

Letters to the Editors

Checklist for the methods section of dietary investigations

We write on behalf of the UK Nutritional Epidemiology Group. This is an informal group of individuals in research institutes and academic departments involved in the measurement of dietary intake and in research into appropriate methodology for such measurement.

We value the quality of the editing in many journals which publish articles on nutrition. There are many occasions, however, when because of differences in editorial practice it is difficult to make an informed interpretation of the results which are presented.

We are, therefore, proposing that a consistent standard of editing of articles on nutrition be widely adopted. To that end, we give below a checklist of the information which we believe to be necessary if a dietary assessment method is to be described adequately. Without this information the results of many dietary studies cannot be evaluated properly.

We suggest that authors consult the checklist before submitting papers for publication in order to ensure that their dietary methods are described fully. We would also recommend that, where questionnaires are used, authors include in full any questionnaires used (even if much reduced in size) as an Appendix, or give a reference if it has already been published. If publication is not practicable we suggest that the authors be required to submit a copy of any questionnaire used for purposes of peer review.

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CHECKLIST FOR THE METHODS SECTION OF DIETARY INVESTIGATIONS

A dietary assessment method given the same name by different investigators has the same broad approach but may differ in detail. It is, therefore, essential that methods are fully described in published papers.

I. Sample characteristics

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| 1. Sample (and control) recruitment | How subjects were recruited; sampling framework; numbers contacted, recruited and completing study; reasons for non-completion; use of incentives. |
| 2. Sample (and control) characteristics | Age, sex; height; weight; social class; other demographic/clinical information; whether sample represents the population studied; geographical coverage. |
| 3. Other information relevant to response or interpretation of results | For example: timing in relation to disease processes; timing in relation to interventions; timing in relation to season. |

II. Method of dietary assessment

A. Information required for all methods

4. Method of dietary assessment See under **III. Definitions of dietary assessment methods**
5. Validity of the method Rationale for choice of method; whether instruments used have been pre-tested on a similar population; whether method has been validated against another dietary method or external markers of intake; whether the repeatability has been assessed.
6. Method used for quantifying portions See under **IV. Definitions quantifying portions**
Specify: source of 'average' portions; details of aids used to help quantifying portions; scales used for weighing; method of quantifying unweighed foods in a weighed record.
7. Food composition database used for the analysis Which database was used; how foods were dealt with which were not in the database; any supplementary analytical work.
8. Interviewers or field workers Whether qualified (dietitians/nutritionists); training given to unqualified field workers; whether the same workers both collected and coded the data.
9. Data collection procedures Where and how data were collected (home/clinic/by interview (face-to-face or telephone)/self completed (by post or by computer)); number of interviews per subject; duration of interviews.
10. Checking procedures When and how often records were checked with respondents; any checks for coding errors; any checks on the consistency of field workers.

B. Information required specific to different methods

11. Recall method How many and which days recalled; whether all days of the week were included; if not, whether results were weighted.
12. Diet history Attempted time scale (current/recent past/distant past/season/whole year). Open-ended questions or fully structured interview; structure of interview (did it start with a 24 h recall, did it take each meal or each day of the week in turn to build up a picture of the diet, did it include any cross checks for types or frequency of foods consumed, were the subjects given any prompt lists).
13. Food frequency (and amount) questionnaires Whether interviewer-administered or self-completed; rationale for the choice of foods; whether instrument was pre-tested in a similar population; foods covered and options for frequency.

14. Study-specific questionnaires Whether interviewer-administered or self-completed; rationale for the form of the questionnaire; whether the instrument was pre-tested in a similar population; include the questionnaire as an appendix (see *General note on questionnaires*).
15. All record methods How many and which days were studied; whether all days of the week were included; if not, whether any adjustment or weighting was used; how food eaten away from home was quantified; what instructions and equipment were given to the respondent.

General note on questionnaires

It is desirable for the questionnaire to be included as an appendix even if much reduced in size. This best describes the methods, since it shows the questions asked and the foods and frequencies chosen. For the instrument to be 'available from the authors' is unsatisfactory, since it does not permit immediate evaluation of the study and in later years is unobtainable. At the very least a copy of the questionnaire must be made available for review purposes.

III. Definitions of dietary assessment methods

Dietary assessment. A blanket term for any method. Past intake may be assessed by interview or questionnaire and present intake by records at the time of eating. Either approach may be qualitative or quantitative.

