# Physical and Non-Physical Factors Analysis of The Sukaramai Medan Traditional Market and Their Effect On The Area Accessibility Conditions

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**Abstract.**Sukaramai Medan Traditional Market has several problems that happened during its development. One of the crucial issues is congestion caused mainly by traders who use the road to sell. From the compilation of data, Sukaramai Medan Traditional Market shows that it is getting busier and chaotic. Still, so far, there has been no significant improvement even though it interferes with user activity. This research was conducted to determine the problems in Sukaramai Medan Traditional Market based on physical and non-physical factors that affect access used as a guideline for improvement to create a more convenient area for market users. This study uses mixed methods between quantitative and qualitative methods with data collection used in the form of observations on the existing condition and surveying respondents that related. The several variables observed in the analysis are market location, trading rooms, and merchant mobility. Several physical and non-physical factors associated with congestion with the lowest value can be used as the main focus in improvement. It is the market setup and item type arrangement for physical factors, while for non-physical factors, it relates to parking area and circulation. Suppose the problems on some of these factors can be resolved. In that case, it will approach the criteria of an excellent traditional market so that the accessibility of the surrounding area will be better

**Keyword:**accessibility, congestion, market, non-physical, physical

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## 1 Introduction

Traditional markets will experience several problems, often with developments that are not following predetermined criteria. In the placement of conventional markets, several measures need to be achieved. Several criteria in structuring traditional markets include accessibility, security, safety, health, comfort, aesthetics, and adequacy [1]. As problems arise in conventional markets, so also happens in the Sukaramai Traditional Market Medan. For example, in one of the inspections conducted by the Minister of Trade of the Republic of Indonesia, Enggartiaso Lukita, Sukaramai Medan Traditional Market was in poor condition [2]. This case also

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happened during the visit of the mayor of Medan Bobby Nasution. Most of the Sukaramai Traditional Market Medan traders complained about the market condition, which was deemed not to provide space for good buying and selling activities. Many traders prefer to sell outside the market in a private agency. In addition, fraudulent deposits often occur in the Sukaramai Medan Traditional Market environment [3]. In addition, congestion often occurs in the Sukaramai area, resulting from activities at the Sukaramai Traditional Market, Medan. This is due to user activities that meet the shoulder of the road. There are no supports, such as adequate parking areas in this market, making many customers park their vehicles with facilities on the side of the road or the sidewalk. Not only that, the unorganized traders make this market view very bad. From some of the problems that arise in the Sukaramai Traditional Market, Medan, further research is needed to find out more about the physical and non-physical conditions that affect the accessibility of the area, especially congestion. The problem of accessibility at the Sukaramai Medan Traditional Market is a problem that has occurred for quite a long time. Still, there has been no significant change in its improvement. For this reason, this study was conducted to determine the condition of Sukaramai Medan Traditional Market facilities and their influence on the accessibility of the area. Then it can be used as a reference for improvement to comply with the existing traditional market criteria to create an appropriate market environment for its users so that accessibility in the area runs smoothly.

## 2　Literature Reviews

A traditional market is a place or container that meets sellers and buyers with a traditional management system. Generally, traditional markets are used by the community to meet their daily needs because, in traditional markets, there is an interaction of supply and demand [4].

The function of the market traditionally, besides becoming the center of the distribution, organizing products, the determination of value, and forming the price, but also became the center of the meeting, the central exchange of information, the activity of art-folk, and even can be a package tour that is offered [5].

There are several physical and non-physical at Traditional Market whose influence on the conditions of accessibility in the region [6]. The first one is Physical Factor, which consists of market location and trading rooms divided based on the following criteria: Market Location, consisting of the ease of reaching public transportation, manageable vehicle access, market setup, main road access, and ease of finding the location.

