

An Epidemiological Study of Erectile Dysfunction in Thailand (Part 1: Prevalence)

THAI ERECTILE DYSFUNCTION EPIDEMIOLOGIC STUDY GROUP (TEDES)*

Abstract

The Epidemiological Study of Erectile dysfunction in Thailand empirically investigates erectile dysfunction (ED) in Thailand. This article is part of this study with the major aim of estimating prevalence in the country. A nationwide representative sample of 1,250 urban Thai men aged between 40 and 70 years were studied. The estimation of overall prevalence of ED among the respondents living in urban areas was 37.5 per cent. This proportion consisted of 19.1 per cent of males with mild dysfunction, while about 13.7 per cent and 4.7 per cent of the samples had moderate and severe dysfunction. Of all four regions together with Bangkok Metropolis, the latter had the lowest prevalence while the North had the highest level. In addition, the prevalence estimation for smaller provinces was 36.4 per cent and 46.4 per cent for larger provinces. Moreover, results of this study indicated that when men become older, they have a greater likelihood of suffering from ED and the prevalence rate of ED rapidly increased from age group 40-49 years to 60-70 years.

Key word : Erectile Dysfunction, Prevalence, Thailand

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This study empirically investigated Erectile Dysfunction (ED) in Thailand. The major aim of this article was to estimate prevalence in the country. A nationwide representative sample of 1,250 urban Thai men aged between 40 and 70 years were studied. The estimation of overall prevalence of ED among the respondents living in urban area was 37.5 per cent. This proportion consisted of 19.1 per cent of males with mild dysfunction, while about 13.7 per cent and 4.7 per cent of the samples had moderate and severe dysfunction. Of all four regions together with Bangkok Metropolis, the latter had the lowest prevalence while the North had the highest level. In addition, the prevalence estimation for smaller provinces was 36.4 per cent and 46.4 per cent for larger provinces. Moreover, results of this study indicated that when men become older, they have a greater likelihood of suffering from ED.

Erectile Dysfunction (ED) is the consistent inability to attain and maintain an erection sufficient for sexual performance⁽¹⁾. ED can decrease the self-confidence of many men of all ages in sexuality and creates mental stress that in turn affects their family life. The social stigma attached to being impotent is so pervasive that impotent men are often embarrassed and reluctant to discuss sexual matters with anyone, even with doctors.

Major causes of ED can be broadly classified into two categories: physical and psychological causes. Among them, erectile problems are mainly rooted in physical causes. The most frequent physical causes of ED include vascular (blood vessel) diseases such as diabetes, hypertension, and heart disease. Other diseases associated with ED are renal failure,⁽²⁾ neurologic conditions,⁽²⁾ endocrine abnormalities,⁽²⁾ etc. Moreover, ED can result from pelvic fractures or crush injuries experienced in an automobile, motor-cycle or other accidents⁽²⁾. Psychological causes of ED include stress and anxiety⁽²⁾ due to marital, financial or other external problems. Psychiatric illnesses such as depression can also cause ED⁽¹⁻³⁾.

Very little is known about variation in prevalence of ED across geographic, racial, ethnic, socioeconomic, and cultural groups. More recent estimates suggest that the number of U.S. men with ED may more likely be near 10 million⁽⁴⁾. Inclusion of individuals with partial ED increases the estimate to about 30 million. The majority of these individuals are older than 65 years of age. A prevalence of about 5 percent is observed at age 40, increasing to 15-25 per cent at age 65 and older⁽¹⁾.

In Thailand, the actual prevalence of male ED is unknown, as it is in other countries around the world. Thus, the project of "An Epidemiologic Study of Erectile Dysfunction in Thailand" con-

ducted at the end of 1998. The main purposes of the project attempted to increase understanding of ED by estimating prevalence, identifying risk factors, examining consequences, as well as analyzing behaviors of counseling and health seeking care among Thai men from 40-70 years of age. The findings of the study are expected to help improve public and professional knowledge in various aspects of ED. This article is part of the project that focuses on the prevalence of ED among Thai urban men.

