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THE EFFECT OF TRAFFIC CONGESTION ON QUALITY OF COMMUNITY LIFE

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Abstract

Traffic congestion is one of the most vexing urban issues. Population growth together with a great demand of transportation indirectly contribute to the increasing number of vehicles on the road that will eventually cause traffic congestion. This situation is having a considerable effect on the quality of community life in major cities, and Seri Kembangan is also not an exception. Therefore, this study attempts to determine the extent that the traffic congestion could obtain in affecting the quality of community life through daily routines and lifestyle. The study adopted on site survey strategy as a primary data through a sampling of 382 respondents. Data were collected through a valid and reliable questionnaire, consisting of four (4) sections: demographic information, mobility (opinion on traffic jam), daily routines, and lifestyle. Collected data sets were analysed using statistical analysis. The results from the analysis indicated that the traffic congestion had caused poor quality of community life. A significantly positive correlation was observed between traffic congestion and quality of community life ($r=.589$, $p<.05$). Daily routines were mainly affected by traffic congestion rather than the community lifestyle. This study also recommends the traffic planning and policy that should be given attention in order to improve the transportation system as well as to create better quality of community life.

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Keywords: Traffic congestion, quality of life, community, daily routine, lifestyle.



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1. Introduction

Transportation is a powerful catalyst for growing economic and it is one of the important thing in the development of any country (Toulmi, Miyara, Nsiri, & Boudhane, 2019). However, the huge number of vehicles usage on the road greatly contributes to traffic congestion. According to Agyapong and Ojo (2018), traffic jammed as a worldwide phenomenon was expected to become a major problem in the future. An impression that the transportation system is limited where the vehicles are being interrupted due to the narrow road width, limited vehicle parking, traffic signals and effectiveness of traffic is known as a congestion (Takyi, Poku, & Anin, 2013). Traffic congestion and non-eco-friendly transportations are being known as the main problems worldwide especially in the developing countries (Le & Trinh, 2016). The situations of traffic jammed and transportations are the important factors from the aspect of social, economic and environmental sectors that may affect the public health (Nadrian, Taghdisi, Pouyesh, Khazae-Pool, & Babazadeh, 2019).

Quality of community life is one of the parts affected by traffic congestion. Theofilou (2013) said a better quality of life is when people are satisfied towards their life and can react positively to the lives that could change by certain situations. So, this issue would be added up to the life burden and living stress among community either to the road users or people who live near the traffic congestion area. The quality of life is affected by traffic congestion because their daily routines as well as their lifestyle are disrupted. Daily routine is a sequence of action that people do repeatedly, and according to Yildiz, Uçar, Bilir, and Altıntaş (2007), women's daily routines are more likely to be disrupted rather than men because most routines involved all house management such as cooking, cleaning, child care and dishwashing. Meanwhile, lifestyle can be seen in several aspects, which are standard of living, health issues and social activities. This is supported by Takyi et al., (2013) in their statement that the traffic congestion would actually disrupt the quality of community life to some extent in which it could decrease the productivity level of human in contributing to the economic growth of cities or regions. Smith (2000) also found that the quality of life can be seen as objective indicators such as income and number of car per household, as well as including subjective factors such as happiness and life satisfactions. Hence, the quality of community life as well as the productivity will be low if it is disrupted by traffic congestion.

Lastly, it is important to know about the feelings of the community, whom can also be called as transportation users, and their reaction towards traffic jam, which can help the decision maker to understand well in finding the solution, as well as making more efficient and useful policies. So, this study was aimed to assess the extent of traffic congestion that could affect the quality of community life through daily routines and lifestyle

2. Problem Statement

There are two (2) specific problems consequences of traffic congestion that will be discussed in the following sub topics; 1) health issues and 2) traffic congestion and quality of life.

2.1. Health issues

Transportation does not only change the community's daily routines as well as their lifestyle, but it also contributes to the bad health of the users after a study found that one over three of Particulate Matter (PM 2.5) emitted by vehicles was considered as air pollutants and could be harmful to human's health (Levy, Buonocore, & Stackelberg, 2010). This emission contributes to health issues for the drivers and those who are living near the road where they are exposed to the pollution and it might bring them to morbidity and mortality (Zhang & Batterman, 2013). Matin, Herani, and Warraich, (2012) also said that traffic congestion would produce carbon dioxide (CO₂) and contribute to air pollution. CO₂ has been classified as greenhouse gases (GHG) that comes from transportation sector where the emission is directly related to fossil fuel consumption, vehicles characteristics, travelling speed and road infrastructure (Bigazzi & Figliozzi, 2013). The disturbance of air quality would give indirect impact on human's health. Moreover, affected air quality will bring to another disturbance to the community such as obesity that can affect the productivity of their lives (Nasrudin, Rostam, & Che Rose, 2014).

