceived Behavior Control). As previous researches on perception of crime have suggested, this research categorizes perception of crime as one of the Perceived Behavior Control to use public transportation (Behavior).

People' s travel decision is based mostly on assumptions rather than the actual condition of the area based on observations<sup>15)</sup>. Therefore, in order to see what variables are significant to perception of crime, two approaches are done; the first one is by correlating perception of crime of the research area and the assumed environmental quality from the questionnaire, the second one is by correlating the area which respondents feel as dangerous to the actual environment quality as mapped. Further step is by regression analysis to find out which variables has the most significance.

## 4. Findings and Discussion

Questionnaires were distributed between September 24 and October15, 2012, to office workers during lunch break. From 150 respondents who agreed to fill the questionnaires, 137 respondents have private vehicle or considered to be able to afford private vehicle; 61 of which are males, and 76 are females. The majority of these respondents (83.9%) are employees of private companies (Table 1). From the respondents, 68% consider that using public transportation is not safe when asked about disadvantages of public transportation, while only 3% of respondents considered that using public transportation is safer than using private vehicle.

### 4.1 Crime Mapping and Quality of Pedestrian Area

In this step, quality of lighting was not taken into concern, because at night most of the places are dark and there is very little areas where there is big difference in luminance. The map of crime occurrence and quality of environment in pedestrian

Table 2 Correlation and Regression Table for Behavior, Intention, Attitude, Social Norm, Perceived Behavior Control, Perception of Crime and its Assumed Variables based on Theory of Planned Behavior Model

No	Variables	Correlation			Regression		
		$\rho$	Sig.	N	B	t	Sig.
1	Behavior				Adj. R <sup>2</sup> = 0.104		
a	Intention	.078	0.366	137	0.025	0.305	0.762
b	Attitude	.179*	0.036	137	0.068*	2.467	0.015
c	subjective Norm	-.199*	0.021	135	-0.069	-1.812	0.072
d	Perceived Behavior Control	-.265**	0.002	135	0.071*	-2.937	0.004
e	Perception of Crime	-.047	0.586	134	0.005	0.177	0.859
2	Intention				Adj. R <sup>2</sup> = -0.014		
a	Attitude	.042	0.630	137	0.026	0.890	0.375
b	Subjective Norm	-.037	0.670	135	-0.009	-0.232	0.817
c	Perceived Behavior Control	-.030	0.732	135	0.012	-0.486	0.628
d	Perception of Crime	-.006	0.941	134			
3	Perceived Behavior Control				Adj. R <sup>2</sup> = 0.090		
a	Perception of Crime	.323**	0.000	134	0.348*	3.766	0.000
4	Perception of Crime				Adj. R <sup>2</sup> = 0.128		
a	Familiarity	.048	0.580	134	0.026	0.277	0.783
b	Lighting Quality	-.075	0.392	134	0.036	0.405	0.687
c	Place to Hide	.372**	0.000	134	0.303*	3.149	0.002
d	Cleanliness	-.203*	0.019	134	-0.187*	-2.190	0.031
e	Vacant Building	.064	0.465	133	-0.067	-0.648	0.519
f	Graffiti	.079	0.363	134	0.119	1.084	0.281
g	Maintenance	.188*	0.030	133	0.108	0.695	0.489
h	Group of Unknown People	.202*	0.019	134	0.090	0.751	0.454
i	Busker and Hawker	.143	0.135	111	0.049	0.450	0.654
j	Police and Security Guard	.105	0.229	134	0.02	0.164	0.870
k	Shop and Restaurant	.030	0.729	134	0.053	0.372	0.711
l	Food Stall	.039	0.652	134	0.057	0.465	0.643
m	CCTV	-.020	0.821	134	-0.149	-1.229	0.222
n	Past Victimization	.147	0.091	134	0.572	1.662	0.185
o	Past Victimization in Area	-.103	0.236	134	-1.219	-1.751	0.100
p	Rumors/news of crime	.138	0.111	134	-0.008	-0.022	0.983

\*\* Correlation is significant at the 0.01 level (2-tailed).  
 \* Correlation is significant at the 0.05 level (2-tailed).  
 Regression with value of Sig. less than 0.05 are significant in the 95% level of confidence, and thus written as significant in the text.