DEFINITION OF ED

According to the National Institutes of Health Consensus Conference on Impotence, the term "**impotence**" has traditionally been used to describe the inability of the male to attain and maintain erection of the penis sufficient to permit satisfactory sexual intercourse. Specifically, ED is frequently classified as:

1. organic, due to vasculogenic, neurological, hormonal, cavernosal abnormalities or lesion
2. psychogenic, due to central inhibition of the erectile mechanism without a physical insult
3. mixed organic/psychogenic, due to a combination of organic and psychogenic factors⁽⁵⁾.

Mostly, men with ED often have a combination of organic and psychogenic components. According to a review of findings from six clinical studies conducted over the past decade, organic factor, with or without psychogenic factors, was present in an average of 78 per cent of men with ED⁽⁶⁾.

RESEARCH METHODOLOGY

In order to ensure that there were enough cases of erectile dysfunction for studying, the survey was therefore confined to adult Thai men, aged

40 to 70 years, who resided in urban or municipal areas nationwide. It thus covered Bangkok Metropolis and the other four regions: Central (excluding Bangkok), North, Northeast and South.

This survey was cross sectional and based on a three-stage stratified random sampling. The sampling scheme is illustrated as follows. **First Stage.** Four geographic regions and Bangkok Metropolis are constituted as strata. Provinces in each geographic region were further divided into 2 groups by population size in municipal areas (a large province was defined as having a population of 80,000 or more in the municipal area while a small province had a population of less than 80,000 in the municipal area). For each geographic region except Bangkok Metropolis, one province was randomly selected from the group of large provinces and another one from small provinces, totaling 8 provinces. Chiang Mai and Kampheng Phet, Chon Buri and Chanthaburi, Surat Thani and Trang, and Khon Kaen and Chaiyaphum are pairs of large and small sampled provinces representing North, Central, South, and Northeast regions, respectively. For Bangkok Metropolis, 5 districts were randomly drawn from 50 districts. The five districts being included in this study were Pranakorn, Payatai, Bangkaen, Sapansung, and Pasicharoen. **Second Stage.** Five blocks within each sampled province were selected from the municipal neighborhoods. These blocks were specified on maps at a scale of 1:50,000. The maps were developed by the Geographic Information System (GIS) and made available by the Department of Town and Country Planning. **Third Stage.** Households were randomly drawn from sampled blocks obtained from the second stage to achieve the proposed sample size. The sample total of 1,250 men was allocated according to regions/provinces as well as age groups. The latter was done for the reason of getting an unbiased estimate of overall ED prevalence rate. The proportions of sample in the three age groups were consistent with the age composition of the male population. The study sampled housing units and included as subjects eligible men in those units. However, only one adult male in the studied age range was randomly selected for interview in case that there was more than one qualified respondent living in the same household. The study was carried out using a personal face-to-face interview and conducted from November to December 1998.

As stated in the preceding section, the objective of the analysis was to estimate the prevalence of erectile dysfunction among urban Thai men aged 40–70 years. As a result, the main task was performed to estimate prevalence.

According to the traditional definition of prevalence rate, the formula for calculating the prevalence of erectile dysfunction is:

$$\text{Prevalence of ED} = \frac{\text{a number of persons with ED}}{\text{total population}} \times 100$$

This was used for subgroups and cross-classes estimates. However, the overall prevalence rate was, in fact, derived from ED prevalence of the five regions by means of weighting. In other words, it was a weighted average of regional prevalence of ED. Based on the 1990 Population Census, these weights were 0.56476, 0.17760, 0.07486, 0.09687, and 0.08591 for Bangkok Metropolis, Central, North, Northeast, and South regions respectively. The figures represent the proportion of 40–70 years old men residing in municipal areas in the region.

