

## Chapter 5

### Conclusion and Discussion

This chapter we describes conclusion of the results from earlier chapters as well as discussion of the finding. In addition, the complication of research and further study are also included.

This study aimed to identify patterns of suicide deaths in southern Thailand from 1996 to 2006 as well as fit the statistical modeling for estimating mortality rates. We analyzed by using mortality data, base on deaths certificate, vital registration database. It was obtained from Bureau of Health Policy and Strategy, Ministry of Public Health Thailand.

#### *5.1 Conclusion*

By referring to the compound Poisson process model in place of the simple Poisson model for case counts, confidence intervals for suicide mortality rates can be adjusted to account for statistical dependencies associated with multiple-case incidents. The adjustments rely on closed-form computations and offer meaningful improvements in the accuracy of statistical statements. The adjusted interval estimators described in this paper have been programmed as general routines using R

We summarized the number of deaths according to year, province, age and suicide method each factor classified by gender, graphed mortality rates by ages each year. We compared rates with Japan in 2006 and calculated excess deaths compare to Japan and other regions of Thailand.

We fitted Poisson regression model and calculated confidence intervals by applying sum contrast for comparing the adjusted mortality rates each factor with the overall average of mortality rates. In addition, we used these contrasts for create schematic maps of province.

The average proportion of suicide deaths for “all causes of deaths” in southern Thailand were 0.93% and 0.27% for males and females respectively. Males and Females aged 20-29 had the highest proportion which represented 28.7% and 25.2%. Suicide mortality rates in southern Thailand had lower than those of Japan. The male suicide rate was peak at younger aged 20-34 and older aged over 65, remained relatively stable over the time period for female. Males were higher rates than females at aged over 17. The overall average mortality rate was 0.05 per 1000 population. The excess deaths in Southern Thailand for both sexes had excess deaths lower than Japan. These excess deaths are highest in the middle age male. The patterns of suicides mortality rates in Southern Thailand are quite similar to other region for both. Males and female south were peaked excess deaths at aged over 70.

In this study, Poisson regression has been undertaken for each predictor variable. The data were standardized by subtracting the overall mean and dividing by the overall standard deviation, to provide an equal weighting for all of the variables used as predictors.

The results show that, the male suicide rates were higher than those of females. The mortality rate among age group 70-74 had the highest rate with a rate of 0.1 per 1000 population. The mortality rate initial with the rate in 1996 then slightly decreased in 1998 and turned up again in 1999 which had the highest rate in 2000; after that rates

decreased. Among province, the mortality rate highest in Chumporn with a rate of 0.107 per 1000 population. The schematic maps created from 95% confidence show that Nakhon Si Thammarat, Krabi, Phunga, Phuket, Surat Thani, Ranong, Chumporn, Trang and Phattalung had the highest mortality rates significantly higher than the overall mortality rate.

## **5.2 Discussion**

It is essential to highlighting that the validity of the data constantly requests to be questioned. Many authors including Chishti et al (2003), Gajalakshmi and Peto (2007), Sharma et al (2007), Varnik et al (2009), Chang et al (2009), Campi et al (2009), have pointed out that suicides are likely to be underreported.

The recent increases observed in suicide rates for elderly people is in line with findings reported by Surles (1998), Meneghel et al (2004), Pavia et al (2005), Mello-Santos et al (2005), Lin and Lu (2008), Kwon et al (2009), Shah and Suh (2009).

Most study have found considerable differences in suicide rates between the sexes in those who committed suicide with rates higher in males (Lester et al, 1999; Pavia et al 2005; Mello-Santos et al, 2005; Oner et al, 2007; Kwon et al, 2009). By contrast, female have higher rates of suicide thoughts such as China was the one region of the world where the female suicide rate exceeded that of males (WHO, 2002a).