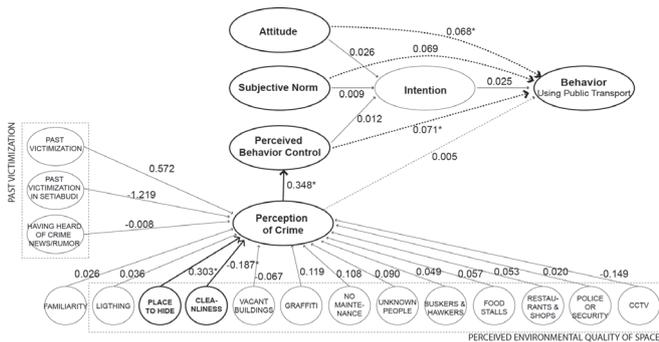


Fig. 2 Modelling of Perception of Crime in Relation to Public Transportation Use

area show that place to hide presents in the area where there crime happens (Fig.3).

It can be seen in the map that street crime tends to occur along the main streets compared to the inner roads. On the other hand, perception of crime, despite higher around the main roads, is also dispersed in the inner roads. From informal interview with respondents who feel that the inner roads are dangerous of crime, it is found that the narrow and irregular shape of the inner roads as well as the low quality of lighting in the area becomes the reason.

#### 4.2 Perception of Crime and Use of Public Transportation

From the correlation and regression analysis (Table 2), it can be seen that Perceived Behavior Control is a significant variable to Behavior of

using public transport. Intention of using public transportation does not seem to play a role people's decision of using public transportation. However, Attitude towards public transportation and Subjective Norm direct significant correlation towards using public transportation.

We can also see that despite Perception of Crime has significant correlation with Perceived Behavior Control, it has very low correlation with Behavior of using public transportation itself. Regression analysis also shows the same result.

#### 4.3 Perception of Crime and Assumed Environmental Quality

Based on analysis if survey data (Table 2), it is found that presence of place in which other people can hide has the highest significant correlation to perception of crime, followed by presence of group of unknown people. We can also see that cleanliness of an area is associated with perception of crime, where areas which are clean are perceived to be safer than areas that are not clean. Other environment qualities and past victimization do not show any significant correlation to perception of crime in an area.

Regression analysis also shows similar result, that hiding place and cleanliness of pedestrian area influences people's perception if crime in pedestrian area. However, group of unknown people shows no significant result. It has to be noted that the regression analysis only explains 12.8% of variance.

#### 4.4 Perception of Crime and Environment Quality of Pedestrian Area

From Table 3, we can see that areas with public transportation hub are considered as more unsafe. RBT stop area has highest perceived crime compared to others, followed by station of motorcycle taxi. Availability of other bus services has lower but still significant correlation with perception of crime. Data shows that crime occurrence such as snatch and run, pick pocket, and violence often happen in areas where there is RBT top and motorcycle taxi station. It has to be noted, that near an RBT stop, motorcycle taxi station is always present.

Similar to previous result, it is shown that presence of hiding place has high correlation to perceived crime. This shows that reducing places where people can hide will most likely lower perceived crime in the area.