CHARACTERISTICS OF THE SAMPLE

Around 52 per cent ($n = 650$) of the sample were aged 40–49 years, 32 per cent ($n = 400$) aged 50–59 years, and 16 per cent ($n = 200$) aged 60–70 years. The majority (84.7%, $n = 1,059$) of adult men in the sample were married. For educational attainment, 33.9 per cent ($n = 424$) had completed (compulsory) primary school, 18.8 per cent ($n = 235$) university, 16.7 per cent ($n = 209$) high school, 13.2 per cent ($n = 165$) the first phase of secondary school, 16.4 per cent ($n = 206$) vocational school, and only a few (0.9%, $n = 11$) had had no education. Most men in the sample were currently employed. In contrast, only 19.0 per cent ($n = 238$) reported as non-employed men who were retired due to age, choice, disability or illness, unemployed, working for a family business without salary, full time homemakers, and volunteers. For currently employed men, 19 per cent ($n = 238$) of the respondents were engaged as sale workers/merchants. In addition, blue-collar workers/laborers accounted for 13.2 per cent ($n = 165$), professional/technical workers being 11.5 per cent ($n = 144$), and managerial workers being 10.6 per cent ($n = 133$). The other occupations were policemen/soldiers (6.9%, $n =$

86), clerical workers (6.2%, n = 78), service workers (6.1%, n = 76), and transportation/ communication workers (5.0%, n = 63). Only 2.3 per cent (n = 29) of urban men in the sample described themselves as agricultural workers/ fishermen. For their income, 44.2 per cent (n = 553) of them earned 10,001-30,000 baht per month, while 30.7 per cent (n = 384) fell into the category of 5,001-10,000 baht per month, 19.2 per cent (n = 240) earned less than or equal to 5,000 baht per month, and 4.2 per cent (n = 53) earned as much as 30,001-40,000 baht per month, but a very small proportion (1.6%, n = 20) was found in the highest income range (more than 40,000 baht per month).

RESEARCH FINDINGS

Overall Prevalence Rate

This study used the self-reported technique by asking each individual sample with this condition of ED, he was asked to rate his own penile erection for the last six months of his sexual intercourse according to the following four-points scale(7).

A. Able to get and keep an erection good enough for sexual intercourse everytime.

B. Usually able to get and keep an erection good enough for sexual intercourse.

C. Sometimes able to get and keep an erection good enough for sexual intercourse.

D. Never able to get and keep an erection good enough for sexual intercourse.

The individual one was characterized as normal if condition A was chosen. On the contrary, respondents who indicated B, C or D were respectively classified to have mild, moderate or severe erectile dysfunction.

Table 1 shows that the overall prevalence rate of some degree of erectile dysfunction among Thai men aged 40-70 years in urban areas was 37.5 per cent. In other words, about 4 out of 10 urban dwelling men aged 40 to 70 years suffer from ED. The largest group was mild at 19.1 per cent, the next largest was moderate at 13.7 per cent and the smallest was severe at 4.7 per cent.

Various epidemiological studies have been conducted recently throughout the world(5,7). We therefore obtained estimates of the prevalence of ED from these studies. However, it is difficult to compare the resulted prevalence mainly because of differences in types of study, which in turn affect sample size and nature of the population studied. Hence, a comparison between prevalence rates obtained from different research settings and designs should be made with caution. Estimates of prevalence of ED from the four survey studies (Table 2) ranged from 31 per cent to 52 per cent. These differences were in part due to the varying age coverage of the sample studies. However, we can generally state that the prevalence of ED among Thai men provided by the present study is more or less consistent with levels found in other countries, even though the Thai figure is toward the lower end of the range noted above.

