Life expectancy, healthy life expectancy, and inequalities in Hong Kong, 2007–2020

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The Lancet Regional Health - Western Pacific 2023;41: 100931

Published Online xxx https://doi.org/10.1016/j.lanwpc.2023.100931

Chung and colleagues look at trends in longevity and disability-free life expectancy (DFLE) in Hong Kong, a highly urbanized city state with a population of over seven million inhabitants, and one of the highest life expectancies in the world.[1] They compared changes in period life expectancy (LE), and DFLE, at age 65 in three time periods: 2007, 2013, and 2020. For brevity, we will refer to these quantities as e65 and d65, and the proportion of years after age 65 spent disability-free as p65.

The authors report a number of findings similar to those observed in many other high-income populations, though in many Western countries the period covered is one of slowing rates of improvement.[2] Trends in longevity (e65) are continuing to increase, and are more pronounced in males than females, contributing to a 'catch-up' between male and female life expectancies. However, the rises in d65 are much more modest, and only marginal (just 0.1 years higher over 13 years) for women, leading to substantial decreases in p65, falling to 74·2% for men, and 66·3% for women. Such trends, along with the male-female health-survival paradox, highlight further common ground between Hong Kong and other high-income populations.

The study outcomes (d65, e65, and p65) were also associated with five measures of area-based deprivation. From this the authors conclude that the socioeconomic gradients (SEGs) in e65 and d65 seen in many Western countries are not as evident in Hong Kong, echoing similar reports for Japan, Taiwan and Singapore.[3–5]

We suggest the first set of conclusions - male-female catch-up, e65 rising faster than d65, leading to falling p65, and further confirmation of the male-female health-survival paradox - appears on methodologically and epidemiologically firmer ground than the second set of conclusions: namely that there is an absence of pronounced SEGs in Hong Kong, and that this reflects a broader East-West divide in the extent to which longevity and morbidity outcomes are patterned by socioeconomic position (SEP). To illustrate why, it is worth looking at the results the authors report, by plotting the data, as shown in Fig. 1.

As Fig. 1 illustrates, the choice of which measures of SEP to focus on, and the model specifications used, affect the inferences likely to be drawn. Some of the associations (such as d65 regressed on % owner-occupier households) go in the expected direction for SEGs, others (such as e65 regressed on % owner-occupier households) go in the reverse direction, and some (such as e65 regressed on % low-income families) appear to go in different directions for different sexes. Chung and colleagues have exercised both openness and restraint in presenting all measures and results, and not in choosing to focus on measures and methods which support any prior positions.

Such high dependence on the specific measures and methods used suggests to us the following: that the results on SEGs in Hong Kong are still inconclusive, and better interpreted as 'absence of evidence' than 'evidence of absence'. This does not mean that the findings do not make a substantial contribution to public health but does mean the findings cannot be interpreted as strongly supporting a more general narrative that SEGs in longevity and morbidity are present in Western nations, but not in Eastern nations.

The production of standardized measures of SEP is methodologically challenging, the production of internationally comparable measures even more so.[6,7] This means further research is warranted on how the way SEP is measured affects its association with longevity and morbidity outcomes, and further debate on such issues is inevitable. Within UK nations, for example, a composite measure called the Index of Multiple Deprivation (IMD) is used in England & Wales, and a similar Scottish IMD (SIMD) used in Scotland.[8] These composite indices are based on more than twenty indicators and calculated for small areas with populations of approximately 800 residents, much smaller than the district sizes used in this paper. The development of analogous, and ideally comparable, composite measures of deprivation in Hong Kong is likely to aid further research on the presence and extent of SEGs in health in this population.

There is value in speculating how an absence of SEGs, or much attenuated relationship, could be true. One possibility is that as the data used are cross-sectional, and Hong Kong is a wealthy urban center, a particularly

