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## Pedestrian Comfort Analysis of the Utilization of Pedestrian Lanes on SM. Raja Street Padangsidempuan City

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### Abstrak

Baku mutu tingkat kebisingan dijadikan sebagai standar acuan yang menjamin agar suatu area/kawasan tertentu tidak menimbulkan gangguan terutama terhadap gangguan kesehatan manusia dan kenyamanan lingkungan. Kebisingan merupakan salah satu jenis rangsang lingkungan yang dapat direspon berbeda oleh setiap individu. Dimana individu yang dapat melakukan perubahan respon terhadap rangsang lingkungan yaitu kebisingan, maka dapat dikatakan bahwa ia memiliki kemampuan adaptasi terhadap kebisingan. Berdasarkan tingkat kebisingan yang di tangkap SLM (Sound Level Meter) bahwa tingkat kebisingan tertinggi terjadi di jam 07:00 – 08:00 WIB sebesar 72,80 dB disbanding jam – jam yang lain dan di tinjau berasarkan karakteristik tata guna lahan untuk kawasan persekolahan yang batas nilai tingkat kebisingan 55 d.B(A) dan kebisingan tertinggi terjadi di jam 07-08 pagi dengan Tingkat kebisingan 72,8 decibel dan kebisingan terendah terjadi pada pukul 10-11 WIB dengan Tingkat kebisingan 47,8 decibel. Dari hasil penelitian tersebut disarankan kepada pihak sekolah untuk menutup jendela pada saat proses belajar untuk mengurangi kebisingan yang ditimbulkan dari kendaraan yang lewat.

Kata Kunci: *Financial Distress, FDR, ROA, Ukuran Bank*

## Abstract

The noise level standard is used as a reference standard that ensures that a certain area/region does not cause disturbances, especially to human health and environmental comfort. Type of environmental stimulus that can be responded to differently by each individual. Where individuals who can make changes in response to environmental stimuli, namely noise, it can be said that they have the ability to adapt to noise. Based on the noise level captured by the SLM (Sound Level Meter), the highest noise level occurs at 07:00 - 08:00 WIB at 72.80 dB compared to other hours and is reviewed based on the characteristics of land use for school areas with a noise level limit of 55 dB (A) and the highest noise occurs at 07-08 am with a noise level of 72.8 decibels and the lowest noise occurs at 10-11 WIB with a noise level of 47.8 decibels. From the results of the study, it is recommended that schools close the windows during the learning process to reduce noise caused by passing vehicles.

*Keywords: Financial Distress, FDR, ROA, Bank Size*

## INTRODUCTION

Pedestrian comes from Greek, where it comes from the word pedos which means foot so that pedestrian can be interpreted as a pedestrian or a person who walks. So pedestrian in this case means the movement or transfer of people from one place as a starting point to another using walking.

The comfort of pedestrian paths must be a priority in city transportation planning. If the development of pedestrian path planning goes well, the level of air pollution and congestion in a city can be reduced (Muslihun 2013). The pedestrian path in the Jl. SM. Raja area of Padangsidempuan city can be categorized as a commercial pedestrian path whose existence is easily accessible to the city's people, both those using private motorized vehicles and public transportation. Making this area dense with motorized vehicles, the smoke from these vehicles causes air pollution.

A city environment that is clean from pollution is a city that is friendly to pedestrians by providing adequate and adequate facilities for their activities in the form of comfortable and safe pedestrian paths for walking. This should also apply to the pedestrian path on Jl. SM.Raja Padangsidempuan in accordance with its main function, namely as a means of non-vehicle transportation, especially walking. The convenience of pedestrian paths can directly increase the quantity of pedestrians.

Pedestrian paths are special paths intended for people who choose to walk in carrying out their activities in public spaces. According to (Rubeinstain 1987) Pedestrian paths are also interpreted as the movement or circulation or movement of people or humans from one place to the point of origin to another place as a destination by walking. Pedestrian paths must be safe and comfortable for users of the path, where according to (Anggriani 2009)

the factors that affect the comfort of pedestrian path users are as follows:

#### 1. Circulation

Comfort can be reduced if circulation is disturbed, for example the lack of clarity of circulation such as the sidewalk being used as a parking lot or a place to sell so that the division of pedestrian and vehicle circulation space and the like is unclear.

#### 2. Natural and Weather Style

Solar radiation can reduce comfort, especially in tropical areas, especially during the day. Rainfall also often interferes with human activities outside, thus disrupting the comfort of pedestrians when crossing the pedestrian path area.

#### 3. Security

Security from crime greatly affects the comfort of pedestrian path users and other security factors.