2.2. Traffic congestion and quality of life

Generally, people will actually become more frustrated and angrier when they are stuck in traffic congestion as it will disrupt their daily routines and lifestyle. People would be facing problem like time waste when they spent more hours in a traffic jam. They might be delayed from reaching their destinations such as work place, meeting and activities, especially for private car user. Usually, their daily routines must be completed if they did not want to change their schedule. Yildiz et al., (2007) said women have longer working hours or more activities rather than men. Hence, the more hours they spent on the road, the greater the tendency of getting trapped in a low quality of lifestyle. Additionally, the use of private car is much more polluting than the use of public transportation depending on the occupancy rate (Larsen, 2010). Not only that, people tend to spend more money on road for fuel and maintenance of their vehicles. People's quality of life could be disrupted if their daily routine involves being trapped in a traffic, and it could also increase their stress level. People who are stuck in traffic congestion will have their happiness affected in doing their daily routines as well as their lifestyle because based on Kittipichai, Arsa, Jirapongsuwan, and Singhakant, (2014), the quality of life is a perceived satisfaction of people regarding living their life in order.

Traffic congestion is seen as a threat to the productivity of community. A study by Hartgen, Fields, and Moore (2009) claimed that the productivity of community would be low if they spent more time stuck in traffic congestion which might make them miss attending some working activities. Not only that, productivity of community might also be low because of the increasing level of stress on road (Rahane & Saharkar, 2014). Therefore, if there is an interruption on their daily performance, it would affect their quality of life. So, based on the discussion above, the hypothesis assumptions as follow:

- Null hypothesis (H₀): There is no relationship between the congestion of the traffic and the quality of community life in Seri Kembangan.
- Alternative hypothesis (H_a): There is a relationship between traffic congestion and quality of community life in Seri Kembangan.

3. Research Questions

This paper is focusing on the effect of traffic congestion towards the quality of community life in Seri Kembangan. Based on the problems that have been discussed, these research questions are designed to give a full picture on how the objectives of this study will be answered and what are the instruments needed. The specific research questions of this study are:

- Is there any relationship between traffic congestion and the quality of community life in Seri Kembangan?
- Which quality of life would be most affected by the traffic congestion in Seri Kembangan?

4. Purpose of the Study

Generally, the purpose of this study is to determine the extent of traffic congestion that could affect the quality of community life through daily routine and lifestyle. To achieve this purpose, the following objectives are addressed:

- To determine the relationship between traffic congestion and quality of community life in Seri Kembangan.
- To identify daily routines or lifestyle of community would be more disrupted by traffic congestion in Seri Kembangan.

5. Research Methods

5.1. Study Area

Seri Kembangan, a town located in Selangor, was being selected as the study area because the roads consist of a junction that connects Puchong to Kembangan area, and it also has the Seri Kembangan exit which connect the district to Shah Alam (Jabatan Perancangan Bandar dan Desa, 2010). Therefore, the sampling frame of the study area is focussing on the two main roads that are located along Seri Kembangan which are Jalan Besar and Jalan Putra Permai. Based on the observation, this area has been part of the issues regarding traffic congestion especially during peak hours.

5.2. Data Collection and Processing

According to the aim of this study, the study adopted on site survey strategy as a primary data through the sampling of 382 respondents from the total number of population which is 650 000, based on Krejcie and Morgan (1970). The questionnaire consists of four (4) sections: demographic information, mobility (opinion on traffic jam), daily routine and lifestyle. The survey was pre-tested among 38 of community transportation users for content validity and reliability prior to the final survey. Consequently, by using the probability sampling, the final survey was conducted among the community of Seri Kembangan for the duration of one month. A ten-point scale was used in describing the listed items in the dimensions, representing from the “least agreement” to the “most agreement” for all statements included in the study. Based on the 382 questionnaire collected, 58% of the respondents were female, and 79% were car users. Overall, majority of the respondents are working in private sectors. The age range for the majority

of respondents was between 26-35 years old (55.9%). Most of them are married (82%) and working in the private sectors (57%), as well as car users (79%), although some of them are still using the public transportation (7%). Numerical data was collected from the sample and hypothesis was tested using statistical analysis.

6. Findings

6.1. The Relationship Between Traffic Congestion and Quality Of Community Life

An analysis using the Spearman rank order correlation was conducted in order to determine the relationship between traffic congestion and the quality of life among the community in Seri Kembangan, as well as to test the H_0 assumption. The p value represents the probability that the H_0 is true, and if p value is less than 0.05, it indicates that the H_0 is not supported by the data. Meanwhile, the r_s value represents the relationship between these variables. Table 1 reports on the Spearman rank order correlation between the traffic congestion and the quality of life of the community which is ($r_s = .589$), $p < .05$). A strong value of p indicates a significant relationship between these variables as well as a strong evidence that shows the H_0 assumption was not correct. Next, a moderate relationship between the traffic congestion and the quality of life shows that the community is badly affected by the traffic congestion.

