Chapter 1

Introduction

1.1 Overview of the thesis

In this study the patterns of suicide mortality rates in southern Thailand were
investigated via the statistical regression model. The outcome of this study is death
rates which are calculated from number of deaths divided by the corresponding
population. The data used in this study are deaths in southern Thailand during 1996 to
2006 from death certificate database. Population used as denominators were from
Ministry of Interior of Thailand during 1996-2006. This chapter is the introduction of
this study. Chapter 2 describes the methodology including study design, data sources,
data management, statistical and graphical methods. Chapter 3 shows the results from
the preliminary data analyses. In this chapter, numbers of suicide deaths in southern
Thailand are illustrated by using graph according to each demographic factor. Chapter
4 covers the further analysis and statistical modeling. Chapter 5 discusses the finding
from the study. Limitations, suggestions for future study are also included.

1.2 Background

Suicide is an important public health problem throughout the world. Approximately
one million people committed suicide in 2000 a global mortality rate of 16 per
100,000 (WHO, 2002a). In most regions of the world, suicide is more common for
males than females in all age groups; with increasing rates in the youngest and the
oldest age groups (Bertolotte and Fleischmann, 2002). In Thailand, male suicide rates
were higher than females in all age groups (Lortrakul, 2006), rate to 7.8 per 100,000 in

1955-2002 (WHO, 2002b). The suicide rate in the younger age groups was greater than the other age groups (Bureau of Health Policy and Planning, 2006). Between 1998 and 2002 the most frequent methods of suicide were hanging, ingestion of agricultural toxic substances (Lortrakul, 2003).

In Thailand, the suicide rates vary by regions (Lortrakul, 2006). At the local level, only limited data are available, and differences in suicide rates among provinces within this population may prove significant in targeting specific intervention strategies. Therefore, the purpose of the present study was to characterize suicide rate of the period 1996 to 2006 in southern Thailand.

1.3 Quality the of data

In Thailand a new registration system introduced in 1996 helped ensure that deaths would be recorded but did not require that the cause of death be medically validated. Preliminary studies found that 'ill-defined causes' or non-specific cardio-vascular disease (e.g. 'the heart stopped beating') were the most frequently reported causes of death (Choprapawon et al, 1996). Therefore the Thai Ministry of Health appointed a research team to verify the causes of death and recommend reforms to the death registration system. A retrospective population-based study collected information provided by family member informants, death certificates, and medical records (if available) on all deaths between 1997 and 1999 from 15 provinces reflecting the country's geographic variability. Qualified physicians reclassified the cause of death based on ICD-10 criteria (Choprapawon et al, 2005). In nearly half of the cases, the original cause of death recorded had been supplied by relatives; medical doctors had determined the cause of death in only 28% of cases. The overall agreement between

cause of death in the survey and on the death certificates was 29.3%. On ill-defined

causes of deaths the level of agreement was 33%. For suicide it was only 1.2%

(Choprapawon et al, 2005).

1.4 Literature review

Several publications related to this study were reviewed including statistical methods

used and their findings. Mortality from suicides, the statistical methods intended for

these studies have been reviewed.

1.4.1 Statistical methods for suicide mortality trends

Several statistical methods have been used for analyzing the spatial-temporal change

of mortality trends. The Poisson model is commonly used for the event suicide or

undetermined death as well as using the event rate under concern as outcome variable

by various authors (Granizo, 1996; Baumert, 2005; Schulz et al, 2006; Razvodovsky

and Stickley, 2008). Bayesian models another approach for analyzing mortality trends

was proposed by Congdon (2000), Bayesian methods allow information on the

entirety of areas or area- times to be used to provide an estimate of the relative risk in

each area based on an underlying distribution of risks over them.

1.4.2 Suicide mortality trends

There are several studies of the mortality trends from suicides. A study in Taiwan

showed an increasing trend of suicide mortality rates by Lin and Lu (2008). Relevant

studies include those in India (Lester et al, 1999), South Korea (Kwon et al, 2009).

Pavia et al (2005) described the burden of suicide in an area of Italy, and the results

demonstrate the need for more detailed information for analysis at the local level,

since national figures do not typically capture particular situations that demand

specific interventions. Suicides were more frequent in males and proportional to age is a common pattern; a decrease in older age groups in both sexes and a stability or increase in other age groups.

Wu and Cheng (2008) examined long-term trends in suicide mortality in Taiwan from 1959 to 2006; a rising trend has been noted in all age groups and in both genders, especially for middle-aged men. Older age was found to be associated with higher suicide mortality in all periods.

Borrell et al (2001) studied looking at trends in mortality among three large European cities, each one reflecting the differential impact of the main causes of death in the young adult population. The study has shown the increase in young adult mortality among men and women in Barcelona and among men in Bologna, the pattern of the main causes of death changing because of the increase in acquired immunodeficiency syndrome (AIDS) and drug overdose mortality.

1.4.3 Suicide Mortality during the Economic Crisis

Chang et al (2009) investigated the impact of the Asian economic crisis (1997-1998) on suicide in Japan, Hong Kong, South Korea, Taiwan, Singapore and Thailand. Suicide and population data for the period 1985-2006 were obtained from the World Health Organization's mortality database and Taiwanese mortality statistics. Suicide mortality decreased in the late 1980s and early 1990s but subsequently increased markedly in all countries except Singapore, which had steadily declining suicide rates throughout the study period. Compared to 1997, male rates in 1998 rose by 39% in Japan, 44% in Hong Kong and 45% in Korea; rises in female rates were less marked.

Time series analyses indicated that some of the crisis's impact on male suicides was attributable to increases in unemployment.

Lorant et al (2005) examined socio-economic risk factors for suicide mortality in ten European populations. Four main findings stand out. Socio-economic inequalities in suicide are pervasive in all male populations, except for that of Turin. Second, inequalities were far less pronounced in women and in some cases even reversed, particularly when educational status was considered. Third, housing tenure seems to be a more important risk factor than education and yields more consistent results between genders. Fourth, our study shows that in most settings, suicide level increases with increasing socio-economic disadvantage.

1.5 Objectives

1.5.1 To examine the relationship between demographic characteristics and suicide mortality rate in the 14 provinces of southern Thailand over the period 1996-2005.

1.5.2 To develop a suitable statistical model for investigating the variation of committed suicide in southern Thailand.

1.6 Expected Advantages

1.6.1 The data obtained could be used for developing a plan and implementation of region for committed suicides people in southern Thailand.

1.6.2 The effective prevention of suicide is likely to remain elusive for forecasting opportunity.