The ease of reaching public transportation is observed by its range with the distance that needs to be taken by people to get stuff needs and threshold with the minimum number of people are needed for smoothness and continuity of supply of goods [7]. To reach manageable vehicle access, the criteria to reach are the limits of movement and trading space and the circulation

space that pays attention to the user's opportunity to intervene [8]. The market setup has to have the separation of the dry zone and wet zone [9]. For main road access, the circulation pattern has to be efficient and comfortable [10]. Furthermore, the last criterion is the ease of finding the location. This is the layout of the traditional market area, and the position of the public facilities must be considered [11].

For the second physical factors trading rooms, there are four criteria. Firstly, trading rooms arrangement will be great with the shops that do not cover wind direction, modular counter, and easy access to the counter and do not cover the view to and from the shops [12]. Secondly, the adequate kiosk size, with the main circulation 3 – 4 meters, secondary circulation has a magnitude of 1.5 – 2 meters, the booth length is 10-15 meters, and the size of kiosks 20-30 meters [13]. Thirdly, item type arrangements have to be grouped of similar commodities in the market, and market orientation should be easy to access [14]. Thes last one, adequate corridor size with the width of the corridor is at least 120 cm for the chair wheels, and if there is an elevation in the building, it is necessary to install a ramp [15].

## 3    Research Methods

This study uses a combined method between quantitative and qualitative methods. The form of research is carried out for each other to complete the picture of the research results and strengthen the analysis of the study. The primary and secondary data collection techniques resulted from observations and questionnaire surveys. Data research used is the condition of the existing Market Traditional Sukaramai Terrain and population and sample in the form of the market user that consists of traders and non-traders. The number of pieces was collected as many as 100 respondents. The variables that have been determined previously are market location, trading room, and merchant mobility.

## 4    Result and Analysis

One of the causes of congestion in the surrounding area of Sukaramai Medan Traditional Market is the trader who closes his shoulders the way to sell. It is caused by a facility that has not been adequate. Total traders who trade in the building reached 58 traders, so the market Traditional Sukaramai Terrain is increasingly difficult to thrive. The number of traders who bit it was not always selling every day. The lack of traders at Pasar Traditional Sukaramai field due to many traders who decided to move the place for lonely customers are more interested in shopping in the markets traditional in the vicinity, such as Market Agate or Pasar Bakti. Goods merchandise is less regularly and is one of the reasons buyers are not interested in shopping to Sukaramai Medan Traditional Market and the state of the market, which seems still dirty and not well maintained.

4.1. Existing Conditions of Sukaramai Medan Traditional Market

In this analysis, the Sukaramai Medan Traditional Market is grouped into four zones. The First Zone is located in the basement of the building, consisting of chicken merchants, meat merchants, fish merchants, and seasoning merchants (Figure 1).
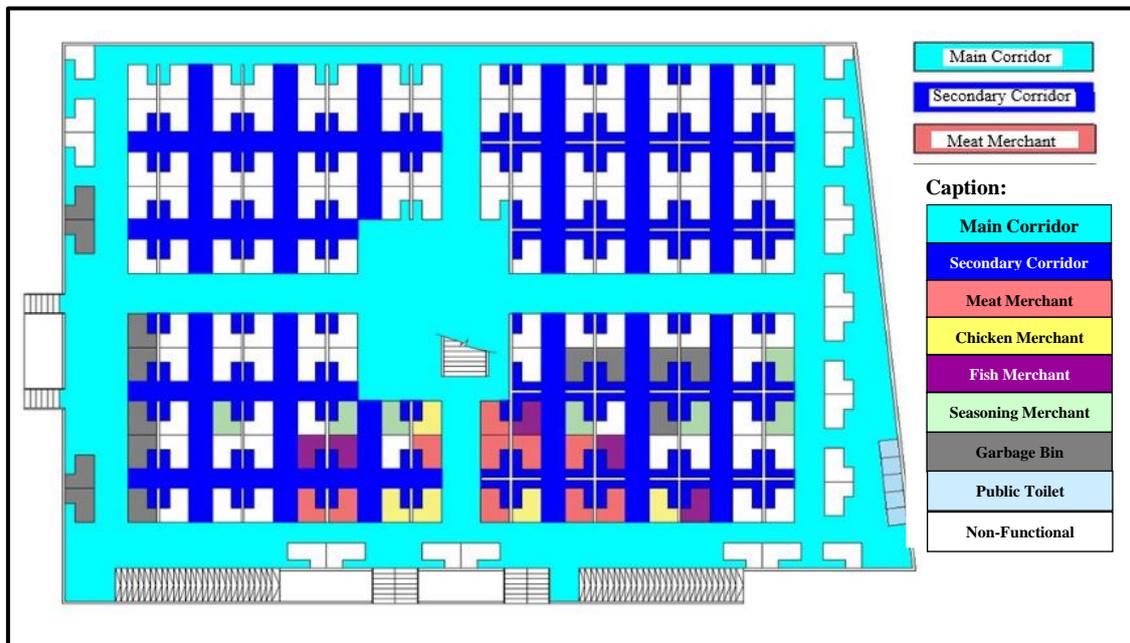