A. Interview techniques

Dietary questionnaire. This phrase has no precise meaning. It is not an adequate description.

(1) *Diet recall.* The respondent is asked to recall the actual food and drink consumed on specified days, usually the immediate past 24 h (24 h recall) but sometimes for longer periods.

(2) *Diet history.* The respondent is questioned about 'typical' or 'usual' food intake in a 1–2 h interview. The aim is to construct a typical 7 d eating pattern. The interview may discuss each meal and inter-meal period in turn or each day of the week in turn. Questions are usually open-ended, although a fully structured interview may be used. The diet history may be preceded by a 24 h recall and/or supplemented with a checklist of foods usually consumed.

(3) *Food frequency (and amount) questionnaire (FFQ).* The respondent is presented with a list of foods and is required to say how often each is eaten in broad terms, such as x times per day/per week/per month, etc. Foods listed are usually chosen for the specific purposes of a study and may not assess total diet. The FFQ may be interviewer-administered or self-completed. Assessment of the quantities of food consumed on each eating occasion/day may also be included.

(4) *Study-specific dietary questionnaire.* A term covering all dietary assessments using a set of pre-determined questions but not conforming to any of the classic techniques defined above. The method is defined only by the questionnaire itself. The questionnaire may be interviewer-administered or self-completed.

B. Record techniques

Diet Record. A blanket term for all record methods. In American literature the term is often used without qualification but with 'quantified in household measures' understood. Since there are other forms of record it is an inadequate description. A *record* is of actual food and drink consumed on specified days after the first contact by the investigator. The number of days recorded classically is seven but may be fewer or more.

(5) *Menu record or food frequency record* (the first term is preferable to avoid confusion with food frequency questionnaire). Record obtained without quantifying the portions. It may be subsequently analysed in terms of frequencies of consumption, or the investigator may assign 'average' weights to portions. Because the respondent does not indicate quantity there can be no attempt to identify the true weight of individual portions (cf. *estimated record*).

(6) *Estimated record.* A record with portions described in household measures (cups, spoons, etc.) with or without the aid of diagrams or photographs. This method aims to estimate the actual quantity eaten.

(7) *Weighed record (Weighed inventory technique).* Record with weights of portions as served and the plate waste. (Weighed records are rarely fully weighed; estimated portions are usual for food eaten away from home.)

(8) *Precise weighed record.* A record kept by the respondent of all ingredients used in the preparation of meals, also inedible waste, total cooked weight of meal items, cooked weight of individual portions and plate waste.

(9) *Cardiff photographic record (Elwood & Bird, 1983).* Respondent photographs food on the plate at the time of consumption. Portions are quantified by comparison with reference photographs of portions of known weight projected alongside the survey photographs.

(10) *Semi-weighed method for measuring family food intake.* Method of Nelson & Nettleton (1980). Total quantity of food served to a family is weighed and quantities served to individuals are given in household measures. The term is sometimes mistakenly used for a *Weighed record* where the authors acknowledge that not all food is in fact weighed.

C. Techniques of direct analysis

(11) *Duplicate diets.* Respondent keeps a weighed record and also weighs out and puts aside a duplicate portion of each food as consumed for later analysis by the investigator.

(12) *Aliquot sampling technique.* Respondent keeps a weighed record and puts aside aliquot samples of food as consumed for later analysis.

(13) *Equivalent composite technique.* Respondent keeps a weighed record. Subsequently a combined sample of raw foods, equivalent to the mean daily amounts of foods eaten, is made up by the investigator for analysis.

IV. Definitions quantifying portions

Qualitative (or unquantified) assessment. An assessment made only in terms of foods eaten, usually by counting frequency of consumption.

Quantitative assessment. A dietary assessment that quantifies the portions of foods eaten in order to calculate nutrient consumption.

(a) *Average portions.* Investigator assigns 'average' portion weights derived from previous studies or experience. 'Small', 'medium' or 'large' may also be used to indicate portion size in relation to the 'average'.

(b) *Household measures.* Respondent describes portions in terms of household measures e.g. cups, spoons, etc. 'Standard' weights are assigned to the descriptions.

(c) *Photographic measures.* Respondent is shown photographs of portions of known weight and asked how their own portion relates to the pictured portion. (Not to be confused with the *Cardiff Photographic Record*.)

