Letter to Editor

Letters to the Editor

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Dear Editor,

This is in reference to the survey published in your esteemed journal titled 'The Prevalence of Cardiovascular Risk Factors in the Young and Middle-Aged Rural Population in Sarawak, Malaysia' (Malays J Med Sci. Apr-Jun 2012; 19(2): 27–34). It was an important survey identifying the factors associated with cardiovascular diseases.

I like to point to an issue. I find that persons with hypertension, myocardial infarction, or angina pectoris were excluded in the above survey. Thus, the persons surveyed will not be a representative sample of the population studied. This could be the reason for the lower prevalence of hypertension, smoking, hypercholesterolemia, and obesity. These results would be more dependent on the actual prevalence of the excluded section (from survey) of the population. An approach where in these 'excluded people' were also included in the survey and then analysed separately to find the prevalence of risk factors in non-diagnosed (hypertension, myocardial infarction, or angina pectoris) persons would have avoided this fallacy. Thus, the survey is compromised on internal validity due to exclusion bias (1).

Exclusion bias is a type of sampling bias which results from exclusion of particular groups leading to a non-representative sample. Horwitz et al. (2), as early as 1985 told the world on the importance of exclusion bias when he showed that an association between reserpine and breast cancer was due to the exclusion of women with cardiovascular disease among only controls and not cases.

Houle (3) observed that exclusion of certain groups like imprisoned inmates can substantially alter observed national disparities between race/ethnic and education groups. His research explored the effects of excluding inmates from US national obesity estimates based solely on the non-incarcerated population. Among younger men with less than a high school education, national obesity prevalence including inmates reduced estimates for non-Hispanic Whites and blacks. Estimates were not substantially altered for older men by including inmates due to the relatively small size of the older incarcerated population.

A reason given for exclusion in prevalence surveys is to get a better estimate. Thurnham and colleagues (4) proposed that in surveys that rely upon plasma or serum retinol concentrations to estimate the prevalence of vitamin A deficiency, excluding all individuals with elevated acute phase proteins improves the accuracy of the prevalence estimates due to the variation in serum retinol due to infections. However, Maqsood (5) et al., among children in Republic of the Marshall Islands found that the method of excluding individuals with elevated acute phase proteins from a survey of vitamin A deficiency results in sampling bias and a prevalence estimate that was based upon a very non representative population.

Exclusion bias is a serious type of sampling bias in observational research. It is important for public health agencies and researchers to consider omitted groups when understanding health outcomes and inequities (3).

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