DOI of original article: https://doi.org/10.1016/j.lanwpc.2023.100909
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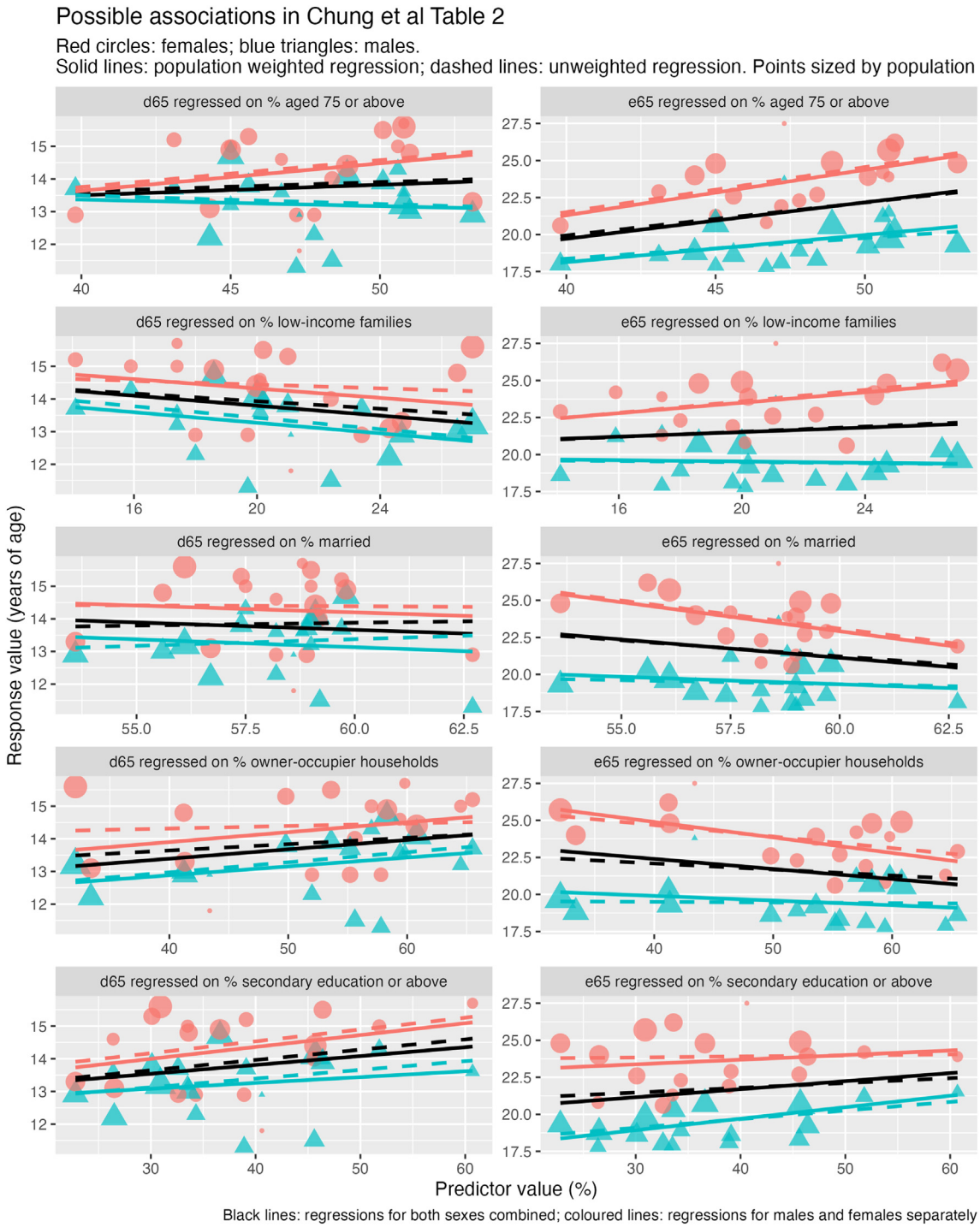

Fig. 1: Various ways of calculating associations between specific measures of SEP reported in Chung et al. Table 2 and either d65 or e65. Options include either to weight observations by population size (solid lines) or use unweighted regression (dashed lines); and to either pool observations for both sexes combined (black lines), or to calculate separate regressions for each sex (red and blue lines). The confidence intervals and statistical significance of regression lines are omitted for reasons of clarity.

strong healthy migrant effect is at play, selecting for better health on inflows, and worse health on outflows.[9] There is evidence of something like this in the UK. SEGs are shallower in London than the North East, and life expectancies for each deprivation decile higher. However, such SEGs are still present in London, and are unlikely to be due to healthy migrant effects alone.[10]

If the results were found to hold in longitudinal study designs which effectively account for selective migration, then the argument for 'evidence of absence' grows stronger, and more fundamental causal explanations, such as those related to broader cultural differences between Western and Eastern societies, and their influence in mitigating longevity and morbidity differences by SEP, become more strongly warranted.

Contributors

JM reviewed the original paper for which this is a commentary, produced the figure, and wrote the first draft of the commentary. GW revised the paper and handled references. Both authors discussed the paper and associated research, and developed the structure and content of the commentary.

Declaration of interests

Neither JM nor GW have any interests to declare.

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