

Prince of Songkla University
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Appendix

ABSTRACT

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การประชุมทางวิชาการ

นเรศวรวิจัยครั้งที่

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ณ คณะวิทยาศาสตร์ มหาวิทยาลัยนเรศวร จังหวัดพิษณุโลก



Diabetes Mellitus Mortality Rate in Southern Thailand during 1996-2006

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Abstract

This study was to examine trend of diabetes mellitus mortality in southern Thailand from 1996-2006. The data was taken from death certificate database from Bureau of Policy and Strategy, Ministry of Public Health. The diabetes death was the underlying cause of death for 6,706 cases. The mortality rates were computed classified by age, gender, and province. The mortality rates of female higher than male and older age was higher than working age. From this period, highest mortality rate found in Phuket at 2003 and the mortality rate was increased considerably in Narathiwat, Pattani and Phattalung particularly Narathiwat and Pattani increased more than other province. We concluded that, diabetes mortality rates are fluctuated during 1996-2006 and tend to be increased after the year 2006. The rate was high in elderly women.

Key words: Diabetes mellitus, Mortality rate, Southern Thailand

บทคัดย่อ

งานวิจัยนี้ศึกษาแนวโน้มของอัตราการตายจากโรคเบาหวานในภาคใต้ของประเทศไทยตั้งแต่ปี พ.ศ 2539-2549 โดยใช้ข้อมูลการตายจากสำนัคนโยบายและยุทธศาสตร์ กระทรวงสาธารณสุข จำนวนการตายจากโรคเบาหวานทั้งหมด 6,706 คน คำนวณอัตราการตายจำแนกตาม อายุ เพศ และ จังหวัด ผลการศึกษาพบว่าอัตราการตายในเพศหญิงสูงกว่าเพศชาย และพบผู้สูงอายุมีอัตราการตายสูงกว่า ประชากรวัยทำงาน อัตราตายสูงสุดพบในจังหวัดภูเก็ต ในปี พ.ศ 2546 จังหวัดนราธิวาส ปัตตานี และพัทลุงเป็นจังหวัดที่มีอัตราการตายเพิ่มสูงขึ้น โดยเฉพาะจังหวัดนราธิวาสและปัตตานีมีอัตราการเพิ่มสูงขึ้นกว่าจังหวัดอื่นๆโดยสรุป ในระหว่างปี 2539-2549 มีแนวโน้มจะเพิ่มขึ้นหลังจากปี 2549 และอัตราการตายสูงในเพศหญิงสูงอายุ

คำสำคัญ: โรคเบาหวาน, อัตราตาย, ภาคใต้ ประเทศไทย

Introduction

Diabetes mellitus (DM) is chronic disease that occurs when the pancreas does not produce enough insulin or alternatively when the body cannot effectively use the insulin. Insulin is a hormone that regulates blood sugar. Raised blood glucose level is a common effect of uncontrolled diabetes and which in long term leads to serious

damage to many organs of the body, especially the nerves, eyes, kidneys and blood vessels. The major two clinical classes of diabetes mellitus are insulin-dependent diabetes mellitus (type 1) and non insulin-dependent diabetes mellitus (type 2). Type 2 diabetes mellitus accounts for more than 90% of all diabetes patients. Type 1 diabetes mellitus is characterized by a lack of insulin production. Without daily administration of insulin Type 1 diabetes is rapidly fatal and appears to be the increase in people aged 30 and below. Type 2 diabetes mellitus result from ineffective use insulin in the body (World Health Organization, 2005). The global mortality attributable to diabetes in the year 2000 was estimated to be 7.5 million deaths. The proportion of worldwide deaths attributable to diabetes mellitus is estimated to be higher in females than in males, with 1.5 million and 1.4 million deaths respectively (Roglic et al, 2005).

Diabetes mellitus is public health problem in worldwide and it ranking in the sixth cause of death (World Health Organization, 2008). WHO projects that diabetes mellitus death will increase by more than 50% in the next 10 year (International Diabetes Federation, 2000). People died due to diabetes mellitus in developing countries more than developed countries which died due to diabetes mellitus was highest in people aged 55-59 (Roglic et al, 2005). In Thailand there are 20,000 people died due to diabetes mellitus in every year (Eakprakorn, 2006). Female is higher risk than male. The ratio is estimated to be 1.6:1 in 2005 (Siripitayakunkid, 2005). Southern Thailand has increasing trend of mortality from diabetes mellitus and becoming a public health concern. Southern Thailand death rate for diabetes mellitus was 4.3 per 100,000 population in 1997, which increased to 8.4 per 100,000 in 2004 (Bureau of Policy and Strategy, 2006). However, the rates were considered in Southern Thailand as a whole. This study aims to investigate trend of diabetes mellitus mortality rate in southern Thailand from 1996-2006, by province.

