

How accurate is self reported birth weight among the elderly?

M Kemp, D Gunnell, M Maynard, G Davey Smith, S Frankel

The effect of early life influences on adult health is a central topic in current epidemiological research. For instance, growth and development in utero and in infancy have been linked to cardiovascular disease.¹ In empirical research in this field, birth weight is often used as an indicator of health and nutrition in utero.

There are two main sources of birthweight data: birth records and the memories of subjects or their families, or both. Where the subjects are elderly, however, early birth records with recorded birth weights are not easy to find and the recovery rate is generally low.² Where there are no surviving birth records with birthweight data and where the subject's parents cannot be asked, the subject's own testimony is the only possible source of such data.

But can self reported birth weight be relied upon in the absence of data from clinical or administrative sources? Birth weights recalled by mothers have been found to correlate highly with those found in official records.³ The accuracy of self reported birth weights, however, is less certain—some studies have reported a poor degree of correspondence between birth weights recorded in official records and self reported birth weights.⁴ Other researchers have found that birth weights from these two sources correlate reasonably well.⁵ Most investigations of the validity of self reported birth weight have typically used subjects who were middle aged or younger. In the investigation reported here, we use data collected in a study of childhood diet and health and disease in later life to estimate the accuracy of the self reported birth weights for an older age group of 57 to 77 year old women and men. It is important to note that the results reported are only relevant to studies involving the use of birthweight recall in older age groups. The older age of the subjects means that the probability of them having access to their mother's recall or being able to remember reports from their mothers is lower than younger age groups. In addition, for historical reasons, the likelihood of finding surviving birth or maternity records for a particular person tends to fall with that person's age.

Methods

The study subjects are members of the Boyd Orr cohort.⁶ This cohort comprises 4999 children drawn from 1352 families who underwent a one week assessment of family diet and health in 1937–39. The number of subjects has increased slightly since earlier reports of the cohort as a result of further searches of archived research records. Using the National

Health Service Central Register we have traced 85% of the original study members. As part of a recent follow up study, all subjects from the original sample of families who were traced and who were alive and living in Britain in 1997–98 were sent questionnaires requesting details of their current health, lifestyle and dietary habits (n=3182). In the same questionnaire, subjects were asked to report their birth weight in pounds and ounces.

Recorded birth weights were collected separately through searches of archived birth and postnatal records in Aberdeen, Dundee, Edinburgh and London. Birthweight records were found for 10.0% (500) cohort members living in seven of the 16 study centres.² Birth weights of 55 other subjects whose families had taken part in other surveys conducted by Sir John Boyd Orr were also retrieved but are not used in this analysis. We have previously compared the characteristics of those for whom birth weights were found and the entire cohort—the two groups are broadly similar according to age, sex, and childhood socioeconomic position.

Both self reported birth weights and those collected from official records were recorded in pounds and ounces; these have been converted to kilograms for the purpose of this analysis. To investigate the validity of the self reported birth weights we calculated the mean difference between self report and recorded birth weight, the limits of agreement and the correlation between the two measures. It is possible that respondents may have been better at recalling the "pound" part of their weight, but less likely to recall or record the "ounce" part correctly. To investigate this we also estimated the extent of approximate, rather than one to one, correspondence between the two sets of data. To assess the accuracy of classifying subjects into categories of low, average and high birth weight we divided subjects into three groups—(<2.5 kg, 2.5–3.5 kg and >3.5 kg) using the self report data and calculated the agreement between recorded and self report measures using the κ statistic. Linear regression was used to investigate the influence of socio-demographic factors on accuracy of recall with differences between self report and actual birth weight as the dependent variable.

Results

Altogether 1647 (52%) of the 3182 subjects sent questionnaires returned them and 46% (752) of these reported their birth weight. Compared with non-responders, questionnaire respondents tended to come from more affluent social backgrounds but there were no

Department of Social Medicine, University of Bristol, Canynge Hall, Whiteladies Road, Bristol BS8 2PR

Correspondence to: Dr Gunnell (D.J.Gunnell@bristol.ac.uk)

Accepted for publication 13 March 2000