**Figure 1** Scheme of Sukaramai Medan Traditional Market basement

The size of the counter is too small. In addition to materials in the Sukaramai Medan Traditional Market, many of the counters were cracked, not unkempt, and dirty (Figure 2). So that the traders of commodities damp using tarps to coat the counter table to be used to put stuff. Meanwhile, according to Menteri Kesehatan Republik Indonesia Nomor 519 Tahun 2008, concerning the implementation of healthy markets, materials for traditional market booths must be clean, sturdy, and easy to clean.



**Figure 2** The condition of the basement of the Sukaramai Medan Traditional Market

The Second Zone is located on the first floor of the building, which contains groceries merchant, shoe merchants, jewelry merchants, cosmetics merchants, and food merchants (Figure 3).
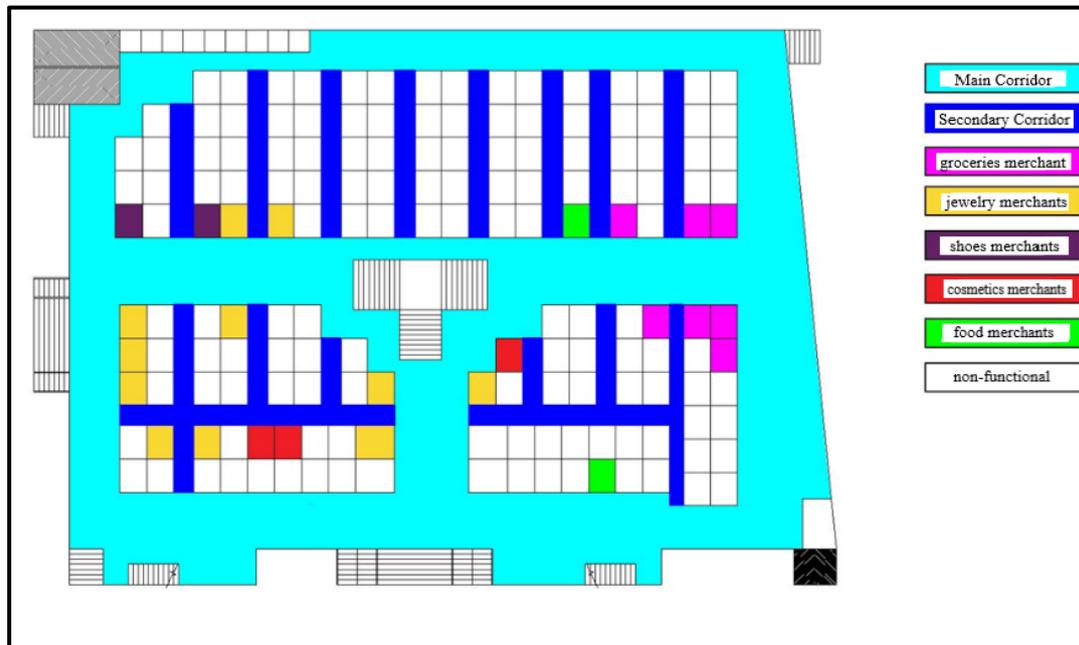