Table 01. Correlation between traffic congestion and quality of life

			Traffic congestion	Quality of life
Spearman Rho	Traffic congestion	Correlation	1.000	.589**
		Coefficient		
		Sig. (2-tailed)	.	.000
		N	382	382
	Quality of life	Correlation	.589**	1.000
		Coefficient		
		Sig. (2-tailed)	.000	.
		N	382	382

6.2. The Quality of Life Most Affected by Traffic Congestion

In addition, by using two (2) attributes in the quality of community life in measuring the actual attribute affected from traffic congestion, Man Whitney U test had been conducted to achieve this objective. Table 3 shows the result indicated that there was a significant different $p < .05$ ($z = -24.12$, $p = .000$) between these two attributes toward the quality of community life. However, daily routine was the most affected by traffic congestion and it was indicated by the higher value of mean 573.50 whereas the mean for lifestyle is 191.50 based on the rank value in Table 2.

Table 02. Ranks value

	Impact	N	Mean rank	Sum of rank
Quality of life	Daily routine	382	573.50	219077.00
	Lifestyle	382	191.50	73153.00
	Total	764		

Table 03. Mann-Whitney U Test

	Quality of life
Mann-Whitney U	.000
Wilcoxon W	73153.00
Z	-24.120
Asymp. Sig. (2-tailed)	.000

Moreover, spending more time on the road, or a time killing, would be a waste of time and delaying some activities, eventually affecting people's daily routines (Matin et al., 2012). For example, most of the respondents, especially female, had agreed on the question regarding 'I rarely cook at homes as often caught in traffic jams on Seri Kembangan's main road.' and also 'I rarely do any morning exercise because I want to avoid getting caught up in traffic jams on Seri Kembangan's main road'. This is because daily routines of women were mainly involving all the house-related chores such as cooking, cleaning, dishwashing and child care (Yildiz et al., 2007). While in terms of working routines, most of the respondents agreed that they were often late in arriving to work or the destination because of getting trapped in traffic jams. Hartgen et al., (2009) in their study mentioned that the productivity of community would be low as they spent more time in a trapped traffic congestion which indirectly would make them to miss attending some working activities. Hence, traffic congestion brought the negative impact to the community, and as mentioned by Rahane and Saharkar (2014), the productivity of community might be low because of the increasing stress level of road users. Thus, the result clearly shows that the daily routines of the particular community are mostly affected by traffic congestion and that H_0 was rejected.

7. Conclusion

As a conclusion, traffic congestion is one the issues that needs to be considered on all levels because it can give a negative impact. Impact on the quality of community life in urbanization has captured much attention in research world because the quality of life is an expensive value that people should own in their life. It can be seen through their daily routines and lifestyle of people. All problem statements prepared described the situation occurred among the Seri Kembangan community. They suffered from the time that has been wasted on the road, and the increasing petrol or transportation cost that could bring to the low productivity of their life routines. It does not only affect their daily routine but also their health which will eventually contribute to the low quality of performances. Based on the result, a statistical analysis reported that the traffic congestion affected the community life quality in study area. It was indicated by the value of p in Spearman Rho correlation that there was a relationship between traffic congestion and quality of life. However, through the two attributes in quality of community life, daily routine was the most affected by traffic congestion. The Mann-Whitney U test value indicated (see Table 03) the higher rank value of daily routines among community. Community daily routines were forced to be changed because of the time wasted in traffic jams. Overall, low quality of life would contribute to a low productivity of daily routine and workers' performance.

Some recommendation to mitigate the issue in this study area are provided. Action must be taken by local authority especially in increasing the quality of community life in Seri Kembangan. According to Alam and Ahmed (2013), transportation management must be seen aligned with the policy made and the

policy gap in order to improve the system to be more efficient. Local authority or local government as a policy maker can introduce a new policy based on the situation in Seri Kembangan in encouraging the targeted group to switch their choices or to consider in choosing the mode of transportations in order to reduce the traffic congestion. Next, the improvement of transportation system in Seri Kembangan also needs to be considered such as improving the public transport system in order to encourage the community to use it, and decision maker must ensure that their service is suitable for the consumers. Other than that, organizing a campaign could be useful in promoting on the sustainable transportation such as carpooling, cycling and walking, as it can also improve their health and performance in daily routines in order to have an expensive value of a quality life.

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