

Food4Me's food frequency questionnaire proves valuable as accurate dietary assessment tool

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Researchers from the EU-funded Food4Me project have validated the use of their online Food Frequency Questionnaire (FFQ), a method for assessing dietary intake that requires respondents to select the frequency of food and drink products consumed over a period of time. Results of two repetitions of this web-based questionnaire were measured against findings from a four-day weighed food record (WFR), often considered the most accurate measure of food consumption in dietary intake assessments. Results show that the Food4Me FFQ is a reliable and accurate tool for nutritionists, dietitians and nutrition researchers, as well as being easy to use by participants.

Poor nutrition is increasing; this has led to a rise in the number of people developing diet-related diseases. To address this, it is important to be able to accurately assess the outcomes from dietary interventions. The main methods used are FFQs, WFRs and 24-hour recalls, where a participant records all food and drink consumed in the previous 24-hour period. The WFR involves weighing all consumed food from three-to-seven days and requires the most time and effort, but the FFQ and the 24-hour recall can be subject to reporting bias, since participants are required to report food consumption from memory.

In the current study 100 participants, recruited by the University of Reading, UK, provided information about their average food intake over the previous month. Participants selected consumed food and drink from 157 options, which were classified into 11 different categories.

Photographs and descriptions were used for portion size selection and written statements were used to describe frequency of consumption. By multiplying the portion size (in grams) by how often the participant consumed a given food, researchers could determine food intake (grams /day). Researchers asked participants to complete the questionnaire twice, four weeks apart, to confirm the results could be reproduced.

To determine the accuracy of the FFQ for measuring dietary intake, half of the participants were also asked to fill in a four-day WFR, one week after completion of the first FFQ.

To understand which method was the most user-friendly, the second group was asked to complete a usability-rating questionnaire, measuring factors such as time, how easy or interesting each method was, willingness to use each method in the future and whether each method helped participants to reflect on their food intake.

Statistical analyses were used to measure differences in nutrient, energy and food group intake between the first and second FFQ, and the first FFQ and the four-day WFR.

Between FFQ1 and FFQ2 the highest correlation in food and drink consumption was for alcohol intake.



Energy intake was found to be significantly lower in the second FFQ compared to the first (by 135 kilocalories / day), but no significant differences were found between nutrient intake, except for carbohydrates. Researchers concluded that results between the two FFQs were reproducible.

When researchers compared results of the first FFQ and the four-day WFR, saturated fatty acid and monounsaturated fatty acid intake, as well as vitamin and mineral intake, were significantly higher and carbohydrate intake was significantly lower for the FFQ. The difference in energy intake was 178 kilocalories / day showing strong agreement between both assessments. Differences in mean food intake were highest for yoghurts. Overall, there was a moderate correlation for energy and nutrient intake between the FFQ and four-day WFR, confirming validity of the Food4Me FFQ as an accurate assessment tool.

Study participants also reported that the Food4Me FFQ was both easier and less time consuming to use, although the four-day WFR was considered by participants to be more interesting to complete as it made them reflect more on their food intake. For this reason, there was a greater willingness to complete an FFQ in the future.

Recruitment of participants for the current study took place in a higher education setting, meaning more people may have been able to complete the questionnaire. The authors suggest that the high level of replicability demonstrated by the study's results could be attributed to the use of photographs to estimate portion sizes. The short time span between administrations of the two questionnaires may have also contributed to its success.

For further information:

[Fallaize R, Forster H, Macready A, et al. \(2014\). Online Dietary Intake Estimation: Reproducibility and Validity of the Food4Me Food Frequency Questionnaire Against a 4-Day Weighed Food Record. Journal of Medical Research, 16 \(8\): e190. DOI: 10.2196/jmir.3355.](#)

[Forster H, Fallaize R, Gallagher R, et al. \(2014\). Online Dietary Intake Estimation: The Food4Me Food Frequency Questionnaire. Journal of Medical Research, 16 \(6\): e150. DOI: 10.2196/jmir.3105.](#)