myfood24: development and validation of a UK online 24h recall dietary assessment tool

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BACKGROUND & AIM

Reliable assessment of diet requires accurate and repeated measurements. An internet based tool may provide a useful way to support dietary assessment, obtaining real time feedback on food and nutrient intakes.

Potential benefits of an internet based 24h recall

- Reduced underreporting compared to food-frequency questionnaires
- Extensive food tables can be incorporated
- Up-front coding and cleaning of responses reduces workload
- Can relatively easily be adapted for different countries & ethnicities
- A multiple pass method can be adopted without increasing participant frustration

AIM

To report on the development and validation of an internet based 24h recall tool, myfood24.

TOOL DEVELOPMENT

myfood24 was developed in 5 stages:

Stage 1: Formative research
- Literature Review
- Previous experience (My Meal Mate)
- Informal expert interviews

Stage 2: Focus group studies
- Adolescents (11-18 years), adults (19-64) and older adults (≥65)
- Visual design (Look, feel & layout)
- Information design (Navigation, information content, requirements)
- User needs (Rewarding, easy to use)

Stage 3: Development of myfood24 beta-version
- Develop design specification for software developers
- In-house testing/feedback on clay-model

Stage 4: Usability & acceptability studies - beta
- Adolescents (11-18 years), adults (19-64) and older adults (≥65)
- Testing with 24 hour recall (free living)

Stage 5: Develop full functional system of myfood24
- Final testing before live launch
- Validation study
- Ongoing feasibility studies

FOCUS GROUP INTERVIEWS

Results varied by age group: tool must be quick to use; food portion images were important; design to be ‘health neutral’; provide feedback.

(Carter et al. 2015)

VALIDATION STUDY

STUDY DESIGN

212 participants completed 2 x on-line 24h recall and 2 x dietitian administered Multiple Pass Recalls (MPR) over a 6 month period plus 2 x blood and 24hr urine collection biomarker assessment and use of an Actiheart device to estimate total energy expenditure.

LABORATORY ANALYSIS

Urinary N and potassium, plasma antioxidants (vitamin C, carotenoids and vitamin E); fructose and sucrose.

RESULTS

- myfood24 gave similar results to more costly & time consuming interviewer-based multiple pass recall
- median total E intake: men 2044 kcal (NDNS 2107 kcal); women 1613kcal (NDNS 1595kcal)
- Mean protein myfood24: 71g (95%CI 66, 75) v. 68g (95%CI 64, 73) from biomarker
- Both dietary assessment approaches (myfood24 & MPR) led to attenuation compared to biomarkers

ACKNOWLEDGEMENTS:

REFERENCES:

Dietary Assessment for Researchers and Health Professionals

Visit myfood24.org for a demo & more information.