Non-response and attrition in longitudinal studies

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This paper examined the association of cohort study participation with self-reported health and wellbeing. It hypothesises that participation to cohort studies has a positive impact on self-reported health and wellbeing. The authors indeed found that those who participated more actively, especially among women, tended to have better self-reported health and well-being. However, as an analysis of association, the causal directionality cannot be established. We could also interpret the observed associations from an opposite perspective, asking the question if health and wellbeing have any impact on cohort study participation. This would touch on the on topic of non-response and attrition.

In longitudinal studies, non-response typically refers to initial non-response at the first wave of data collection; whereas attrition can be seen as non-response at later waves due to, for example, death, contact failure, inability to respond or refusal.[1] Non-response and attrition rarely occur randomly. Therefore, they are likely to reduce sample representativeness and potentially lead to biased estimates of parameters. In epidemiological research, it is of particular interest to know if health, a common variable of interest, has any impact on non-response or attrition. It is particularly challenging to investigate factors affecting non-response as there is usually little information from non-respondents. But the relationship between health and attrition can be tested in many longitudinal studies. The existing evidence seems to be mixed. For example, a meta-analysis of panel ageing studies found that people with poorer health had a higher attrition.[2] However, another study reported limited evidence for health-related attrition in the Health and Retirement Study (HRS) and the English Longitudinal Study of Ageing (ELSA).[3] This suggests that the potential impact of health on attrition might depend on specific study designs (e.g. survey mode, follow-up procedure, the availability of clinical assessments etc). It, therefore, highlights the importance for individual longitudinal survey to report on non-response and attrition and to conduct thorough investigation of the underlying mechanisms.

Non-response and attrition are sources of missing data, a widely recognised statistical problem in the field. It almost becomes a standard to report on or deal with missing data in published work. However, in most cases, researchers tend to focus on missing data caused by item non-response instead of unit non-response (non-response and attrition). Compared with the percentage of missing data (due to item non-response), response and follow-up rates are less commonly reported in observational studies. It is well known that non-response and attrition biases can be corrected by weighting, but somehow weight adjustment has received much less attention in epidemiological research. As a major threat to external validity, non-response and attrition should be handled with appropriate care when data are collected and by adopting statistically sound procedures in data analysis. Proper reporting is at least a good place to start.

References

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