#### 4. Cleanliness

Everything that is clean will increase the appeal and also increase the comfort of pedestrians because it is free from garbage and unpleasant odors. To overcome this, trash cans need to be provided.

#### 5. Beauty

Comfort here includes the problem of inner satisfaction and the five senses so that a sense of comfort can be obtained. It is difficult to judge something beautiful, everyone has a different perception.

According to the Regulation of the Minister of Public Works No. 3 of 2014, there are 4 important factors that influence the length or distance people walk, namely:

1. Motive. A strong motive for walking can influence people to walk longer or further. Recreational motives have a relatively shorter distance, while shopping motives can be done for more than 2 hours with a distance of up to 2.5 km without being fully realized by pedestrians.
2. Comfort influenced by weather factors and types of activities. Bad weather will reduce people's desire to walk. In Indonesia, with hot weather people only want to travel 400 meters, while for shopping activities carrying goods, the desire to walk is no more than 300 meters.
3. Availability of vehicle facilities. The continuity of the provision of motorized transportation modes, both public and private, as a means of transportation before and after walking greatly affects the distance traveled by people walking, which will be further than if vehicle facilities were not evenly available.
4. Land Use Patterns and Activities. Walking in a shopping center feels pleasant up to a

distance of 500 meters. Beyond that distance, other facilities are needed that can reduce fatigue for people walking, such as seating and food/drink stalls.

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## RESEARCH METHODOLOGY

This research was conducted on the pedestrian path of SM. Raja City of Padangsidempuan. The location to be studied is  $\pm$  850 meters long, starting from Tugu Siborang Padangsidempuan to the intersection of Jl. Teuku Umar Padangsidempuan City. The research location is divided into 2 research points, where the first research point is on the left pedestrian path and the second research point is on the right pedestrian path. This research area is one of the pedestrian paths of Padangsidempuan City with various activities in it such as offices, health service centers, shopping centers, shops, and places to eat. Activities in this research area are mostly economic activities, namely trade and services. Therefore, this research location can be classified as a commercial pedestrian path and commercial areas are usually always crowded with visitors. This research uses a qualitative descriptive research method. The descriptive research method is a study that describes variables as they are supported by data in the form of numbers.

## RESULT AND DISCUSSION

The height of the pedestrian path on SM Raja street, Padangsidempuan city at point A is 10 cm with a pedestrian length from point 0 to point A of  $\pm$ 300 meters. The ideal height of the pedestrian path is a maximum of 30 cm and a minimum of 10 cm from the road surface so that motorized vehicles cannot cross the pedestrian path, meaning that the SM Raja street pedestrian path at point A has met the ideal height of the pedestrian path. In the questionnaire, the researcher determined the comfort score of pedestrian path users on Raja Junjungan Lubis street, namely STN (Very Uncomfortable) score 1, TN (Uncomfortable) score 2, CN (Quite Comfortable) score 3, N (Comfortable) score 4, SN (Very Comfortable) score 5.

From the research conducted using a questionnaire regarding the current conditions on the pedestrian path on SM. Raja street, Padangsidempuan city regarding factors that

influence comfort. The researchers obtained the following scores, space utilization score 153, microclimate (hot sun and rain) score 177, noise score 161, aroma score 178, pavement form score 204, security from crime score 243, pedestrian path security score 188, cleanliness score 204, beauty score 181, facilities score 131, shown in table 2 below.

Table 2. Pedestrian Path Condition Perception Score

Perception of pedestrian path condition on SM Raja	Padangsidimpuan Street Score	Average Score
Utilization of pedestrian space	153	2,32
Microclimate (Sun and rain)	177	2,68
Noise	161	2,44
Aroma	178	2,70
Shape	204	3,09
Security Crime	243	3,68
Path safety	188	2,85
Cleanliness	204	3,09
Beauty	181	2,74
Facilities	131	1,98

Source: Research questionnaire results, 2024

Then the results obtained from the survey results are presented in the form of a percentage of respondent perceptions based on the following pedestrian path conditions:

Tabel 3. Persepsi Responden Berdasarkan Kondisi Jalur Pedestrian

No	Pedestrian conditions	STN	TN	CN	N	SN
1	Utilization of pedestrian space for street vendor activities, parking, etc.	13,64%	42,42%	42,42%	1,52%	0%
2	Microclimate (hot sun and rain)	4,55%	37,88%	42,42%	15,15%	0%
3	Vehicle noise	7,58%	50,00%	33,33%	9,09%	0%
4	Aroma/smells	7,58%	31,82%	42,42%	18,18%	0%
5	Shape and quality	0%	21,21%	46,97%	31,82%	0%
6	Safety from crime	0%	18,18%	22,73%	33,33%	25,8%
7	Safety of the pedestrian path itself (slippery, potholed ramp)	6,06%	30,30%	34,85%	28,79%	0%
8	Cleanliness of the pedestrian path	1,52%	22,73%	42,42%	31,82%	1,52%
9	Beauty of the materials and shape of the pedestrian path	1,52%	31,82%	57,58%	9,09%	0%
10	Completeness of supporting facilities	21,21%	59,09%	19,70%	0%	0%