**Figure 3** Scheme of Sukaramai Medan Traditional Market first floor

There is a difference that is quite significant in parts of the front and back of the corridor. The front of the corridor looks tiled and relatively clean, while the back looks less maintained. Structuring the location of the kiosk and counter in the Sukaramai Medan Traditional Market has not been arranged tidily. However, the position or location of the entire kiosk and counter can be passed quickly. The types of commodities that are similar are not in the same area, both on the first floor and basement, so it makes the buyer feel challenged to have to go around the corridor to look for needs that are required. These conditions can be seen in figure 4.



**Figure 4** The condition of the first floor of the Sukaramai Medan Traditional Market

The Third Zone is located on the second floor of the building, consisting of clothing merchants and cosmetics merchants, and most of the shops are empty (Figure 5).
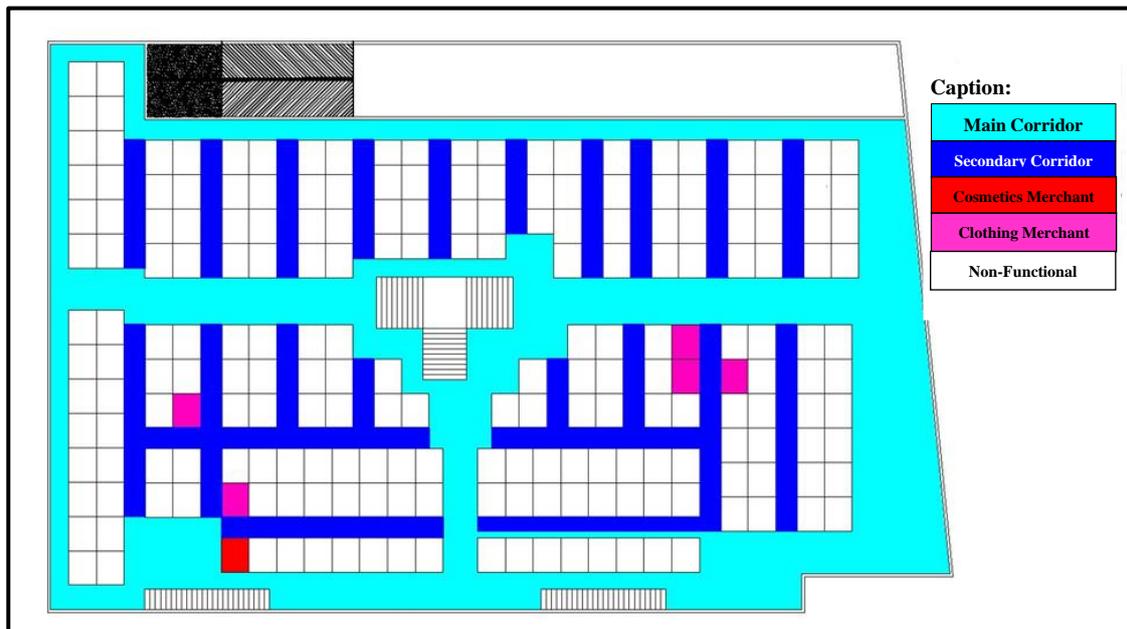
**Figure 5** Scheme of Sukaramai Medan Traditional Market second floor