(d) *Food models/replicas.* Respondent is shown three-dimensional models representing foods and asked how their own portion relates to the models. Models may be realistic replica foods or a variety of neutral shapes and sizes.

(e) *Weighed.* Respondent weighs and records each food item as it is consumed.

V. Computerized assessments

The phrase '*computer assessment*' does not define a method. Assessments conducted by computer should be described in the terms defined above.

Computer-conducted assessments differ from person-conducted assessments in the mechanics used. The computer may substitute for the paper and pencil of a self-completion questionnaire, or it may substitute for the interviewer in a diet history by fully structured interview.

Computerized interviewing may be combined with nutrient analysis to provide 'instant' information on nutrient intake. Here the assumptions necessary to code foods and quantify portions are built into the program. The computer substitutes for the investigator in performing the post-interview coding tasks.

Elwood, P. C. & Bird, G. (1983). A photographic method of diet evaluation. *Human nutrition: Applied Nutrition* **37A**, 474-477.

Nelson, M. & Nettleton, P. A. (1980). Dietary survey methods. I. A semi-weighed technique for measuring dietary intake within families. *Journal of Human Nutrition* **34**, 325-348.

The European Nutrition Leadership Programme

The impact of nutrition in health and disease is receiving increased attention by those involved in agriculture, the food industry and the development of public policy. Consumers are becoming increasingly concerned with nutrition, but results of scientific research are not always well accepted by the public. Therefore, it was suggested that a PhD summer course should focus on awareness and skills required for future leaders in their new roles in advocacy and policy development in the field of human nutrition.

A questionnaire was developed to investigate the interest in a course for PhD students and postdoctoral fellows. Along with information about the number of PhD students and their educational background, their education during their research work, the ideas that exist for topics in such a course and the financial aspects of it, information was gathered about the feeling of belonging to the European nutrition community, described as the 'corporate identity'. The questionnaire was sent to 335 people assumed to be working in the field of nutrition sciences. Addresses were derived from lists of participants to European collaborative studies, congresses, authors, and organizations of nutritionists. One month after the deadline, eighty-five questionnaires from nineteen European countries were received back. Ten letters were received separately.

Seventy-five per cent of the questionnaires were returned by people working in institutes with PhD students. The background of these students was very diverse. Besides the expected education on human nutrition and medicine, almost everything from Sociology to Biochemistry was present. Most students start PhD work having an MSc degree, except for students from the United Kingdom where a BSc is also common. Fifty-two of the sixty-four centres with PhD students provide education to their students, mostly courses directly

related to the subject of research, general courses in human nutrition and courses improving general knowledge. Also, many other courses were mentioned.

The present 'corporate identity' between nutritionists in Europe is mentioned to be '(very) weak' by 47% and '(very) strong' by 24% of the respondents. Ninety-one of the respondents think that a stronger feeling of 'corporate identity' would benefit European nutrition(ists), and all respondents think that a summer course at least might stimulate the corporate identity. Ninety-eight per cent of the respondents consider a summer course potentially to be a useful extension of the training for PhD students.

A discussion about the topics of the course programme illustrates the different backgrounds of the respondents and their students. While several respondents think that in this course the interaction between industry and university is extremely important, others merely want a course to specialize in laboratory techniques, epidemiology or clinical nutrition. Where respondents are asked to propose other topics, it is clear that 'nutrition and the European Community' is felt to be very important (legislation, fund-raising). Most respondents (76%) stress that external financial support should be sought to meet the costs of running such a course. The amount of money that respondents are willing to pay, if any, varies between 130 and 3000 ECU. Ninety-nine of the respondents with students would encourage their students to take part in the course for a wide variety of reasons. Mostly, the improvement of international contacts in the field of nutrition is mentioned to be the reason for this. This leads to the conclusion that the generation of a corporate identity is considered more important than the specific goals of such a course to improve relations between industry and university. From institutes of the respondents, about eighty-five PhD students per year are eligible to take part in the course in the next three years.

The initiators of this proposal were, amongst others, the following persons: N. G. Asp (Sweden), A. J. Balfourt (The Netherlands), A. Ferro-Luzzi (Italy), J. G. A. J. Hautvast (The Netherlands; coordinator), W. P. T. James (U.K.), O. Korver (The Netherlands), E. Lanzola (Italy) and K. Pietrzik (Germany; coordinator).

A detailed report of the study is available on request.

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