Method

Diabetes mellitus mortality data from 1996 to 2006 in the 14 provinces in Southern Thailand were obtained from the Bureau of Policy and Strategy, Ministry of Public Health there were 6,706 cases. For these data, the principal diagnosis and demographic information are gathered from death certificates giving the gender, age, place of residence, diagnosing officer and principal diagnosis. The principal diagnosis is coded using the International Classification of Disease in its 10th revision (ICD10).

Population denominators were obtained from civil registration by Ministry of Interior from 1996-2006 with classify according to gender, age, year and place of residence. After extensive cleaning to correct or impute data entry errors the records for 14 provinces for the eleven years were stored in a structured query language (SQL) database. Structured Query Language (SQL) programs were used to create DM disease counts by age group, gender, year and province. Incidence death rates were computed as the number of cases per 1,000 residents in the province.

$$y = \frac{Kn}{P} \quad (1)$$

Where n is the number of death, P is the population at risk, and K is a specified constant, such as 1,000.

Year	Population
1996	3134478
1997	3226945
1998	3323186
1999	3403808
2000	3490812
2001	3603245
2002	3928863
2003	4037007
2004	4096505
2005	4217843
2006	4250234

Table 1: Show population in Southern Thailand for age more than 30

Results

There were 6,706 cases of diabetes mellitus for aged 30 and older ad 0.17 per 1,000 as average mortality rates during 1996-2006.

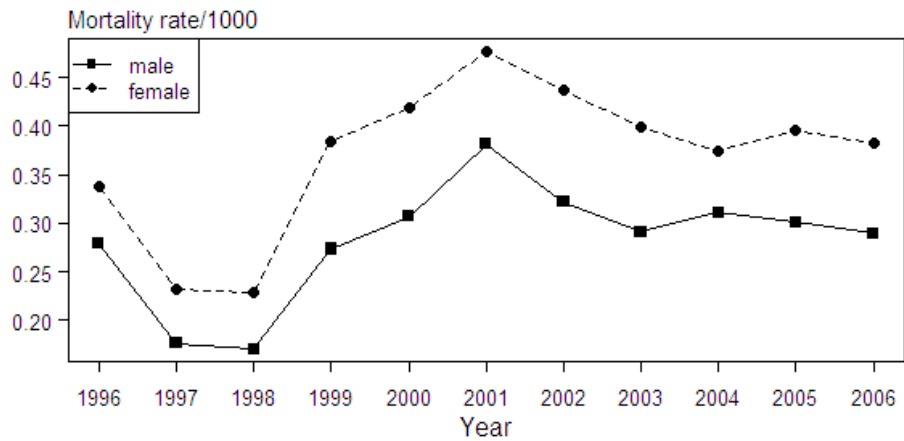


Figure 1: Overall annual diabetes mellitus mortality rate for each gender

Figure 1 shows trend of diabetes mellitus mortality rates by gender. The rates for both male and female have similar trend with peak at the year 2001 and female rates are higher. The rates decrease from 1996-1998 and increase from 1998-2001 and decrease again after the year 2001.

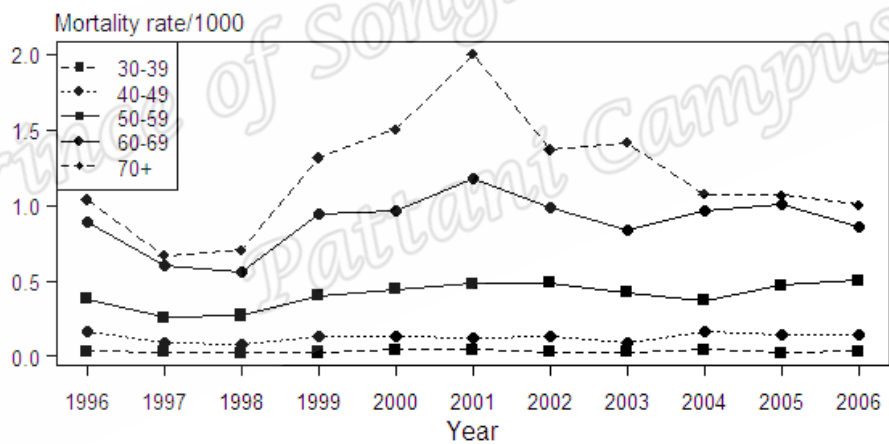


Figure 2: Overall annual diabetes mellitus mortality rate for each age group

Figure 2 shows trends of diabetes mellitus mortality rates by age groups. As showing, from 1996 to 1998 trends little decreased in all aged. After that year trends of aged between 30 to 59 year olds were a little changed. While trend of aged 60 and older were reversed gradually particularly trend of aged 70 year and older with peak at 2001. Subsequently, trends were declined and no much altered in last two years of the period. The elderly aged have high mortality rates compared to the younger age groups.

