Author's response to reviews

Title: Ethnic and Gender Specific Life Expectancies of the Singapore population, 1965 to 2009 - Converging, or Diverging?

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Author's response to reviews: see over
10 October 2013

Dear Mr Proel Vargas,

RE: MS: 3444500651015965 Ethnic and Gender Specific Life Expectancies of the Singapore population, 1965 to 2009 - Converging, or Diverging?

Thank you for giving us another opportunity to address concerns raised by the reviewers.

We have amended the manuscript based on comments raised by the reviewers (changes highlighted in yellow). We also enclose a point-by-point response to the reviewers’ comments (see Annex).

We are very grateful to the reviewers for their positive and helpful suggestions and we believe that the quality of the manuscript has been significantly improved as a result.

Yours sincerely,
Dr Raymond Boon Tar Lim
Annex

Responses to Reviewer 1: Naoki Kondo

Comment:
1.1 About necessary information about the methods. I found no population figures in the ms; only rates of deaths mentioned. Maybe some mid-year population numbers and range?

Response and action by author:

We thank the reviewer for this suggestion and have included the statement that “The mid-year population of Singapore has increased from 2.0 million in 1968 to 3.8 million in 2010, of which 74-78% were Chinese, 13-15% were Malays and 7-9% were Indians during this time period.” in the amended manuscript.

We have included some mid-year resident population figures into Table 1 as well.

These amendments are located at:
i) pg 7, 1st paragraph of Results section, lines 1 to 3
ii) Table 1
Responses to Reviewer 2: Amal Harrati

Comment:

1. (Un-numbered response) about increases in life expectancy and the ethnic trends. Looking at Figure 3, I have a major concern about the peak in life expectancy among Indian males around year 2000. To me, it indicates that less deaths of Indian males were recorded than was expected from the linear trend. Was there a systematic/structural difference in these recordings? Or what happened? What would be an alternate explanation? These need to be addressed and the data table behind the figure included as an appendix. Also, in ref 38, the results are not the same.

Response and action by author:

We appreciate the reviewer's valuable comment.

There was no systematic or structural difference in the way mortalities are recorded in Singapore ever since the enactment of the Registration of Births and Deaths Act in 1937. The law requires all deaths (regardless of citizenship) occurring in Singapore to be registered within 24 hours of occurrence. To register a death with the National Registry of Births and Deaths, the informant must produce the Certificate of Cause of Death and other supporting documents (e.g. the deceased's National Registration Identity Card (NRIC), passport or citizenship certificate). In Singapore, the Certificate of Cause of Death is issued by doctors or Authorised Officers (i.e. Forensic Death Investigators) from the Ministry of Health only. After the documents produced are verified, the Registration Officer will print the Death Certificate.

Period life expectancy is used in this study rather than cohort life expectancy. The limitation is that period life expectancy will not reflect cohort changes in life expectancy accurately in the case that age-specific mortality rates are changing over time. This was observed when there was a sudden peak in the life expectancy among Indian males around year 2000. We believe that part of the reason for this sudden peak might be attributed to the surge of Permanent Residents (PRs) in the Indian male resident population. The proportion of Indian male PRs has doubled from 9.5% in 1990 to 18.0% in 2000, which corresponds to the largest increment among the ethnic-gender combinations in Singapore for that period. This ‘healthy migrant' effect where immigrants are on average healthier than the native-born can cause a sudden change in mortality rates and life expectancy, and the use of period life expectancy will not be able to reflect this well.

We have incorporated this amendment at page 16, 1st paragraph, lines 6 to 14.

The data behind all the figures have already been incorporated into Tables 2 and 3.
We quoted reference 38 to illustrate that amenable mortality might be one of the drivers to account for the differences in life expectancy observed among the subgroups (ethnicities and gender) in Singapore. We are unable to quantify exactly how much each of the stated drivers in the manuscript might play in accounting for the differences in life expectancy, as this is not the main objective of this study.

Comment:

2. About potential misclassification (differential?) by immigration status or registration status.

Response and action by author:

We do not anticipate any missing data because the Registry of Births and Deaths is a National Registry, and under the Registration of Births and Deaths Act, it has been compulsory to register all births and deaths in Singapore since 1937. Singapore is a small city–state with a land area of about 700 sq km, and essentially 100% urban, so there should be almost no deaths that are missing.

We obtain the estimated mid-year resident population from the Department of Statistics, and again this is based on Census data together with data from births and deaths and naturalization. It is compulsory for any person who is lawfully a resident in Singapore to register for a National Registration Identity Card (NRIC) upon reaching the age of 15 years old.

Singapore is an immigrant population, and 20% of our resident population were born outside Singapore. The life expectancy trends described in this paper therefore includes the mortality experience of naturalised Singaporeans who were born in China, India, Malaysia or Indonesia, or other parts of the world. We are unable to exclude these naturalised Singaporeans, since the data we have do not distinguish between naturalised Singaporeans and those who were born in Singapore. However, we do not see this as a bias to our study, since our research objective was to evaluate the change in life expectancy of Singaporeans and Permanent Residents over time, regardless of their status as naturalised Singaporeans.

We have already added this point into the text. The amendment is located at pg 15, 2nd paragraph, lines 11 to 16.

Comment:

3. The authors did NOT study the reasons behind the disparities, thus, they had no results about these. Therefore, they need to delete from the abstract: “the higher prevalence of chronic diseases and associated risk factors in the Malay ethnicity and males accounted for the persistent life expectancy gap?”. Here, I also miss broader referencing of studies. Edit also the sentence on page 10 stating that ethnic differences are attributable to disparities in non-communicable disease deaths to accord with ref 38.
Response and action by author:

We thank the reviewer for this comment. We have deleted the sentence from the abstract.

In addition, we have also edited the sentence on page 10 of the initial manuscript to include the phrase "which might be attributable to amenable mortality (consists of 'treatable' conditions such as appendicitis for which timely therapeutic care is available, as well as 'preventable' conditions such as lung cancer where primary preventive measures are available)" and added in the reference for this.

The amendment is located at page 10, last paragraph, last 3 sentences to page 11, 1st line.

Minor issues

Comment:

page 3. Progress in health systems? Are you referring to improvements in health care?

Response and action by author:

We thank the reviewer for highlighting this.

Yes, we are referring to progress in healthcare and health services.

The amendment is located at page 3, paragraph 1, lines 9 to 10.

Comment:

What statistical software was used?

Response and action by author:

The statistical programming language R (version 2.14.0) was used to plot the figures.

The statement is added at page 6, 1st paragraph, last 2 sentences.