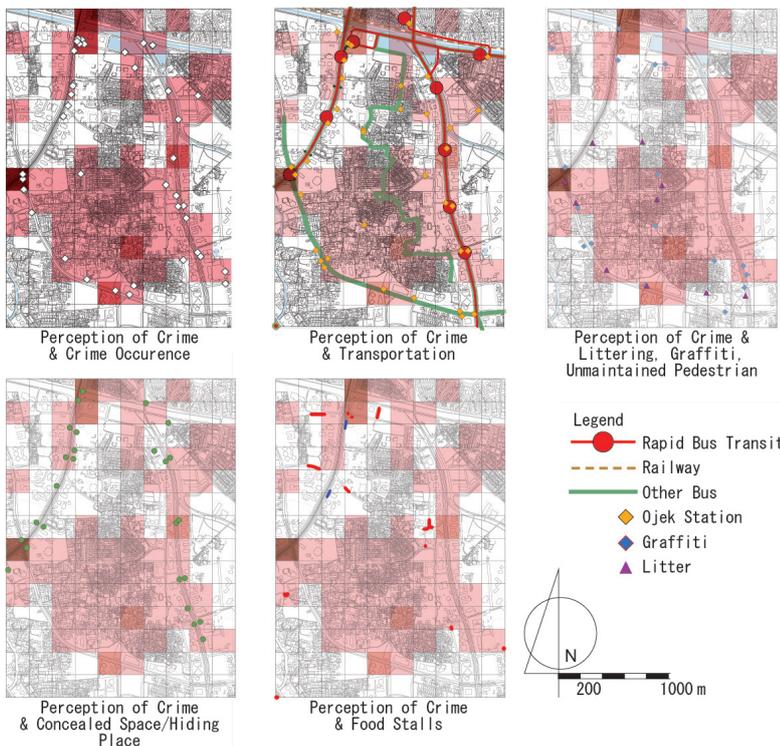


Fig. 3 Areas with Perceived Crime and Quality of Environment

In accordance to the Broken Windows theory, we see that graffiti and littering has significant relationship to perceived crime. Therefore we can see that lower physical disorder in the environment can help lowering perception of crime in a certain area.

Crime occurrence is also a significant variable in both correlation and regression analysis. This shows that to reduce perception of crime, a measure to reduce crime occurrence is also needed.

## 5. Conclusion and Proposal

From our finding, we can conclude that despite not having a significant direct correlation to using public transportation, perception of crime influences people's decision to use public transport. It is also shown that people's perception of crime also has related to actual crime occurrence. This shows that reducing actual crime can reduce people's perception of crime.

It is also shown that areas around transportation hub have higher perceived crime. Therefore there is a need for higher concentration in increasing perception of safety and decreasing occurrence of crime in these areas. Reducing concealed space and increasing people's ability to observe their surrounding might increase perception of safety and reducing opportunity for people to accomplish

Table 3 Correlation between Perception of Crime and Environmental Quality & Crime Occurrence

No	Variable	$\rho$	Sig.	N
<b>Type of Crime</b>				
1	Robbery	.359**	0.000	140
2	Robbery with Violence	-.010	0.905	140
3	Thiery	-.014	0.866	140
4	Pick-pocket	.131	0.122	140
5	Snatch and Run	.031	0.718	140
6	Swindling/Fraud	.166*	0.050	140
7	Violence	.530**	0.000	140
8	Dead Body Found	.014	0.873	140
9	Weapon Ownership	.210*	0.013	140
10	Violence and Sexual Harrassment	.069	0.419	140
<b>Time of Crime</b>				
1	00:01-04:00	.278**	0.001	140
2	04:01-08:00	.240**	0.004	140
3	08:01-12:00	.143	0.092	140
4	12:01-16:00	.176*	0.037	140
5	16:01-20:00	.362**	0.000	140
6	20:01-24:00	.350**	0.000	140
<b>Environmental Quality</b>				
1	Graffiti	.271**	0.001	140
2	Food Stall	.145	0.087	140
3	Ojek Stops	.306**	0.000	140
4	RBT Stops and Station	.510**	0.000	140
5	Other Public Transportation	.187*	0.027	140
6	Vacant Land	-.065	0.444	140
7	Littering	.238**	0.005	140
8	Concealed Space/Hiding Place	.358**	0.000	140
9	Unmaintained Pedestrian	.138	0.105	140
10	Security/Police	.101	0.237	140
11	Crime Occurrence	.458**	0.000	140

Table 4 Regression Table of Significantly Correlated Environmental Quality to Perception of Crime

Dependent: Perception of Crime (Adj. $R^2 = 0.351$ )			
No Variable	B	t	Sig.
Graffiti	1.172*	2.355	.020
Ojek Station	.094	.320	.750
RBT Stop	2.851*	3.742	.000
Littering	1.174*	1.856	.066
Obscured Space/Hiding Place	.158	.464	.643
TotalCrime	.569*	2.636	.009

crime.

One of the approaches that can also be done in enhancing perception of safety in this area is by maintenance of pedestrian area, especially on cleanliness from both litter and graffiti.

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