

# CHAPTER I

## INTRODUCTION

This chapter contains the background, problem formulation, objectives, research scope, and the outline report of the final project.

### 1.1 Background

Traffic is a system consisting of various road infrastructure facilities and various types of vehicles that function as a medium for the movement of people and goods to one place. Road infrastructure facilities can be in the form of road networks, road facilities, road complements and others. Based on Law no. 22 of 2009 traffic is defined as the space for vehicles and people to move through infrastructure that is intended as a medium for the movement of vehicles, people and goods.

Traffic is a fairly complex system because it contains various elements such as basic elements of transportation, culture, and law. It is not easy to respond to every accident that occurs. Beyond understanding that there is a human error in every accident case that cannot be predicted, preventive action is a challenge to do, especially for developing countries that encourage high mobility so that the economy increases. However, high mobility is not worth the life caused by the accident.

The growing number of people in the world causes high mobility so that every year the traffic rate and the number of vehicles increase. With the increasing number of vehicles and density in the traffic system, the risk of accidents during traffic is higher. According to WHO, at least 1.3 million people die every year due to traffic accidents. This indicates that death occurs within 2 minutes. Accidents are also the killer of children and youth in the whole world. Traffic accidents cause death and more than half of them are pedestrians, motorcyclists and cyclists.

The increasing volume of vehicles and traffic moving in the traffic space is sometimes not followed by an increase in good traffic security technology. This usually happens in low-middle income countries, especially in developing countries. Though the number of vehicles is very high in the country. Thus, based on WHO, at least 93% of deaths due to accidents occur in lower-middle income countries. and the country accounts for 60% of the world's vehicles. However, the growth in mobility cannot be matched by the deaths that occur. In addition to the problem of ineffective facilities, traffic accidents are also closely related to awareness of safe traffic rules. Many road users ignore regulations, especially regarding safety on the highway, which increase the risk of death.

Pedestrian facilities are usually not evenly distributed in every street space, especially in non-city areas. In addition, there are no clear rules regarding the rights of pedestrians, so pedestrian facilities are not the main concern. even if pedestrians have good facilities such as sidewalks, in developing countries most of the sidewalks are also used for other purposes such as parking, sometimes also used as access roads for motorbikes stuck in traffic jams. This certainly adds to the unclear rights of pedestrians (Priyoga, 2015).

Pedestrians are road users who suffer the most fatal injuries and are very at risk of losing their lives when an accident occurs (Pratelli et al., 2019). Although indirectly, the risk of lifelong disability for pedestrians is very high because no protection system reduces the impact of accidents when the accident occurs to pedestrians. In addition to the losses obtained after the accident, the loss can be felt from the decreased sense of safety and comfort of pedestrians while in the traffic room. This feeling of insecurity and comfort will trigger a sense of distrust of pedestrian support facilities, and lead to disobedience to using public facilities such as road crossings. The result of distrust of these facilities leads to an increased risk of accidents.

Padang City is the capital city of West Sumatra Province in Indonesia. Padang City has an area of 694.96 km<sup>2</sup> which is 1.65% of the area of West Sumatra Province. Padang City is growing very rapidly so the number of vehicles increases from year to year and congests road space (Wijaya, 2018).



**Figure 1.1** Padang City Area

Source: Wijaya, 2018

To find out the general description of pedestrians in Padang City , observations were made at several points, namely the zebra cross near the Grand Basko Hotel Jl. Prof. Dr. Hamka at 10.00 am for 30 minutes. The selection of the location is based on estimates to get pedestrians among the working community of Basko employees, students and the general public because it is a shopping mall point and also close to Padang University. The second point was observed which was located near SDN 03 Simpang Haru Jl. Andalas. The selection of the location is so that researchers can get an overview of the behavior of crossers from teachers, parents and students. Observation is done for 30 minutes starting at 6.30 am as it is a busy traffic hour to go to work and school. Based on these two observations, it is summarized unsafe act and unsafe condition displayed by the following **Table 1.2.**

**Table 1.1** Unsafe Act at Basko Hotel and SDN 03 Simpang Haru

No	Unsafe Act	Frequency	Percentage
1	Cross off the mark on the zebra cross	31	46.97%
2	Crossing behind the vehicle	13	19.70%
3	Crossover by running	6	9.09%
4	Start crossing suddenly without paying attention to traffic condition	4	6.06%
	Safe act	12	18.18%
<b>Total</b>		<b>66</b>	<b>100%</b>

