

INTRODUCTION

- Tuberculosis(TB), a bacterial infection that commonly affects the lungs, is one of the leading causes of death, measured by combining the life expectancy declines due to premature death worldwide. <sup>(1)</sup>
- Most people become ill with TB in adulthood. There are more cases among men than women. <sup>(2)</sup>
- Based on an estimate in 2019 by the World Health Organization, Thailand had 105,000 new TB patients, equivalent to an incidence rate of 150 per 100,000 population. <sup>(3)</sup>

AIM

To estimate the life expectancy gains by the elimination of the leading cause of death, tuberculosis disease, among Thai people of all ages and genders,

METHODS

The causes of death data were based on the Ministry of Public Health’s classification of TB by age and sex group in 2015–2019. There were three steps of calculation for the gain in life expectancy.

Firstly, the abridged life table is calculated based on the age-specific death rates.

Secondly, after  $n d_x$  and  $n q_x$  were obtained from the abridged life table, the multiple decrements tables were conducted. It was the number or proportion of dying at each age that was distributed into categories, according to the cause of death;  $n d_{x,TB}$  and  $n q_{x,TB}$ :

Lastly, cause-eliminated life tables were obtained by constructing a life table devoid of mortality due to tuberculosis disease (Figure 1).

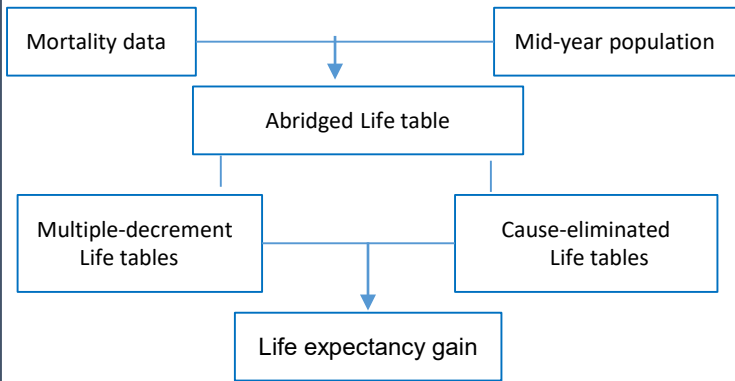


Figure 1:for estimating live expectancy gained by elimination of TB death

RESULTS

Cause-eliminated and multiple decrement  $l_x$  distributions were graphed in Figure 2. Between 2015 and 2019, older Thai people aged 60 and older died from tuberculosis disease, accounting for more than one-half of all age groups. It is important to note that the total number of people who died of TB dramatically increased after the age of 15 years. The TB mortality rate was higher among males compared to their female counterparts. Generally, for TB cases, the survival patterns in five years are similar. The gap compared between two-line graphs displays the effect of TB’s leading cause of death during 2015 to 2019 nearly the same. The number of survival experiences of persons who eventually die by TB disease ( $l_x,TB$ ). started to drop after age 15 years and sharply dropped after age 60 years.

The gain in life expectancy obtains from the difference value of life expectancy that gets from multiple decrement life tables and from cause-eliminated life table is shown in Figure 3. Males gained more years of life expectancy than females after eliminating Tuberculosis disease (rages 4.4 to 4.6 years for males and rages 2.2 to 2.3 years for females). After tuberculosis is eradicated, men are expected to have the same life expectancy as women. There was a slight difference in life expectancy gained between men and women after eliminating the cause of death.

Figure 2 Thailand, 2015-2019 multiple decrement life tables and caused-eliminated life tables for TB

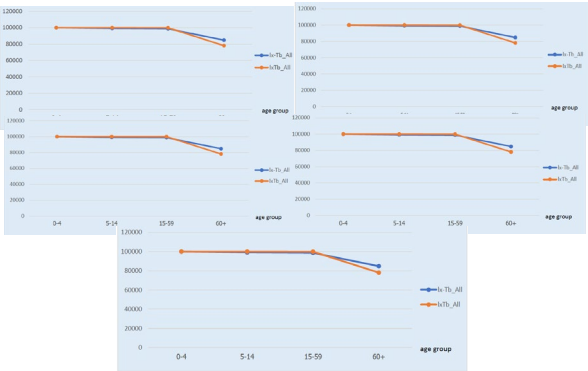
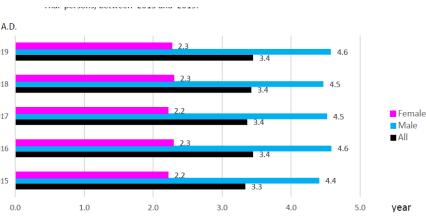


Figure3 Gains in life expectancy due to eliminating the cause of death from Tuberculosis diseases in Thai persons, between 2015 and 2019.



CONCLUSION

This study outlined how tuberculosis disease could affect the life expectancy of Thai people. Gains in life expectancy depend on causes of death and sex. Therefore, the findings provide potentially relevant evidence for policymakers to improve public health policies for Thais to reduce their loss of life.

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