Socioeconomic status and risk factors for non-communicable diseases in low-income and lower-middle-income countries

See Articles page e277

Non-communicable disease behavioural risk factors such as tobacco smoking, heavy alcohol consumption, physical inactivity, and unhealthy eating are socially patterned in high-income countries, with individuals of low socioeconomic status generally experiencing a higher burden of risk factors.[1,2] However, the direction of the association between socioeconomic status and behavioural risk factors has changed over time. Unhealthy behaviours were more frequent in high socioeconomic groups at the beginning of the 20th century, but the burden later shifted towards the disadvantaged socioeconomic groups. This explains why non-communicable diseases have long been considered as "diseases of affluence".[3] A similar transition of the non-communicable disease burden from high to low socioeconomic groups over time has also been documented in several middle-income countries.[4-6] Yet, as pointed out by Luke Allen and colleagues in *The Lancet Global Health*,[7] the situation is less clear in low-income and lower-middle-income countries (LLMICs), as studies in these countries are scarce and produce inconsistent results. The question of whether non-communicable diseases (and their risk factors) disproportionately affect poor individuals in the poorest countries has fuelled a vivid debate, as this situation would imply that substantial resources should be allocated to non-communicable diseases in countries with very low resources, in addition to ongoing efforts to control infectious diseases and undernutrition.[8-11]

The inconsistent findings on the social patterning of risk factors in LLMICs might relate to the small numbers of studies done in these countries, the limited quality of several of them, and a number of methodological issues (eg, how to define socioeconomic status in these LLMICs and how to compare results between countries). Furthermore, the social patterning of risk factors might differ between countries according to cultural norms and traditions, particularly in LLMICs where the dominant lifestyles and diet might be driven to a lesser extent by global media and trade than in high-income or middle-income countries. Finally, as the social gradient in non-communicable disease risk factors changes over time,[6] inconsistencies can relate to the different time periods considered in the available studies.

Allen and colleagues did a systematic review of the associations between socioeconomic status and four major non-communicable disease risk factors (ie, harmful use of alcohol, tobacco use, unhealthy diet, and physical inactivity) in LLMICs. They found that the burden of non-communicable disease behavioural risk factors is strongly socially patterned in these countries, but the direction of the associations differed according to the considered risk factors, geographical location, and sex. The study provides good evidence that individuals of low socioeconomic status in LLMICs were more likely to use tobacco and alcohol and to consume a less healthy diet (eg, less fruit, vegetables, fish, and fibre, but more meat), whereas individuals of high socioeconomic status tended to be more physically inactive. Of note, the focus on the individual LLMICs in this review usefully reduces heterogeneity in results between countries. The findings of the study are important and timely for both policy makers and the scientific community and they strengthen the case for scaling up priority given to non-communicable diseases in health agendas in LLMICs.

However, further research should be done to assess a few important issues not explicitly addressed in the study. The systematic review included studies done over more than two decades. Since the social gradient in behavioural risk factors is expected to change over the stages of the epidemiological transition, there is a need to examine secular trends in the social patterning of non-communicable risk factors within countries. This will require repeated surveys in various LLMICs. For example, at which level of socioeconomic development do physical inactivity and western-like diet shift toward the poor individuals within a particular LLMIC? Fine tuning our understanding of the timing of these changes is crucial for planning future policies addressing the social determinants of non-communicable diseases in LLMICs. Also, as Allen and colleagues note, current evidence almost entirely derives from a small number of LLMICs, which importantly limits the generalisability of these findings. This emphasises the need to systematically collect data for socioeconomic variables in all population surveys of non-communicable diseases, including in LLMICs, and the equally important need

to adequately communicate findings according to socioeconomic indicators, as emphasised in the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020 and the related Global Monitoring Framework.[12] Finally, it will be important to compare data between LLMICs and regions, as cultural norms and other country-level characteristics can have a substantial effect on the social distribution of behavioural risk factors in these countries.

*Silvia Stringhini, *Pascal Bovet*
Institute of Social and Preventive Medicine (IUMSP), Lausanne University Hospital, Route de la Corniche 10, 1010 Lausanne, Switzerland
pascal.bovet@chuv.ch

We declare no competing interests.

1 Stringhini S, Sabia S, Shipley M, et al. Association of socioeconomic position with health behaviors and mortality. *JAMA* 2010; **303:** 1159–66.
2 Stringhini S, Dugravot A, Shipley M, et al. Health behaviours, socioeconomic status, and mortality: further analyses of the British Whitehall II and the French GAZEL prospective cohorts. *PLoS Med* 2011; **8:** e1000419.
3 Wilkinson RG. The epidemiological transition: from material scarcity to social disadvantage? Daedalus 1994; **123:** 61–77.
4 Mayen AL, Marques-Vidal P, Paccaud F, et al. Socioeconomic determinants of dietary patterns in low- and middle-income countries: a systematic review. *Am J Clin Nutr* 2014; **100:** 1520–31.
5 Hosseinpoor AR, Bergen N, Kunst A, et al. Socioeconomic inequalities in risk factors for non communicable diseases in low-income and middle-income countries: results from the World Health Survey. *BMC Public Health* 2012; **12:** 912.
6 Stringhini S, Viswanathan B, Gedeon J, et al. The social transition of risk factors for cardiovascular disease in the African region: Evidence from three cross-sectional surveys in the Seychelles. *Int J Cardiol* 2013; **168:** 1201–06.
7 Allen L, Williams J, Townsend N, et al. Socioeconomic status and non-communicable disease behavioural risk factors in low-income and lower-middle-income countries: a systematic review. *Lancet Glob Health* 2017; **5:** e277–89.
8 Subramanian S, Corsi DJ, Subramanyam MA, et al. Jumping the gun: the problematic discourse on socioeconomic status and cardiovascular health in India. *Int J Epidemiol* 2013; **42:** 1410–26.
9 Stringhini S, Bovet P. Commentary: The social transition of cardiovascular disease in low- and middle-income countries: wait and see is not an option. *Int J Epidemiol* 2013; **42:** 1429–31.
10 Narayan KM, Ali MK. Commentary: Shielding against a future inferno: the not-so-problematic discourse on socioeconomic status and cardiovascular health in India. *Int J Epidemiol* 2013; **42:** 1426–29.
11 Jones-Smith JC. Commentary: Jumping the gun or asleep at the switch: is there a middle ground? *Int J Epidemiol* 2013; **42:** 1435–37.
12 WHO. Global action plan for the prevention and control of noncommunicable diseases 2013–2020. Geneva: World Health Organisation, 2013.