On the second floor, the arrangement location of retail devoted to commodity apparel, both types of clothes the kids to the adults. However, from the overall kiosks and stalls in the Sukaramai Medan Traditional Market, only a tiny amount of booths are being operated even though the shops' condition on this floor is more excellent than another floor (Figure 6). The number of kiosks and stalls closed affect the sale and purchase or power pull for visitors to shop at Sukaramai Medan Traditional Market.
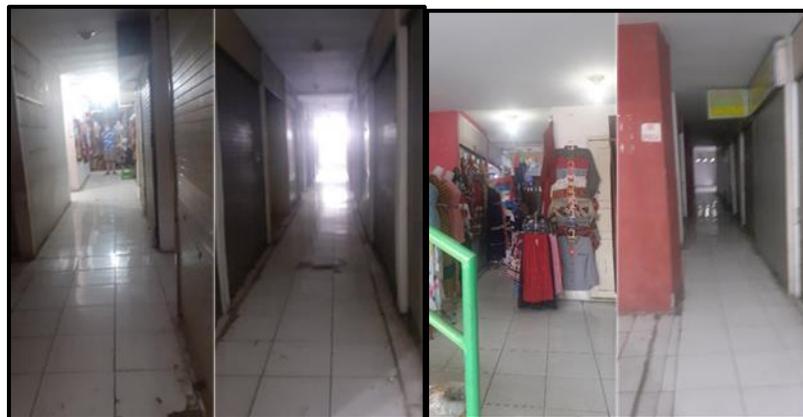


**Figure 6** The condition of the second floor of the Sukaramai Medan Traditional Market

The Fourth Zone is the part of the outside of the building that consists of various types of merchants, such as fish merchants, vegetable merchants, and fruit merchants (Figure 7).
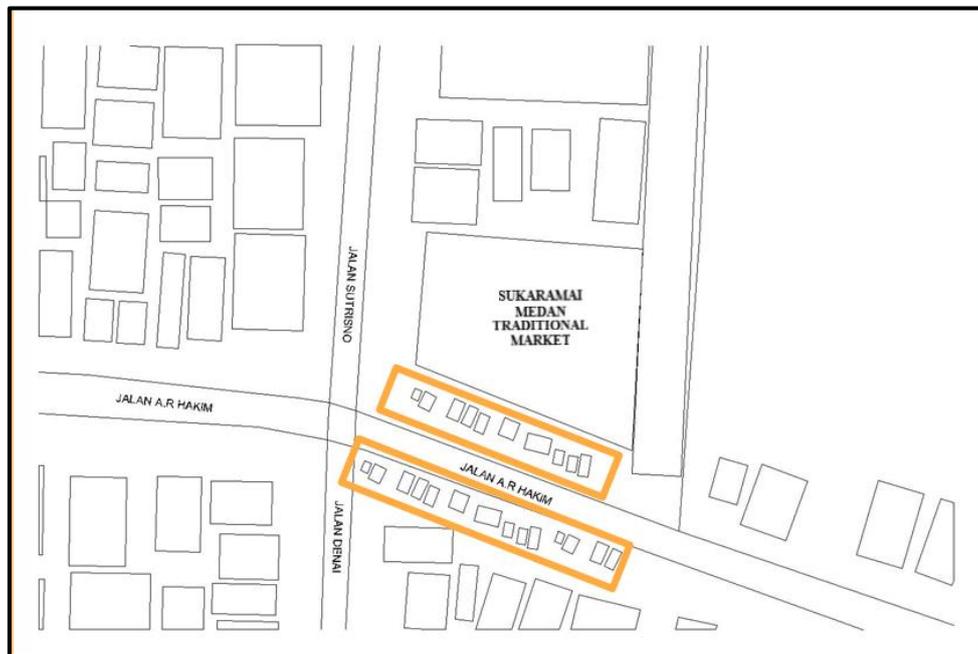
**Figure 7** Scheme of the outside of Sukaramai Medan Traditional Market building