Source: Research questionnaire results, 2024

Calculation of perception of pedestrian path condition of SM. Raja street, Padangsidimpuan city using simple calculation with Microsoft Excel 2013 number processing tool with the formula below:

$$\text{Karakteristik (STN,TN,CN,N,SN)} = \frac{\text{jumlah responden}}{\text{Jumlah seluruh responden}} \times 100\%$$

The purpose of the open-ended questions was to explore respondents' perceptions of pedestrian comfort when crossing the pedestrian path of SM. Raja Street, Padangsidimpuan City. Perception of current conditions on the pedestrian path of SM. Raja street, Padangsidimpuan city from the results of the research questionnaire that has been obtained. For the comfort category based on table 3.

Calculation of the percentage of comfort of the pedestrian path of SM. Raja street, Padangsidimpuan city using simple calculations with Microsoft Excel 2013 number processing tools with the formula below:

$$\text{Presentase kenyamanan} = \frac{\text{jumlah skor yang diperoleh}}{\text{nilai skore maksimal} \times \text{Jumlah responden}} \times 100\%$$

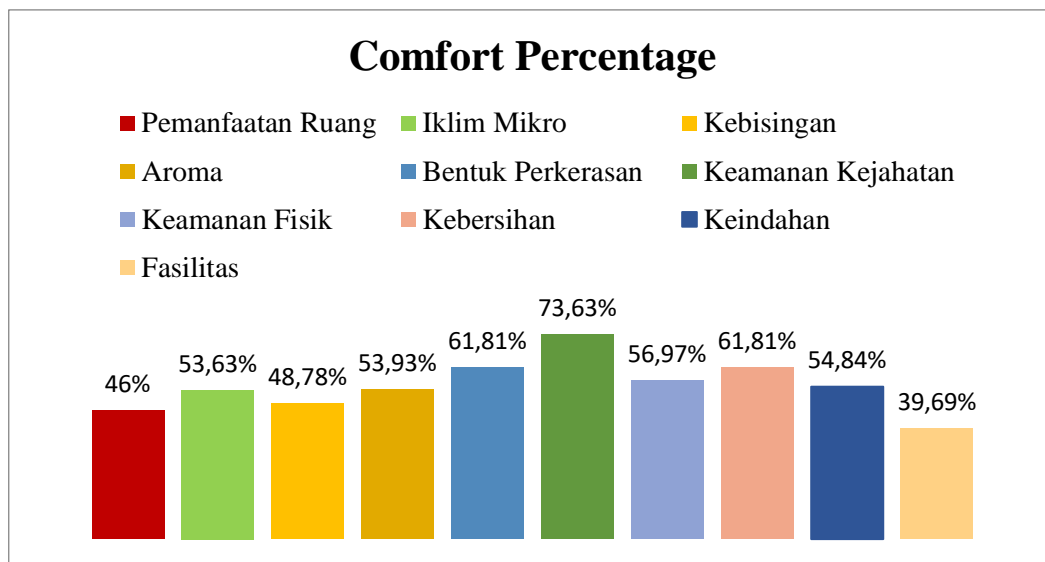


Figure 4. Comfort Percentage

Based on Figure 4. the use of pedestrian space on SM Raja Street is categorized as uncomfortable, there are still street vendors, illegal parking that uses the pedestrian path and there are some shops that use the pedestrian path to place some of their merchandise on the path so that it disrupts the circulation of pedestrians which reduces the comfort of its users, the width of the SM Raja Street pedestrian path in Padangsidimpuan City is 1.20 meters can only accommodate one pedestrian so that it has the potential to collide with

pedestrians coming from the opposite direction. This can trigger discomfort for pedestrians when crossing the SM Raja Street pedestrian path in Padangsidempuan City.

Climate and rainfall constraints, these factors can hinder pedestrian activities, the climate in Padangsidempuan during the research process for 2 weeks between June 3 and 17, 2024, there was several times of rain and the sun was not too hot. Based on Figure 4.8, the microclimate and rainfall are categorized as quite comfortable.

