

Nutritional Epidemiology Group
School of Food Science and Nutrition UNIVERSITY OF LEEDS

Making methods for dietary assessment available for the research community, lessons learnt from the Nutritools partnership.

Janet Cade

Problems..... UNIVERSITY OF LEEDS

EurekaAlert! The Global Source for Science News

HOME NEWS MULTIMEDIA MEETINGS PORTALS ABOUT

PUBLIC RELEASE: 9-OCT-2013
40 years of federal nutrition research fatally flawed
University of South Carolina study shows flaws in NHANES data
UNIVERSITY OF SOUTH CAROLINA

Did we miss some associations because of inaccurate dietary assessment?

Four decades of nutrition research funded by the Centers for Disease Control and Prevention (CDC) may be invalid because the method used to collect the data was seriously flawed, according to a new study by the Arnold School of Public Health at the University of South Carolina.

Why do we need to improve? UNIVERSITY OF LEEDS

- can't adequately answer research questions!

Reducing measurement error → Improve accuracy of usual dietary intake assessment → Strengthen associations between diet & disease

DIETARY ASSESSMENT TOOL NETWORK UNIVERSITY OF LEEDS

Nutritool website development | Best practise guidelines | Dietary Assessment Tool library | Food Questionnaire Creator

UNIVERSITY OF LEEDS | MRC | Southampton | UNIVERSITY OF BRISTOL | UNIVERSITY OF OXFORD

Prof Janet Cade | Prof Sue Robinson | Prof Elaine Maguire | Prof Andy Ness | Prof Tim Key

Southampton | MRC | IFR | Imperial College London

Dr Nicola Assaf | Dr Tobi Sore | Mr Paul Finglas | Dr Peter Wark

Reporting guidelines PLOS MEDICINE UNIVERSITY OF LEEDS

- An extension of the STROBE- statement for nutritional epidemiology and dietary assessment
- Checklist of 24 recommendations
- Use checklist together with - [STROBE-nut paper](#)

EQUATOR:
"Research reports should present sufficient information to allow a full evaluation of the presented data and further use of these findings"

Good research necessitates good reporting strategies

Strengthening the Reporting of Observational Studies in Epidemiology—Nutritional Epidemiology (STROBE-nut): An Extension of the STROBE Statement

Carl Lachat, Dana Haraoui, Marga C. Ocké, Christina Berg, Elisabet Forsum, Agneta Hørmel, Christel Larsson, Emily Sonestedt, Elisabet Wirfält, Agneta Åkesson, Patrick Kolsteren, Graham Dymov, Willem De Keyzer, John Van Camp, Janet E. Cade, Nadia Simani, Myriam Cavallos, Matthias Egger, Inge Huybrechts | [view less](#) |

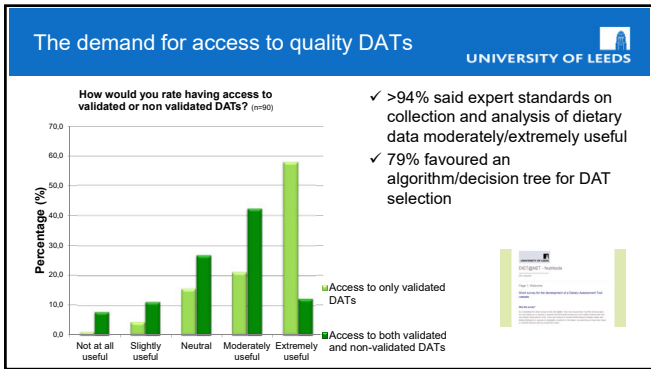
Published: June 7, 2016 • <https://doi.org/10.1371/journal.pmed.1002030>

Introducing Nutritools.org UNIVERSITY OF LEEDS

Supports dietary assessment through **guidance and access to validated dietary assessment tools**

A resource for epidemiological and clinical studies

For use in research and teaching



Best Practice Guidelines – choosing the right tool

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57 experts, 2 Delphi rounds.
4 Stages: 8 questions to consider.

Define: What you want to measure in terms of dietary intake.