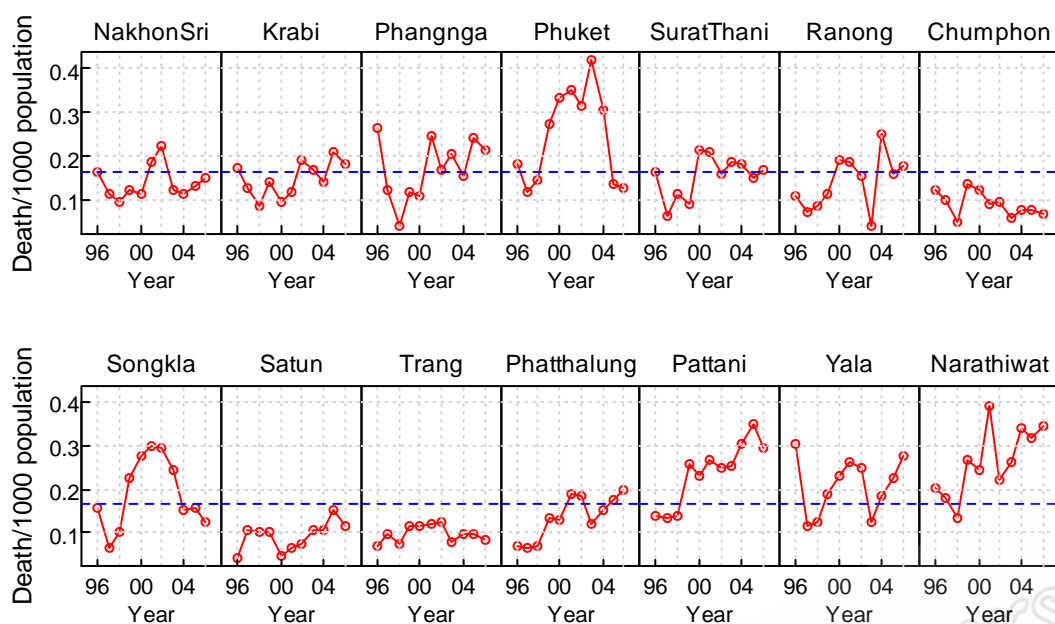


Figure 3: Overall annual diabetes mellitus mortality rate for each province

Figure 3 shows trend of diabetes mellitus mortality rate for each province. Overall mean of diabetes mellitus was 0.17 per 1,000 indicated as dashed line. Trend rates were below the overall mean in Satun, Trang and Chumporn. There were increasing trends in Narathiwat, Pattani, Phatthalung and Yala. Nakhon Sri Thummarat, Krabi, Phangnga, Suratthani and Ranong litter changed. Between 1997-2002 Phuket and Songkla increased higher than in any other province after decreased with peak at the year 2003 found in Songkhla.

Summary and Discussion

The mortality rates of female higher than male and older age was higher than working age. From 1996-2006, the highest mortality rate was found in Phuket in 2003 and the mortality rate was increased considerably in Narathiwat, Pattani and Phatthaung particularly Narathiwat and Pattani. We concluded that, older female was higher concerned from diabetes mortality, in Narathiwat and Pattani.

Gender difference in diabetes mortality has been found (Kumar, 1996). This possibly related to obesity, hypertension, myocardial infarction that would occur in females more than in males.

For age, it is well known that mortality from diabetes increased with age including our study (Bertoni et al, 2002; Sasaki et al, 1983).

In 2001, Thai government started project 30 bath treatments all diseases and decreased the cost for diabetes treatment. Diabetes medications cost reduce 11% from 203.30 bath to 180 bath. Patients have easily access to treatment and exercise campaign.

Phuket province population mostly Chinese preferred fried and oily food. This leads to high blood sugar levels and hypertension which are risk factors of diabetes. The population structure of Phuket also has more urban than rural. (Lin and Lee, 1992) found people live in the city were more likely to died from diabetes than people in the rural in both gender.

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