Table 1. Prevalence of ED among Thai men aged 40-70 years in urban areas.

| Degree of dysfunction | Prevalence * |
|-----------------------|--------------|
| Mild | 19.1 |
| Moderate | 13.7 |
| Severe | 4.7 |
| Overall | 37.5 |

Remark : * Prevalence of ED, in this table, was calculated as the weighted average of regional prevalence in the corresponding degree of dysfunction

Table 2. Prevalence of ED in other countries.

| Country | Year of study | Sample size | Age coverage | Prevalence of ED |
|--|---------------|-------------|--------------|------------------|
| The United Kingdom | 1986 | 109 | 16 - 65 | 32 |
| The United States (Massachusetts Male Aging Study [MMAS]) | 1987-1989 | 1290 | 40 - 70 | 52 |
| France | 1996 | 986 | 18-94 | 42 |
| Canada, France, Germany Italy, Spain and UK (the Men's Health Survey) | 1996 - 1997 | 3607 | adult men | 31 - 52 |

Table 3. Prevalence of ED Classified by Age Groups.

| Age Groups/Degree of ED | Prevalence * |
|-------------------------|--------------|
| 40 – 49 Year Old | |
| Mild | 13.6 |
| Moderate | 5.7 |
| Severe | 1.1 |
| Overall | 20.4 |
| 50 – 59 Year Old | |
| Mild | 24.6 |
| Moderate | 17.8 |
| Severe | 3.9 |
| Overall | 46.3 |
| 60 – 70 Year Old | |
| Mild | 24.3 |
| Moderate | 32.0 |
| Severe | 17.1 |
| Overall | 73.4 |

Remark : * Prevalence of ED, in this table, is calculated as the weighted average of regional prevalence in the corresponding age groups and degree of dysfunction

Table 3 presents age-specific prevalence rates for ED among urban Thai men. They are 20.4 per cent for those 40–49 years of age, 46.3 per cent for those 50–59 years of age, and 73.4 per cent for those 60–70 years of age. It clearly indicates that ED is positively related to age. This evidence therefore points to the fact that the problem of ED among urban Thai men has deteriorated more rapidly with advancing age than elsewhere(8).

One could argue that the reported age-patterns of ED cited above are perhaps a cohort effect rather than a matter of real-age trends. However, there is some evidence indicating that they are in fact age-related(9). Meanwhile, the vast majority of studies emphasize that ED is not a natural consequence of the aging process, even though its prevalence has been found to increase with age. In addition, it is further suggested that such an association is due to the increased likelihood of many of the risk factors for ED with age. Such physical disorders and some of the medications used to treat these disorders have often been accused of causing ED.

It should be noted that psychological factors might be as important as physical mechanisms in accounting for ED. One such psychological factor worth mentioning here is norms that govern

males' sexual behavior in relation to age. That is, younger Thai men are under pressure of being macho and able to be a leader, which means never accept any failure, whereas elderly men, particularly in a Buddhist society, have to act calm and ungreedy. To some extent, this seems to provide the explanation for a threefold to fourfold increase in the prevalence of ED between the ages of 40 and 70 yielded by the Thai survey.

In addition, the occurrence at both ends of the reproductive period (starting and stopping points) is a complex and continuous process. Therefore, the full state of fecundity/ infecundity should be reached gradually, not abruptly as suggested by the Thai age trend.

A closer examination of various degrees of ED in the three age groups also yields an interesting and useful point. For mild ED, the prevalence almost doubles from 13.6 per cent to 24.6 per cent between men aged 40-49 and 50-59 years and seems to remain constant thereafter. On the contrary, for moderate and severe ED, the prevalence increases quite dramatically, especially for severe ED, with age. With regard to severe ED which has a very profound effect on the quality of life, it is found that the proportion of urban Thai men aged 60 to 70 years suffering from severe ED (17.1%) is higher than those yielded by the MMAS (15%).

Residence-Specific Prevalence Rate

In order to investigate the pattern of ED prevalence by regions and types of residence, we divided the whole kingdom into five regions, Bangkok, Central (excluding Bangkok), North, Northeast, and South. As shown in Table 4, of all the concerned regions, the North had the highest prevalence of ED – 45.6 per cent, while Bangkok had the lowest prevalence rate – 34.4 per cent, and the rest were in between.