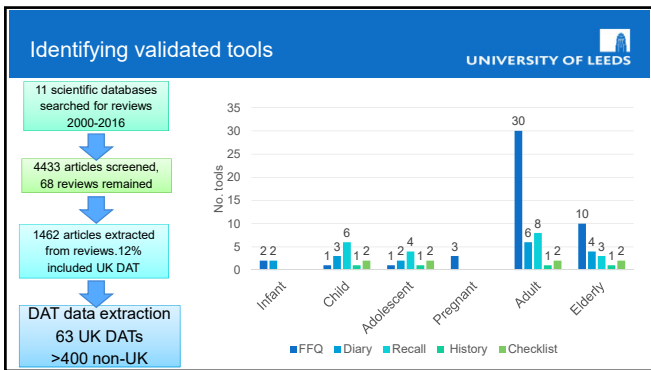
Investigate: The different types of DAT and their suitability for your research question.

Evaluate: Existing tools to fine-tune your choice of most appropriate DAT.

Think Through: The implementation of your chosen DATs.

What? Characteristics of the main dietary component of interest.
Who? Considerations around the characteristics of study participants.
When? Time frame considerations.

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Data Collection - Issues

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- >Unclear description of DATs
- >Data presented differently.
- >Different statistical tests shown.
- >Missing Data.
- >Different versions of DATs.

Amendments

- > Mean difference
- > Limits of Agreement
- > kappa

Tool Library – of 127 validated tools

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Below is a list of all the identified and validated Tools. Scroll through and select a Tool to display more information.

Tool Filter: Food Diary, Validation Method Filter, Tool Type, Age Group, Population, Reporting Method, Prospective, Retrospective, Local, Format, Other.

Validation Method Filter: Male Only, Female Only, Both, Children, Adults, Elderly, Pregnant, Children and toddlers, Adolescents, Collaborative, Energy, Macronutrients, Micronutrients, Food Groups, Food Frequency, Short, Medium, Long, Multiple, Doubly Labelled Water, Other.

Reporting Method: Retrospective, Prospective, Local, Format, Other.

Tool Name	Author
24h Recall	Bingham
24h Recall	Little
48h Recall	Price
7 day Estimated Food Diary	Bingham
7 day Food Checklist	Bingham
7 hour recall (Mediterranean region of Spain)	Schneider
CADET	Cade
Cambridge FFQ	Bingham
Day in the Life Questionnaire (DILQ)	Edmunds
DECS FFQ	Hallebecker
Diet History	Black
Diet History	Livingstone
Diet History Interview	Jackson
Dietary Instrument for Nutrition Education (DINE)	Rice
Dietary Recall Questionnaire	Murray
Dietary Targets Monitor (DTM)	Dong
DietHQ FFQ	Broadfield
Estimated Food Diary	Langan
European Community Questionnaire (Health Survey for Women)	Hopwood