The Accessibility at the Sukaramai Traditional Market in Medan is inadequate due to the density of the seller's stalls, making it difficult for users to circulate. The distance between sellers is very tight so that the circulation to walk is narrow even to pass by an adult. In addition to the vehicle also deter most significant roads, things have led to the difficulty of using the facilities market, especially in the afternoon. This was happening because of the lack of parking facilities to accommodate the market, making the users use places that are supposed to be as access or circulation as a parking place. This condition can easily be seen in figure 8.
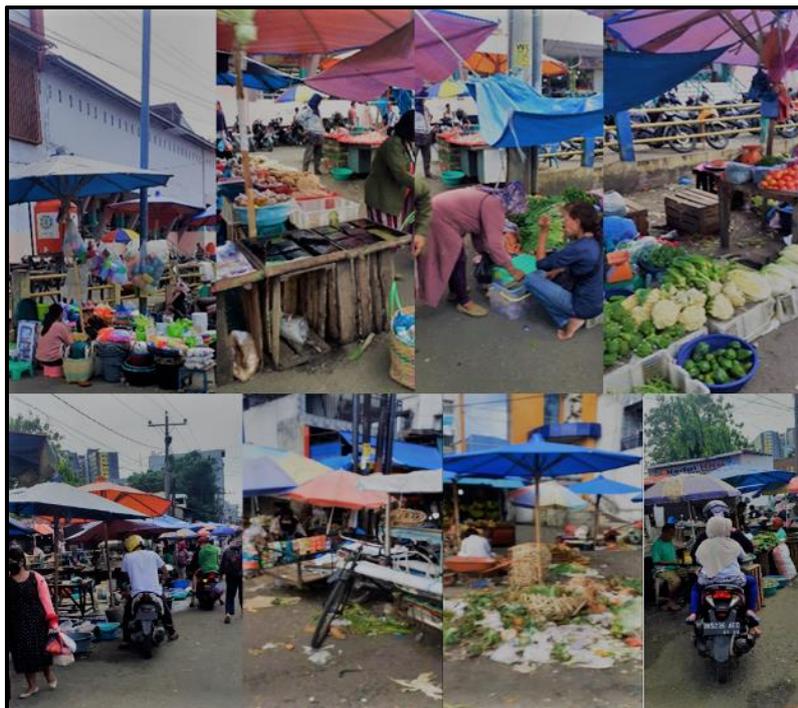


**Figure 8** The condition of the outside of the Sukaramai Medan Traditional Market building

4.2. The Perception of Society About Sukaramai Medan Traditional Market

Based on the variables defined below, this is the public's perception that is obtained from the results of a survey of 100 respondents.

As for the Market Location, from the results of the analysis of data related to the variable location of the market, there are five indicators with values averaging 3.36, which is the level of comfort of the area of the market is neutral or normal. Hands ease of location to get the value of the good is 3.73, for the vehicle access earned a good deal with the convenience of accessibility that either is 3.68. The ease of finding the main road is considered good, with a value of 3.53. The ease of access to the vehicle is deemed normal only by the value of the resulting 3.37. The hands of arrangement and circulation are considered not good, with a value of 2.49. More results of the market location can be seen in table 1.

**Table 1** Recapitulation of Respondents' Answers to Market Location

| No | CRITERIA | SCORE | | | | | TOTAL | MEAN |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | | |
| 1 | Ease of reaching public transportation | 3 | 20 | 72 | 168 | 105 | 368 | 3,68 |
| 2 | Easy vehicle access | 3 | 32 | 96 | 156 | 50 | 337 | 3,37 |
| 3 | Market Setup | 14 | 84 | 84 | 52 | 15 | 249 | 2,49 |
| 4 | Main road access | 2 | 32 | 69 | 180 | 70 | 353 | 3,53 |
| Total average | | | | | | | | 3,36 |

From the results of data analysis related to the trading room variable, there are four indicators with an average value of 2.55, namely, the condition of the trading room is considered not good. Indicators of the adequacy of the size of the corridor to get a value that is neutral or normal course is 2.65. For the arrangement of items rated neutral or normal course of 2.61. The adequacy of the kiosk size is considered not good, with a value of 2.58. In comparison, the indicator of the adequate corridor size gets the lowest value with 2.37, which means bad. The more complete results can be seen in table 2.