The noise level category on the SM Raja Street pedestrian path is categorized as uncomfortable. The comfort level category from aroma/smells is categorized as quite comfortable. The shape and quality of the pedestrian path pavement are categorized as quite comfortable. The level of user comfort from the aspect of pedestrian path comfort from the risk of falling, potholed paths and path surfaces that have different heights and are slippery is categorized as quite comfortable. But when viewed from the aspect of security from the aspect of crime, it is categorized as comfortable.

The comfort level factor from crime gets the highest score, it can be said that the crime rate on SM Raja Street, Padangsidempuan City is still categorized as safe for pedestrians and followed by the shape and quality of the pavement which is categorized as quite comfortable (CN) as seen in the picture above. Cleanliness can affect a person's comfort, users will definitely choose to walk on a clean pedestrian path. The purpose of this statement is to find out the opinions of SM Raja Street pedestrian path users about the cleanliness of the pedestrian path, the category of the comfort level of the pedestrian path is quite comfortable. The completeness of supporting facilities to support pedestrian comfort obtained 39.69% and was categorized as uncomfortable (figure 4.8).

Table 5. Results of pedestrian path conditions

No	Pedestrian Path Condition on Jln. SM Raja	Score	%	Result
1	Utilization of pedestrian space for street vendor activities, parking, etc.	153	46,36%	Not comfortable
2	Microclimate (hot sun and rain)	177	53,63%	Quite comfortable
3	Vehicle noise	161	48,78%	Not comfortable
4	Aroma/smells	178	53,93%	Quite comfortable
5	Shape and quality	204	61,81%	Quite comfortable
6	Safety from crime	243	73,63%	Comfortable
7	Safety of the pedestrian path itself (slippery, potholed ramp)	188	56,97%	Quite comfortable
8	Cleanliness of the pedestrian path	204	61,81%	Quite comfortable
9	Beauty of the materials and shape of the	181	54,84%	Quite comfortable

pedestrian path				
10	Completeness of supporting facilities	131	39,69%	Quite comfortable

The use of pedestrian space according to respondents is uncomfortable due to the lack of regulation of pedestrian misuse so that many street vendors and motorbikes park on the pedestrian path, The microclimate on SM. Raja Padangsidimpuan street is still categorized as quite comfortable for users who cross the pedestrian path area, The noise of vehicles crossing the area on SM. Raja street according to respondents is too noisy so that it gets a score that is categorized as uncomfortable, The smell of odors around the pedestrian path area is still categorized as comfortable, The shape and quality of the pedestrian path made of neatly arranged bricks is categorized as quite comfortable according to respondents,

Security from crime in the pedestrian path area is categorized as Comfortable that in the pedestrian path area there are no crimes that scare pedestrians who cross the pedestrian path. The security of the path itself is categorized as quite comfortable so that the surface area of the pedestrian path is quite flat and sloping so that it is safe for pedestrians who cross. The cleanliness of the pedestrian path is quite clean which is categorized as quite comfortable. The material and shape of the pedestrian are made of neatly arranged bricks which get a fairly comfortable category. And the completeness of supporting facilities is categorized as Uncomfortable because completeness such as rest areas and standard pedestrian facilities are not yet available in the SM pedestrian path area. King of Padangsidimpuan City.

## CONCLUSION

Based on the results of data processing on the pedestrian path of SM Raja street, Padangsidimpuan city, it can be concluded:

1. The condition of the pedestrian path on SM Raja street, Padangsidimpuan city, in some parts, there are still some broken and potholed pedestrian path surfaces, illegal parking that uses the pedestrian path area, traders who place their wares in the pedestrian path area so that it hinders pedestrians. The height of the pedestrian path surface at some points still has not reached the minimum height standard of the pedestrian path surface from the road shoulder, which is 10 cm.
2. The comfort of pedestrian path users, especially pedestrians, generally feel comfortable (N) in utilizing the pedestrian path on SM Raja street, Padangsidimpuan city, which is reviewed from the security aspect, the crime rate is 73.63%. Pedestrians feel quite

comfortable (CN) in utilizing the pedestrian path on SM Raja street, Padangsidempuan city, reviewed from the aspects of air and smells 53.93%, microclimate 53.63%, shape and quality of the pedestrian path 61.81%, beauty, safety of the path itself from slippery path surfaces 56.97%, cleanliness of the pedestrian path 61.81%, beauty of the shape of the pedestrian path 54.84. Pedestrians who feel uncomfortable (TN) in utilizing the pedestrian path on SM. Raja street, Padangsidempuan city, reviewed from the aspect of space utilization that hinders pedestrian flow 46.36%, and completeness of supporting facilities in the pedestrian path area of 39.69%.

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