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Evaluating Livability of South Tangerang City: From Transportation Perspective

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ABSTRACT

Liveable city is a city planning concept in which the city become the public space. There were many factors affecting the liveability of cities, one of them was related to transportation. The other factors were access to the clean water, food, residences, health services, education and a safe and stable environment. This current paper will validate the questionnaire developed in Universitas Andalas. In this current paper, we used biner, disagree (1) and agree (2) responses from the respondents using a one sample t-test with the value of 1.5 (the departure from disagree to agree) and 0.05 significant level. In most cases the respondents were agree that in terms of transportation condition, South Tangerang City was considered to comply the requirements of a liveable city. The only deficiencies were regarding safety and security of the bicycle lane and regarding sidewalk accessibility and suitability to be used by people with disability.

INTRODUCTION

Liveable city is a city planning concept in which the city become the public space, i.e., the centre of social life and the focus of the whole society. There were many factors affecting the liveability of cities, one of them was related to transportation. The other factors were access to the clean water, food, residences, health services, education and a safe and stable environment. According to Makalalag et al (2019) [1], basic principles of a livable city were: the availability of basic urban residence needs (descent residences, clean water, electricity), availability of public and social facilities (public transportation, urban greenery, worship and health facilities), availability of public spaces for socialization and interacation, security/ free from fear, supporting economic and social-cultural functions, environmental sanitation and the beauty of physical environment..This current paper will validate the questionnaire developed in Universitas Andalas, (Erinaldi, 2020) [2] in the Greater Jakarta, especially in South Tangerang City.

LITERATURE REVIEW

Khorammi et al (2020) [3] stated that active transport and public transport were the main indicators of transport and urban mobility to measure urban livability. In the second place was the transport infrastructure such as road network and accessibility. Road safety was also

considered important. Lastly, environment, energy consumption and parking were also important.

Alkharabsheh et al (2021) [4] stated that the travel demand consisted of several elements, i.e., service quality, transport quality, tractability and fare. Tran et al (2021) [5] developed the transportation livability-related indicators (TLI) for Taiwan. The TLI consisted of pedestrian facilities, universal design, multimodal transportations and utility facilities. According to Prasetyo and Muttaqin (2009) [6], there were 25 aspect of a city liveability, e.g., quality of city planning, number of greenery, preserved building, environmental cleanness, environmental pollution level, public transport & road availability/ quality, pedestrian facility quality, the availability and quantities of hospitals and clinics, the availability and quality of schools and campuses, the availability and the quality of entertainment facilities, availability of electricity availability of telecommunication network, availability of jobs, accessibility of job place, criminal level, social connection between residences, public service information, facilities for disabled citizens.

METHOD

The data collection was conducted using online questionnaire, and only respondent from South Tangerang City was eligible to complete the questionnaire. General data consisted were as follow:

1. gender of the respondent (male or female).
2. age of the respondent in years
3. monthly expenditure in Indonesian Rupiah

The perceptional data, asked the respondents to assess certain transportation related facilities availability in South Tangerang City, regarding:

4. comfortability of bicycle lane (CW1).
5. safety and security of bicycle lane (CW2).
6. comfortability of sidewalk (CW3).
7. safety and security of sidewalk (CW4).
8. sidewalk accessibility and suitability to be used by people with disability (CW5).
9. station/ terminal accessibility to public service area (ST1).
10. densely populated land use surrounding transit points (ST2).
11. relatively short travel time of public transport line (PN1).
12. safety and security of public transport network (PN2).
13. public transport network serving center of activities (PN3).
14. punctuality of waiting time of public transport (PN4).
15. integrated public transport network (PN5).
16. comfortability of public transport (PM1).
17. safety and security of public transport (PM2).
18. environmentally friendly public transport (PM3),
19. affordability of public transport (PM4).

The data collection was conducted online. The online questionnaires were distributed through several different characteristics of social media groups to maintain broad sampling across different respondent characteristics.

The data analysis was conducted using one sample t-test and independent sample t-test. The test value for the one sample t-test was 1.5 (the departure from disagree (1) to agree (2). The grouping variables for the mean difference t- test were from the general data (gender, age group and personal monthly expenditure groups). The age group was using category usually used in the

developmental psychology, i.e., 40 years old as a cutting point to differentiate between early and middle adulthood. The monthly expenditure group was using the minimum monthly city wage of South Tangerang in 2022, i.e., Rp.4,280,215. - (about USD 286) as a cutting point. All analysis were using 0.05 as significant level.

RESPONDENT PROFILE

The data collection was conducted for South Tangerang City together. There were 39 valid responses. The respondents of South Tangerang City were aged between 18 and 69 years old with mean age of 29 years old and standard deviation of 13 years old. The respondent of South Tangerang City personal monthly expenditure were between Rp, 100,000.- (about USD 7) and Rp. 10.000.000,- (about USD 668) with mean monthly personal expenditure of Rp, 2,525,641.- (about USD 169) with standard deviation of Rp, 2,525,641.- (about USD 187). 22 (56%) of the respondents were male.

ANALYSIS

Table 1. shows the result of one sample t-test. In almost all cases the mean differences were positive and in most cases the mean differences were significantly different with 1.5. It implies that in most cases the respondents were agree that in terms of transportation condition, South Tangerang City was considered to comply the requirements of a livable city. The only insignificant mean differences were between CW2 (safety and security of bicycle lane) and CW5 (a sidewalk accessible and suitable to be used by people with disability) with the test value (1.5).

