Commentary: Life-course and social epidemiology, the biological fig leaf and Bob Dylan

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The life-course approach to adult disease is highlighted in epidemiological research these years, and, although life-course thinking covers much more than social epidemiology, social and demographic factors as early life exposures are prominent in this focus.

Prospective studies of life-course influences on adult disease rely on the data available. Luckily, our predecessors set up a few large-scale studies that, in turn, ended up being cohort studies with repeated data collection sweeps, where follow-ups were combined with continuous collection of exposure data. The 1958 British cohort is one of these gold mines for life-course research. The latest data collection sweep included a clinical examination of all available participants at age 44–45 years, an admirable effort that is easily recognizable for those of us who are involved in building up and maintaining longitudinal studies. Considering the financial, logistical, scientific and personal investment it represents, it deserves to be acknowledged by the wider research community, primarily because of the contribution to future research opportunities it provides.

In front of us, we have two of the first articles using data from this follow-up. One of them explores how socio-economic position in early and adult life affects a number of objectively measured health outcomes that are frequent in mid life: biological markers of cardio-respiratory risk, impairment of hearing and vision and symptoms of depression, anxiety, and diffuse pain. The other focuses on region of residence as early and adult exposure, using a persusasive migrant-non-migrant design.

I have never met anyone who would seriously argue that adult health ‘in general’ is unaffected by childhood circumstances. Hundreds of pieces of scientific work from recent years and even from the centuries before have shown that living conditions in childhood shape bodily and mental susceptibility and resilience. Those who are ignorant or simply sceptical toward science have personal daily life experiences with well-being, disease and death to support the same line of thinking.

Admittedly, this is so general that it borders on banality. And banality is something we eschew, as we know that is does not really bring ‘the truth’ forward. Apparently, one way to avoid banality is to cling to biology.

It has been argued that the heterogeneity in findings, that is, how different socio-demographic measures in different life-phases influence different health phenomena in different ways, may provide insight into specific biological or pathogenic mechanisms for specific diseases. These two articles are examples of such insight.

However, the demonstration that parental socio-economic position is a powerful predictor of health in adult life need not be justified by the possible additions to biological understanding it provides occasionally (although, obviously, we should not miss the chance). As long as most people, irrespective of political outlook, believe that equal rights to health are essential, this finding is valuable in itself.

Do we actually learn much about pathogenic pathways? The heterogeneity in findings of associations between childhood socio-economic position and hearing and visual impairment, respectively, and furthermore, how gender affected the association between adult occupational group and hearing, may indicate pathological pathways. The authors suggest that childhood ear infections, known to be socially patterned, and occupational noise later in life, may account for the associations.

The results of the study on regional variation in outcomes among inter-regional migrants in 12 regions of the UK suggest that region of current residency, more than region of birth, accounts for the regional variation in the outcomes examined—except for adult height. As can be seen from the tables some of the health-related outcomes vary substantially between regions and, furthermore, the pattern is not unambiguous. The authors refrain from providing possible mechanism explanations of the variations; they simply stick to reporting what they’ve found on ‘healthy migrant effects’, and conclude that regional variations in disease occurrence are not explained by early life factors.

At first glance, this annoyed me. What are the implications and what do they actually measure? While region (e.g. of birth) is a precise measure, not likely to be subject to misclassification, it is less obvious what it actually represents as an exposure. A few features are attached firmly to region, e.g. longitude and latitude, weather conditions (fairly stable despite global heating) and radiation from the underground. But most other exposures, perhaps of greater relevance to human health, may vary, within and between regions, over the lifetime of a human being. It may be self-evident for an indigene; otherwise, however, without more information of what constitutes a region (e.g. regionally organized health care systems, social welfare, environmental protection systems) it is difficult to grasp what actually makes it a meaningful entity.
in this respect. After a couple of perusals I came to appreciate, given the uncertain meaning of the measure, the virtue in this lack of explanations. But I still wonder whether characteristics of one such region are stable over 45 years. Also, whether the results can justify the picked key message: that the findings are inconsistent with the ‘early origin’ hypothesis for adult chronic disease.

A similar objection could be made to the social position measure used in the articles. We have a rough idea about a hierarchical structure of the Registrar General’s occupational groups. They applied at least to the UK society in 1911 when they were grounded, if not necessarily to the 21st century.

Still, the exposure measure is opportunely distant so it allows a number of post hoc mechanistic explanations. While I find the explanation above regarding hearing impairment very plausible, other explanations could be put forward, just for the sake of the argument. What about rock music? The cohort members were in their teen-age years in the 1970s. Preferred types of music and intensity are likely to vary with socio-economic position and gender and (health) habits track into adult life. Number of hours spent in surroundings with music on decibel (dB) levels above the threshold for hearing damage for this cohort is presumably not negligible.

Knowing that life-course research based on data from the past has in-built difficulties with prediction of future, I do appreciate these articles’ demonstration that this cohort, too, had unequal health opportunities. No matter what the biological explanations for the findings with respect to hearing impairment, I would recommend reading the articles while listening to Bob Dylan’s The Times They Are a-Changin’: an ultimate reminder of some of the difficulties in life-course research.

‘Come writers and critics
Who prophesize with your pen
And keep your eyes wide
The chance won’t come again
And don’t speak too soon
For the wheel’s still in spin
And there’s no tellin’ who
That it’s namin’.
For the loser now
Will be later to win
For the times they are a-changin’.

Bob Dylan: The Times They Are a-Changin’, 1964

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References