According to age-specific prevalence rates within each region, which are also shown in Table 4, there are three important points to be highlighted. First, excluding Central and North, mild ED predominated. However, without any exception, severe ED was the lowest with the range of 3.2 per cent in the Northeast and 5.6 per cent in the South. Second, Bangkok had the sharpest increase in overall prevalence rates between the age groups 40-49 and 60-70 years old, whereas, the corresponding increase was more gradual in the Central

Table 4. Prevalence of ED Classified by Regions and by Age Groups.

| Regions/Degree of ED | Total | | Age groups | | | |
|--|-------------|------------|-------------|-----------|-------------|-----------|
| | | | 40 - 49 | | 50 - 59 | |
| Bangkok | N | % | N | % | N | % |
| Mild | 18.8 | 47 | 10.0 | 13 | 27.5 | 22 |
| Moderate | 10.8 | 27 | 3.8 | 5 | 15.0 | 12 |
| Severe | 4.8 | 12 | 0.8 | 1 | 2.5 | 2 |
| Overall | 34.4 | 86 | 14.6 | 19 | 45.0 | 36 |
| Central (excluding Bangkok) | N | % | N | % | N | % |
| Mild | 17.2 | 43 | 18.5 | 24 | 17.5 | 14 |
| Moderate | 20.4 | 51 | 12.3 | 16 | 20.0 | 16 |
| Severe | 4.8 | 12 | 3.1 | 4 | 7.5 | 6 |
| Overall | 42.4 | 106 | 33.9 | 44 | 45.0 | 36 |
| North | N | % | N | % | N | % |
| Mild | 20.4 | 51 | 20.0 | 26 | 25.0 | 20 |
| Moderate | 20.8 | 52 | 6.2 | 8 | 26.3 | 21 |
| Severe | 4.4 | 11 | 1.5 | 2 | 7.5 | 6 |
| Overall | 45.6 | 114 | 27.7 | 36 | 58.7 | 47 |
| Northeast | N | % | N | % | N | % |
| Mild | 21.6 | 54 | 20.8 | 27 | 20.0 | 16 |
| Moderate | 12.8 | 32 | 6.2 | 8 | 16.3 | 13 |
| Severe | 3.2 | 8 | 1.5 | 2 | 3.8 | 3 |
| Overall | 37.6 | 94 | 28.5 | 37 | 40.0 | 32 |
| South | N | % | N | % | N | % |
| Mild | 20.8 | 52 | 16.2 | 21 | 26.3 | 21 |
| Moderate | 13.6 | 34 | 4.6 | 6 | 25.0 | 20 |
| Severe | 5.6 | 14 | 0.0 | 0 | 2.5 | 2 |
| Overall | 40.0 | 100 | 20.8 | 27 | 53.7 | 43 |
| Large provinces (excluding Bangkok) | N | % | N | % | N | % |
| Mild | 22.4 | 112 | 20.0 | 52 | 26.3 | 42 |
| Moderate | 17.6 | 88 | 8.1 | 21 | 21.9 | 35 |
| Severe | 6.4 | 32 | 2.3 | 6 | 8.8 | 14 |
| Overall | 46.4 | 232 | 30.4 | 79 | 57.0 | 91 |
| Small provinces | N | % | N | % | N | % |
| Mild | 17.6 | 88 | 17.7 | 46 | 17.5 | 28 |
| Moderate | 16.2 | 81 | 6.5 | 17 | 21.9 | 35 |
| Severe | 2.6 | 13 | 0.8 | 2 | 1.9 | 3 |
| Overall | 36.4 | 182 | 25.0 | 65 | 41.3 | 66 |

region. Third, in Bangkok, the North and the South, about 7-8 out of 10 men aged 60 to 70 years old suffered from ED of some degree, while it was slightly lower in Central and Northeast. However, it should be pointed out that in Bangkok and South, severe ED among men in this age group was much higher than in other regions.