**Table 2** Recapitulation of Respondents' Answers to the Trading rooms

| No | CRITERIA | SCORE | | | | | TOTAL | MEAN |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | | |
| 1 | Trading room arrangement | 10 | 110 | 72 | 40 | 5 | 237 | 2,37 |
| 2 | Adequate kiosk size | 16 | 66 | 87 | 84 | 5 | 258 | 2,58 |
| 3 | Item type arrangement | 5 | 92 | 99 | 60 | 5 | 261 | 2,61 |
| 4 | Adequate corridor size | 11 | 72 | 96 | 76 | 10 | 265 | 2,65 |
| Total average | | | | | | | | 2,55 |

For Merchant Mobility, five indicators with an average value of 2.68 are rated accessibility and zoning neutral or normal course. Indicators ease of access door exit sign in the location of the market value of the neutral or normal course is 3.2. To the indicators, ease of access to the store rated neutral or normal course amounted to 2.89. Zoning is based on the type of merchandise rated neutral or normal course with a value of 2.51. While for the parking and circulation indicator area, both have a value that is not good at 2.4. These results can be seen in table 3.

**Table 3** Recapitulation of Respondents' Answers to Merchant Mobility

| No | CRITERIA | SCORE | | | | | TOTAL | MEAN |
|----|----------|-------|---|---|---|---|-------|------|
| | | **1** | **2** | **3** | **4** | **5** | | |
| 1 | Ease of access entering and exit | 3 | 42 | 96 | 164 | 15 | 320 | 3,2 |
| 2 | Ease find goods trade | 6 | 98 | 102 | 40 | 5 | 251 | 2,51 |
| 3 | Location Access | 6 | 62 | 102 | 104 | 15 | 289 | 2,89 |
| 4 | Ease and adequacy of the parking area | 17 | 82 | 84 | 52 | 5 | 240 | 2,4 |
| 5 | Suitability of circulation use | 18 | 76 | 93 | 48 | 5 | 240 | 2,4 |
| | Total average | | | | | | | 2,68 |

### 4.3. The Effect of the Physical and Non-Physical Factors of The Sukaramai Medan Traditional Market On The Area Accessibility Conditions

SPSS was used to analyze the influence of merchants on accessibility to correlate the fourth locations in the study based on data obtained from the questionnaire results.

There are two choice answers, "yes" for a positive response and "no" for a negative response. Each of the solutions that were given grades 1 to answer no and 2 to answer yes. Respondents answers who had changed into the form of a score that is processed by using SPSS software to produce output in the form factors of the most significant according to the respondents that affect every variable of the condition of the accessibility of the region

The following table shows variables frequency based on the results from a questionnaire that has been distributed to 100 respondents. Based on an analysis using SPSS, table frequency to the location as much as 75 samples or 75 % answered that location affects congestion (Table 4).

**Table 4** Market Location

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|-----------|---------|---------------|--------------------|
| **Valid** | **No** | 25 | 25,0 | 25,0 | 25,0 |
| | **Yes** | 75 | 75,0 | 75,0 | 100,0 |
| | **Total** | 100 | 100,0 | 100,0 | |

Based on the analysis using SPSS, the frequency table for the trading rooms as many as 82 samples or 82 % answered that the location affected congestion (Table 5).

**Table 5** Trading Rooms

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| **Valid** | **No** | **18** | **18,0** | **18,0** | **18,0** |
| | **Yes** | **82** | **82,0** | **82,0** | **100,0** |
| | **Total** | **100** | **100,0** | **100,0** | |

Based on the analysis using SPSS, the frequency table for the mobility of merchants as many as 8 3 samples or 8 3% answered that location affects congestion (Table 6)

**Table 6** Merchant Mobility

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| **Valid** | **No** | **17** | **17,0** | **17,0** | **17,0** |
| | **Yes** | **83** | **83,0** | **83,0** | **100,0** |
| | **Total** | **100** | **100,0** | **100,0** | |

4.4. Correlation of Market Location, Trading Rooms, and Merchant Mobility to Congestion

The level of congestion determines Pearson correlation of the correlation between the three variables can be seen in table 7.