In general, suicide by hanging was the most frequent suicide method in southern Thailand, followed by self-poisoning; agricultural chemicals were founded to be the most frequently used substances. Correspondingly, hanging and self-poisoning were an easy and reliably lethal method that was most common in many countries. In Poland, Lithuania, Japan and Thailand, hanging dominates as the most common

method of suicide (Ajdacic-Gross et al, 2008). In Hong Kong Special Administrative Region (SAR) and Singapore, jumping (typically from apartment buildings) is the most frequent method used (Ung, 2003). In countries with larger rural populations, such as China, India and the Republic of Korea, poisoning (usually by pesticides) is common (Lester et al, 1999; Shin et al., 2004). Some new methods are also emerging, such as carbon monoxide poisoning by intentionally burning charcoal in a confined space. In Hong Kong Special Administrative Region (SAR) charcoal-burning accounted for a single suicide in 1997 but it is currently among the top three most common methods of suicide (Chan et al., 2005; Chung and Leung, 2001).

In southern Thailand both experienced an upward trend in suicide in 1996 before the economic crisis in 1997–1998. Perhaps suicide data for Thailand were incomplete or unavailable for the period studied (Thomyangkoon et al, 2005). However, available data for Thailand showed that male suicide rates peaked in 1999 after the economic crisis.

When considering those who died from complete suicide in each province, a sharply increasing mortality trend appeared clearly at Chumporn and Ranong. Region 7 Public Health office (2009) found that migration and social and economic factors and mental and physical illness would be independent risk factors for completed suicide at Ranong (Region 7 Public Health Office, 2009).

### ***5.3 Limitations and future study***

Our study has a number of limitations. Firstly, data suicides were based on official death certificates which might underestimate the true suicide rates; with small number may provide unpredictable results. The second limitation is that information on other

factors known to be associated with suicide; such as prevalence of mental illness, socioeconomic status and substance abuse was lacking. It is unknown how results would be if income and occupational data were available. Research from Ten countries in Europe (e.g. the Austria, England/Wales, Belgium, Switzerland), Taiwan, and Russia has proven that there are relationships between economy, unemployment (Chen et al, 2009), socio-economic inequalities (Lorant et al, 2005), and suicide mortality.

The third and perhaps, there may be differences in the reliability of suicide statistics across the region. We focused, however, on the changes in trend between region rather than the comparison of rates within southern Thailand, and thus our results were unlikely to be biased by international differences in the reliability of suicide statistics. The main findings occurred in our analysis. We find distinct differences between the suicide mortality of old adults and others. The highest risk of suicide is found among the elderly population. Because of the increasing number of elderly persons, particularly of the oldest old, the number of suicides is expected to increase in the future. The marked increase in the number of oldest old over recent decades is mainly due to a decline in the mortality of that age group (National Statistical Office, 2007). Although the suicide rate among the old has been increasing for male and decreasing for female over recent decades. The suicide rate of the oldest old did not seem to be affected by recent changes in mortality. The suicide rate of the oldest old has remained at a very high level. This means that improvements in medical treatment, care facilities, and living standards of the elderly population in recent decades do not seem to have had a sufficient impact on general quality of life for the oldest old to reduce their suicide rate. Marriage has less of a preventive effect on the suicide risk of

the oldest old age group than it has for younger age groups.

Suicide is recognized as an important public health problem and a major source of preventable deaths worldwide. According to World Health Organization (WHO, 2009) report approximately half of those who complete suicide have a prior history of suicide attempts, and a quarter will have attempted suicide in the year prior to their death. Suicide risk can persist over time; therefore, a previous suicide attempt can be an important predictor of suicide even if it occurred many years ago. As important as it is to prevent suicides so is the need to help those who have attempted suicide, to bring them some ease and comfort after the traumatic experience and help them get back on the track. Further studies are necessary to clarify this association, as well as to investigate risk factors for suicide in depressed patients in a psychiatric setting indicated that significant suicide-related factors were previous suicide attempt.

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