An attempt was made to understand the differences of ED prevalence according to location of residence. Table 4 also shows ED prevalence

rates classified by size of the provinces and age groups. From the table, the prevalence estimation for smaller provinces was 36.4 per cent and 46.4 per cent for larger provinces. Regions for residence as well as age were considered as a proxy variable, which influenced the prevalence of ED. The reason is that both of them encompassed various risk factors of ED. Unlike age, however, there is little or no information on the prevalence in relationship to ethnicity or socioeconomic status, which mainly

account for differences among regions. More detailed studies are needed before we can come to any conclusions.

SUMMARY

Previous research of ED is mainly in medical and experimental research by using nonrandom and convenience sample, often consisting of patients presenting with sexual dysfunction. Results of medical research can not represent the whole male population because most men with erectile difficulty do not seek medical care. This study was a national survey that attempted to give the whole picture of ED among Thai men aged 40-70 years. The estimation of the overall prevalence of ED among the respondents living in urban areas was 37.5 per cent. In terms of specific breakdown, 19.1 per cent of men classified their ED as mild, 13.7 per cent as moderate and 4.7 per cent as severe. In this study, age-specific and residence-specific prevalence of ED was also estimated. On the whole, age is strongly related to ED, that is the prevalence of ED for age groups 40-49, 50-59 and 60-70 years

are 20.4 per cent, 46.3 per cent, and 73.4 per cent, respectively. This finding indicates that the problem of ED among urban Thai men increases rapidly with advancing age. However, the association between age and ED is not as straightforward as it seems to be. For residence-specific prevalence of ED, it was found that North had the highest prevalence (45.6%) whereas Bangkok Metropolis had the lowest (34.4%), and the rest were in between. In addition, it was found that males residing in large provinces were affected by ED more frequently than those in smaller communities.

It should be noted that this article has resolved the unknown rate of prevalence rate in Thailand. However in the knowledge of ED, there are many areas to be explored. Accordingly, the authors recommend that further articles investigate the risk factors for ED, consequences, behaviors of counseling and health seeking care.

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การศึกษาระบบทิวทายของโรคหยอดสมรรถภาพทางเพศในประเทศไทย (ตอนที่ 1 : อัตราความชุกของโรค)

กลุ่มผู้ศึกษาโรคหยอดสมรรถภาพทางเพศในประเทศไทย

การศึกษาระบบทิวทายของโรคหยอดสมรรถภาพทางเพศในประเทศไทยเป็นงานวิจัยเกี่ยวกับโรคหยอดสมรรถภาพทางเพศในชายไทย โดยบทความนี้เป็นส่วนหนึ่งของการศึกษานี้ที่ต้องประเมินอัตราความชุกของโรคในระดับประเทศไทย การวิจัยนี้เป็นการสำรวจระดับชาติที่สุ่มตัวอย่างจากผู้ชายอายุ 40-70 ปี เฉพาะในเขตเมืองมาจำนวน 1,250 คน ผลของการวิจัยพบว่าอัตราความชุกของโรคหยอดสมรรถภาพทางเพศทั้งประเภทเท่ากับ 37.5% โดยที่จัดอยู่ในระดับน้อย 19.1% ระดับปานกลาง 13.7% และระดับรุนแรงอีก 4.7% ภาคเหนือมีอัตราชุกของโรคมากที่สุด ในขณะที่กรุงเทพมหานครมีอัตราชุกของโรคต่ำที่สุด นอกจ้านี้เมืองใหญ่ (ยกเว้นกรุงเทพมหานคร) มีอัตราความชุกของโรคเท่ากับ 46.4% ซึ่งมากกว่าเมืองเล็กที่มีอัตราความชุกเท่ากับ 36.4% สุดท้ายเมื่อผู้ชายมีอายุเพิ่มขึ้น อัตราความชุกของโรคจะเพิ่มขึ้นและเพิ่มขึ้นอย่างรวดเร็วจากกลุ่มอายุ 40-49 ปี ถึงกลุ่มอายุ 60-70 ปี

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