

CHAPTER 1

INTRODUCTION

1.1 The significance of the research question

The research question is What factors contribute to road accidents? How many variables are present in an accident (Swiss Cheese Theory)? When these factors come together, it is possible that accidents will be significantly higher or more severe since the number of road accidents in Thailand is increasing. In 2018, the WHO reported global road deaths by country. Thailand has surpassed all other countries to take the top spot in the world. Thailand has a death rate of 32.7 people per 100,000 people. Only Thailand is from Southeast Asia, and Iran is another Asian country. Various agencies have attempted to reduce the number of fatalities in the past following the Decade of Action for Road Safety 2011-2020 (WHO, 2011), which aims to reduce fatalities. The trend of accidents in Thailand continues to rise, with less than 10 road accidents per 100,000 people in 2020. Accidents in Thailand have been on the rise for some time that we can comprehend the issues and common factors It could be one way to reduce the number of accidents in the future.

1.2 The research objective:

The goal of this study was to determine the cause or co-incidence of the most common road accidents that result in fatalities. The relationships between three factors related to road accidents were investigated using machine learning techniques: people, vehicles, roads, and the environment. This information can be used to develop policies to reduce the number of road accidents. Economic and human resources will be saved, and the overall efficiency of the country's healthcare system will be improved.

1.3 Contribute of the research

The contribute of this research is to find ways to reduce the number of accidents and fatalities caused by accidents. The model's results describe the factors and their degree of association with the risk of accidents and deaths on a large database, using artificial intelligence and machine learning principles for maximum efficiency, this is the application of modern knowledge to the existing database. Knowing the factors allows you to propose policies to reduce the number of accidents and deaths which will increase quality of life and overall health care system in the country.

1.4 Justifications for conducting research in this population

This population consists of Thai road accident victims. When considering Thailand's roads and the number of accidents, it was discovered that Thailand's roads have the highest number of accident deaths. With physical road characteristics that are designed to handle high traffic volumes. and is capable of high speed When there is an accident, the severity of the injury is also high. In Thailand, many highways are shared by vehicles of various sizes. As a result, the likelihood of death increases when an accident occurs.

According to the Thai accident research center's (TARC) study, the person/driver factor There is an 83 percent chance of causing an accident, with 36 percent being caused by a specific person. As a result, when considering the personal characteristics of this group of volunteers, to investigate the relationship between personal characteristics such as gender, age, and vehicle type. The surrounding environment and vehicles will form a link between the factors of people, vehicles, and the environment that influence the number of accidents. And the severity of the injury, etc. The information does not include specifics such as the person's or driver's name or ID card number. The data set cannot be traced back to the individual. Secondary data to be examined It is information that is freely available to the public. The data source (Department of Disaster Prevention and Mitigation) only has publicly available information only gender, age, province, type of accident, environment, and road condition are not disclosed.

Suranaree University of Technology's human research ethics committee has exempted this research, which will be carried out in compliance with international guidelines for human research protection such as the Helsinki Declaration, The Belmont Report, CIOMS guideline, International Conference on Harmonization in Good Clinical Practice (ICH-GCP), and 45 CFR 46.101(b) as project code EC-65-0013 (criteria of exemption: secondary data).