**Table 1.2** Unsafe Condition at Basko Hotel and SDN 03 Simpang Haru

No	Unsafe Condition	Frequency
1	The vehicle does not slow down when there is a pedestrian	12
2	Vehicles parked in the zebra crossing area	18
3	Vehicles overtake each other when there are pedestrians	9
4	The zebra crossing is in poor condition	1

**Table 1.2** shows that out of 66 crossings only 12 were carried out safely without carrying out any unsafe acts at all. The safe act percentage is only 18.18%, this shows that in the city of Padang there are still very few pedestrians crossing safely. The unsafe act carried out will increase the risk of an accident. It is necessary to hold effective mitigation. **Table 1.3** shows that in terms of conditions when crossing, there are still many conditions that increase the risk of pedestrians crossing. Based on these observations, it turns out that many pedestrians when going to cross do not choose to cross in a designated place such as a zebra cross. The two observation points provide a pattern of unsafe acts and unsafe conditions which are almost the same as the creation of temporary blind spots because a vehicle stops at the crossing point. The following are some snapshots of the recorded crossing at both points, **Figure 1.2** shows an example of an unsafe act and **Figure 1.3** shows an example of an unsafe condition. For a more complete snippet, see **Appendix A**.



**Figure 1.2** Example of Unsafe Act Running When Crossing



**Figure 1.3** Example of Unsafe Condition Blind Spot Parking at Crossing Point

Based on data from the Central Statistics Agency of Padang City , material losses in 2021 will reach Rp. 765,000,000.00. Minor injuries in 2021 reached 102 people, whereas in 2018 there were only 69 people, so there was an increase of 47.8%. Serious injuries tend to decrease in 2021, there are 6 seriously injured people. The death rate tends to be not much different from year to year, namely, in 2021, there will be 5 people who died due to accidents. However, from year to year the number of accidents continues to increase.

Considering the impact of pedestrian accidents is very fatal and there is no further mitigation action regarding pedestrian accidents, similar accident cases can occur. The case has the potential to continue to grow along with population growth and the increasing number of vehicles in Padang City . Therefore, this phenomenon needs special and serious attention to reduce the factors that cause potential accidents and find solutions to problems that are efficient and effective to reduce the number of accidents in Padang City , especially for pedestrians who are the most

vulnerable road users. The researcher hope that this research will further develop a security system for all road users, especially pedestrians.

## **1.2 Problem Formulation**

The problem formula in this research is “what effective mitigations can be done to reduce the unsafe act and unsafe condition when pedestrians cross the street?”

## **1.3 Research Objective**

The objective of this study was to provide an effective intervention to reduce unsafe acts and unsafe conditions for pedestrians when crossing the road.

## **1.4 Research Scope**

The scope of this research is as follows:

1. This research only focuses on pedestrians crossing
2. This research does not consider the crossing conditions at night
3. This research does not address pedestrian behavior when crossing in groups

## **1.5 Report Outline**

The outline of the final project report contains six chapters as follows.

### **CHAPTER I INTRODUCTION**

This chapter discusses the background, problem formulation, objectives, research scopes, and the final project report

outline. This chapter describes the condition of pedestrians in Padang City .

## **CHAPTER II LITERATURE REVIEW**

This chapter will cover all the literature needed to solve research problems. The identification of pedestrian behavior will use the Theory of Planned Behavior method. Case settlement will relate to safety and design.

## **CHAPTER III RESEARCH METHODOLOGY**

This chapter contains the methodology that was used in the research. The methodology is preliminary studies, literature studies, problem identification, problem formulation, data collection, data processing, analysis, conclusions, and suggestions.

## **CHAPTER IV DATA COLLECTING AND PROCESSING**

This part of the research includes the process of data collecting based on primary and secondary data related to the observation of unsafe act and unsafe condition, questionnaire and expert interview.

## **CHAPTER V RESULT AND ANALYSIS**

This part of the research consists of the result and analysis of the study regarding high risk unsafe act and unsafe condition. And choose the appropriate mitigation.

## **CHAPTER VI CLOSING**

This part of the research includes the conclusion obtained from the study and suggestions for further research

