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Response to "'Selection bias by death" and other ways collider bias may cause the obesity paradox.'

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To the Editor

We thank Schooling and Yeung for their insightful letter¹ regarding our publication². The authors nicely illustrate alternative causal diagrams that may lead to collider stratification bias, their main example being “selection bias by death”, in which death occurs after incidence of the disease of interest but before selection into the analysed cohort.

We agree that selection by death (or survivorship bias) should be handled with care. We recommend the use of incident cohorts over prevalent cohorts when studying the outcomes of long-term conditions wherever possible³. Usefully, a life-course approach to clinical epidemiology is becoming possible through health-system-wide data-integration and analysis⁴. Analysis of such data, using multi-state models and competing risks approaches⁵, will allow for more robust causal inference.

As well as quantifying the bias that can occur through collider stratification assuming a specific directed acyclic graph, our paper suggests a general approach to evaluate the bias that could be generated under any causal structure, including those suggested by Schooling and Yeung. We would encourage these authors, and others, to evaluate potential bias quantitatively using such a framework. Such efforts will indeed shed more light on the obesity paradox and other paradoxes.

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Conflicts of Interest

None declared.

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