Table 2., Table 3. and Table 4 show the results of the mean differences t-tests with gender (male/ female), age group (40 years old as a cutting point) and personal monthly expenses as proxy of respondent's wealth (USD 286 as a cutting point) as the basis for grouping variables respectively. Table 2. shows that in most cases male and female were the same on their perception on transportation aspects on livability of South Tangerang City except for CW3 (comfortability of sidewalk), CW4 (safety and security of sidewalk), CW5 (sidewalk accessibility and suitability to be used by people with disability) and PM3 (environmentally friendly public transport). In these four situations female respondents provide more favorable perceptions. Table 3. shows that in most cases both groups were the same on their perception on transportation aspects on livability of South Tangerang City except for CW3 (comfortability of sidewalk) and PM4 (affordability of public transport). In these two situations respondents from older group provide more favorable perceptions. Table 4. shows that in most cases both personal monthly groups were the same on their perception on transportation aspects on livability of South Tangerang City except for CW1 (comfortability of bicycle lane), CW3 (comfortability of sidewalk), ST2 (densely populated land use surrounding transit points), PN1 (relatively short travel time of public transport line), PN2(safety and security of public transport network), PM1 (comfortability of public transport) and PM2 (safety and security of public transport).

TABLE 1. The result of one sample t-test (n=39)

Item	Me	Mean Difference with	Significant Level	Significant at α=0.05
CW	1.6	0.14	0.01	Yes

CW	1.5	0.05	0.39	No
CW	1.7	0.20	<0.01	Yes
CW	1.6	0.16	<0.01	Yes
CW	1.5	<0.01	1.00	No
ST1	1.9	0.43	<0.01	Yes
ST2	1.8	0.37	<0.01	Yes
PN1	1.7	0.27	<0.01	Yes
PN2	1.7	0.24	<0.01	Yes
PN3	1.8	0.36	<0.01	Yes
PN4	1.7	0.29	<0.01	Yes
PN5	1.7	0.27	<0.01	Yes
PM1	1.8	0.30	<0.01	Yes
PM2	1.8	0.30	<0.01	Yes
PM3	1.6	0,16	<0.01	Yes
PM4	1.8	0.37	<0.01	Yes

TABLE 2. The results of mean differences t-tests with the gender as the grouping variable

Item	Mean for Mal	Mea n for Fem	Mean Difference	Significant Level	Significant at α=0.05 (Yes/No?)
CW1	1.70	1.55	0.15	0.17	No
CW2	1.62	1.42	0.20	0.07	No
CW3	1.79	1.55	0.24	0.02	Yes
CW4	1.77	1.48	0.29	0.01	Yes
CW5	1.58	1.36	0.22	<0.05	Yes
ST1	1.94	1.91	0.03	0.55	No
ST2	1.89	1.85	0.04	0.61	No
PN1	1.81	1.70	0.11	0.25	No
PN2	1.75	1.73	0.02	0.78	No
PN3	1.83	1.91	-0.08	0.28	No
PN4	1.83	1.73	0.10	0.28	No
PN5	1.77	1.76	0.01	0.87	No
PM1	1.79	1.82	-0.03	0.77	No
PM2	1.85	1.73	0.12	0.20	No
PM3	1.75	1.52	0.23	0.03	Yes
PM4	1.85	1.91	-0.06	0.42	No

TABLE 3. The results of e mean differences t-tests with the age as the grouping variable

Item	Mean for Age ≥ 40 Years n=32	Mean for Ag	Mean Difference	Significant Level	Significant at α=0.05 (Yes/No?)
CW	1.75	1.7	0.04	0.85	No
CW	1.47	1.7	-0.24	0.26	No
CW	1.81	2.0	-0.19	0.01	Yes
CW	1.53	1.8	-0.33	0.08	No
CW	1.44	1.7	-0.28	0.19	No
ST1	1.97	2.0	-0.03	0.65	No
ST2	1.81	1.7	0.10	0.82	No
PN1	1.75	1.7	0.04	0.85	No
PN2	1.53	1.8	-0.33	0.08	No
PN3	1.88	2.0	-0.13	0.96	No
PN4	1.72	1.8	-0.14	0.46	No
PN5	1.56	1.8	-0.30	0.11	No
PM	1.81	1.7	0.10	0.57	No
PM	1.66	1.8	-0.20	0.25	No
PM	1.47	1.7	-0.25	0.26	No
PM	1.88	2.0	-0.13	0.04	Yes

TABLE 4. The results of e mean differences t-tests with the personal monthly expense as the grouping variable

Item	Mean for Personal Monthly Expense	Mean for Personal Monthly Expenses	Mean Difference	Significant Level	Significant at α=0.05 (Yes/No?)
CW1	1.71	2.00	-0.29	<0.01	Yes
CW2	1.47	1.80	-0.33	0.19	No
CW3	1.82	2.00	-0.18	0.01	Yes
CW4	1.56	1.80	-0.24	0.31	No
CW5	1.47	1.60	-0.13	0.60	No
ST1	1.97	2.00	-0.03	0.71	No
ST2	1.76	2.00	-0.24	<0.01	Yes
PN1	1.71	2.00	-0.29	<0.01	Yes
PN2	1.53	2.00	-0.47	<0.01	Yes
PN3	1.88	2.00	-0.12	0.43	No
PN4	1.74	1.80	-0.06	0.77	No
PN5	1.59	1.80	-0.21	0.62	No

PM1	1.76	2.00	-0.24	<0.01	Yes
PM2	1.65	2.00	-0.35	<0.01	Yes
PM3	1.50	1.60	-0.10	0.22	No
PM4	1.88	2.00	-0.12	0.11	No

CONCLUSION

1. In terms of transportation condition, South Tangerang City was considered to comply the requirements of a livable city.
2. Regarding the perception o transportation aspects of livability of South Tangerang City, in most cases:
   a. male and female were the same.
   b. older and younger age groups were the same.
   c. Wealthier and poorer income groups were the same.

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