Short reports

Smoking and alcohol consumption in Trent, UK: an analysis of item non-response

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In postal studies, bias may be introduced through respondents failing to complete all the questions. This is referred to here as, "item non-response",¹ and is in addition to any bias caused by total non-response,¹ such as the under representation of smokers.² A better understanding of item non-response should therefore help in the interpretation of data generated by postal surveys. It was decided to study item non-responders in respect of two key concerns in the Trent health lifestyle survey carried out in 1994.³ These key concerns were smoking status, drinking status and level of alcohol consumption.⁴

Method

Eighty people (0.7%) who omitted the question on smoking status and 657 (5.7%) who omitted to mark their level of alcohol consumption were sent the relevant page from the original questionnaire and a covering letter on 23 June 1994, about four months after the original study. One reminder, a covering letter, and a second page of questions were sent on 14 July 1994 to those who still had not replied.

Results

RESPONSE

The response rate for the original survey was 66%.³ For the item non-response study the response rate was 78% (60/77, 3 exclusions) for those who omitted information on smoking and 79% (512/650, 7 exclusions) for those who did not indicate their alcohol consumption in the original survey.

SMOKING

There was no significant difference in smoking status between those who responded to the item non-response study and those who the completed original survey question on smoking status ($\chi^2=0.67$ with 1 degree of freedom),

with 31.7% (19/60) and 27% (3064/11 367) smokers in both studies respectively. Nor was there any significant difference between the two studies in the daily cigarette consumption of smokers.

ALCOHOL

Following a question on drinking status, those who drank alcohol were asked whether they drank in the week before the survey, and if so, how much of several alcoholic drinks they consumed on the various days of that week. This was then used to calculate whether someone drank more than the recommended number of units per week.⁵ Table 1 compares the responses from the original survey with those from the item non-response study. It shows that significantly fewer respondents drank "more than the recommended units" in the item non-response study than in the original survey. On the other hand, the percentage of item non-responders who had drunk "less than the recommended units" was significantly higher than in the original study.

Conclusion

This study does not support the hypothesis that bias is introduced in the estimate of smoking prevalence through item non-response in a lifestyle survey. This study also suggests that the original survey may have slightly over estimated alcohol consumption above the recommended level. The over estimation would, however, be less than 0.2%.

1 Moser CA, Kalton G. *Survey methods in social investigation*. 2nd ed. Aldershot: Dartmouth Publishing Company Limited, 1971.
2 Smith C, Nutbeam D. Assessing non-response bias: a case study from the 1985 Welsh Heart Survey. *HER* 1990;5: 381-6.
3 Roberts H, Dengler R, Zamorski A. *Trent health lifestyle survey: technical report to Trent Regional Health Authority, 1993/94*. Nottingham: University of Nottingham, 1994.
4 Department of Health. *The health of the nation: a strategy for health in England*. London: HMSO, 1993.
5 Royal College of Psychiatrists. *Alcohol: our favourite drug*. London: Tavistock Publications, 1986.

Table 1 Level of alcohol consumption in the original study compared with the item non-response study

Level of alcohol consumption	1994 lifestyle study No (%)	Item non-response study No (%)
Teetotal	1 569 (14.6)	40 (7.8)
Fewer than the recommended number of units	7 428 (70.0)	414 (80.9)
More than the recommended number of units	1 773 (16.4)	58 (11.3)
All	10 770 (100)	512 (100)

$\chi^2=32.45$ with 2 df, $p<0.001$

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