**Table 7** Pearson Correlation Table

| | | Market Location | Trading Rooms | Merchant Mobility | Congestion |
|---|---|---|---|---|---|
| Market Location | Pearson Correlation | 1 | ,030 | ,169 | ,069 |
| | Sig. (2-tailed) | | ,767 | ,093 | ,498 |
| | N | 100 | 100 | 100 | 100 |
| Trading Rooms | Pearson Correlation | ,030 | 1 | ,273[**] | ,239[*] |
| | Sig. (2-tailed) | ,767 | | ,006 | ,017 |
| | N | 100 | 100 | 100 | 100 |
| Merchant Mobility | Pearson Correlation | ,169 | ,273[**] | 1 | ,828[**] |
| | Sig. (2-tailed) | ,093 | ,006 | | ,000 |
| | N | 100 | 100 | 100 | 100 |
| Congestion | Pearson Correlation | ,069 | ,239[*] | ,828[**] | 1 |
| | Sig. (2-tailed) | ,498 | ,017 | ,000 | |
| | N | 100 | 100 | 100 | 100 |

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis:

H $_{0-1}$ : r = 0 ; X1, There is no correlation between location and congestion

H $_{1-1}$: r 0; X1, There is a correlation between location and congestion

H $_{0-2}$: r = 0; X2, There is no correlation between the trading rooms and congestion

H $_{1-2}$: r 0; X2, There is a correlation between the trading rooms and congestion

H $_{0-3}$: r = 0; X3, There is no correlation between Merchant Mobility and congestion

H $_{1-3}$: r = 0; X3, There is a correlation between Merchant Mobility and congestion

If the correlation is not equal to 0, it can be said that there is an effect. From the analysis based on the Pearson Correlation the following results were obtained:

1. **Location** is positively related to **Congestion** of 0.069 (r = 0.069 )

2. **Trading Rooms** positively associated with **congestion** of 0.239 (r = 0.239)

3. **Merchant Mobility** is positively related to **congestion** of 0.828 (r = 0.828)

## 5    Conclusions

There are several physical and non-physical at Sukaramai Medan Traditional Market that affect the accessibility of the region associated with congestion. Based on the results of the research of the respondents in the form of the Market Traditional Sukaramai Medan, factors of physical and non-physical market Traditional Sukaramai Terrain these, namely the location of the market, trading room, and the merchant mobility, all three influence the accessibility of the region, namely congestion. The acquisition of a correlation value of 0.069 market locations, 0.239 trading rooms, and 0.828 merchant mobility.

One of the congestion causes is that merchants use the shoulder of the road to trade, so they do not occupy the Sukaramai Medan Traditional Market Building. Based on the research results, the merchant of Sukaramai Medan Traditional Market does not occupy the building due to the physical and non-physical, yet support the activities of its users is maximum. Here is a recapitulation of the value of the lowest of each factor (Table 8).

**Table 8** Recapitulation of the lowest value of each factor

| **Physical Factors** | |
| --- | --- |
| Location | Market Setup 2,49 (Not Good) |
| Trading Rooms | Item type arrangement 2,37 (Not Good) |
| **Non-physical Factors** | |
| Merchant Mobility | Ease and adequacy of the parking area 2,4 (Not Good) |
| | Suitability of circulation use 2,4 (Not Good) |

In the factor of physical, namely, the location of the market, namely the arrangement and circulation Sukaramai Medan Traditional Market still not been arranged with the good. Based on the questionnaire results from the respondents, this factor obtained the lowest score, namely 2.49, which means it is not good. To factor trading rooms, structuring space trade mostly large they have not been accommodated according to its kind, although each floor has been divided by wet zone and dry zone, the arrangement is still lacking. Respondents assessed the layout of the trading room with the lowest value, namely 2.37, which means it is not good. While for the factors of non-physical, namely mobility merchants, area of parking and circulation at Sukaramai Medan Traditional Market obtain the value of the lowest of the results of assessment respondents with a value that is not good is 2.4 for both. This lowest result can be used as a guideline for significant improvements to the Sukaramai Traditional Market in Medan.

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