Tool Library

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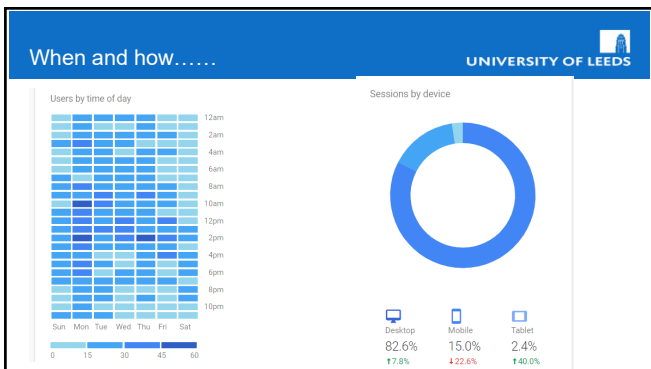
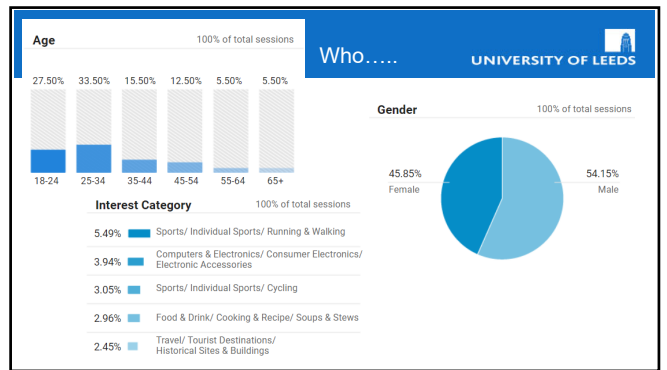
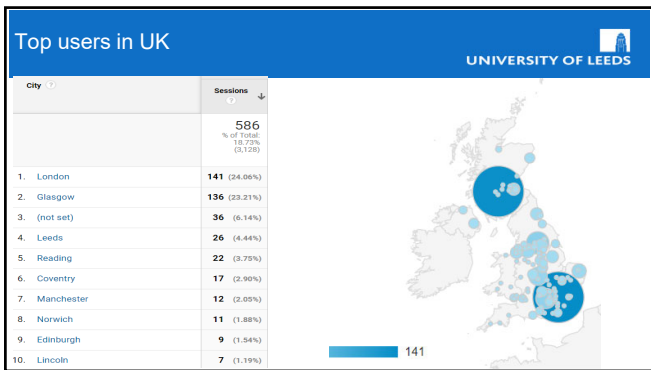
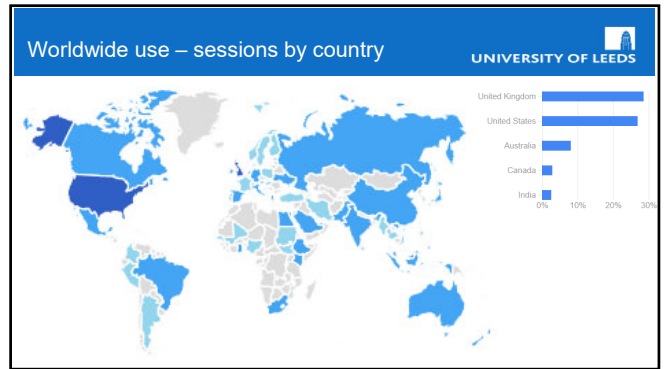
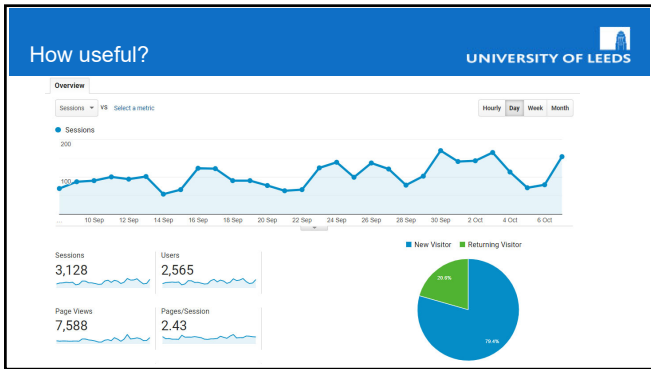
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Reporting Method: Retrospective, Prospective, Local, Format, Other.

Showing 13 tools for UK after 2010

Author/Year	Tool Name	Tool Type	Age Group	Population	Reporting Method	Prospective	Retrospective	Local	Format	Other
Cade	CADET	Food Diary	Adults	Adolescents	Retrospective				Form	
Hoopner	European Community Respiratory Health Survey-II	Food Diary	Adults	Adolescents	Retrospective				Form	
Dunn	FFQ (Inulin & Oligofructose)	Food Diary	Adults	Adolescents	Retrospective				Form	
Sofianou-Gatsoulis	FFQ (Peanut)	Food Diary	Adults	Adolescents	Retrospective				Form	
Foster	Food4Me	Food Diary	Adults	Adolescents	Retrospective				Form	
Newcastle University	INTAX24	Food Diary	Adults	Adolescents	Retrospective				Form	
Carler	My Meal Mate (MMM)	Food Diary	Adults	Adolescents	Retrospective				Form	
Carler	myfood44	Food Diary	Adults	Adolescents	Retrospective				Form	
Timon	Novel Assessment of Nutrition and Ageing method (NANA)	Food Diary	Adults	Adolescents	Retrospective				Form	
Liu	Oxford WebQ	Food Diary	Adults	Adolescents	Retrospective				Form	
Menson	Scottish Collaborative Group FFQ	Food Diary	Adults	Adolescents	Retrospective				Form	
Chapman	Short Form FFQ	Food Diary	Adults	Adolescents	Retrospective				Form	
Hillier	Synchronised Nutrition and Activity Program Adults (SNAPA)	Food Diary	Adults	Adolescents	Retrospective				Form	



Priorities for action:
big data for food monitoring research

- Eliminate handwritten data (digitise)
- Invest in IT systems, including analysts
- Develop better predictive analyses
- Move from retrospective troubleshooting to problem prevention
- Use structured and unstructured data
- Develop public-private partnerships
- Develop strategies to ensure data quality



<http://www.foodqualityandsafety.com/article/can-big-data-revolutionize-food-safety/>

How could FNH-RI help?

- Support further addition of other European validated tools
- Develop Food Questionnaire Creator for other countries
- Host new forms of data
- Provide standards for epidemiological research of diet

