



## Nutrition resources in longitudinal studies; what can we learn from each other?

EUCCONET International Workshop: 18<sup>th</sup> & 19<sup>th</sup> October 2011 Bristol, UK

**Organisers:** Kate Northstone and Pauline Emmett, School of Social and Community Medicine, University of Bristol, UK

### Scientific Report

#### 1. Summary

Detailed data on diet and nutrition has been collected on children (and their parents) in several European longitudinal studies. There is huge potential for collaborative studies using these resources which is virtually untapped at present. The purpose of the workshop was to increase our understanding of how the nutrition & diet resources of various longitudinal studies can be used to their maximum scientific potential and to facilitate collaborations between the studies thereby adding substantial value to the data that has been collected individually.

The workshop brought together many experienced researchers and PhD students currently working on a range of nutrition resources available through European longitudinal studies. The programme for the two-day workshop was based on a large number of presentations which were split into two groups: the first group of presentations which took place on the first morning briefly described the nutrition resources that were represented at the workshop. The second group of presentations (straddling both days) was centred around on-going analyses and research results from the studies and it was divided into a number of subtopics. The final session of the workshop provided an opportunity to discuss how best to take things forward and encourage future collaborative project.

The workshop was attended by delegates from 11 European countries plus Australia, Japan and the USA, representing 14 cohort studies; a quarter of delegates were PhD students.

## 2. Scientific Content and Discussion

The first session of the workshop included short, sharp presentations from thirteen different cohort studies across Europe. The majority of these had substantial dietary data already available from two generations within families. It was agreed that it would be really useful to summarise this data into an easily accessible table which we could attempt to get published in a peer-reviewed journal. However, issues of authorship and which journal to go to were not discussed in detail, though it is likely that KN would take this forward with any other primary authors (who provide substantial input) and acknowledge all presenters/contributors in the acknowledgements.

Due to the large number of presentations we have chosen not to summarise all the talks here. All the powerpoint presentations are all available on the EUCCONET website and also from the organiser (KN). Just looking at the programme and the presentation titles it is abundantly clear that there is a wealth of expertise that could be utilised across cohorts. There was a clear duplication of effort in the areas of dietary methodology and statistical methods. By communicating with each other, successful collaborations could be forged and encourage to the spread of best practise.

Despite the large number of studies across Europe that have collected dietary data, it can be seen from the programme that only three presentations focussed on on-going comparative analyses across different sites. The primary focus of the discussion session considered the difficulties in performing such studies and in funding this type of analysis. The following points emerged from this final discussion session:

- It was agreed that a summary table of dietary data within cohorts including contact details would be useful. This could form the basis of a publication possibly including a report of this workshop. Further details on the lessons learnt about productive ways of using dietary data (e.g. dietary patterns analysis, longitudinal analysis etc) could be included.
- The possibility of a future meeting of researchers with an interest in diet was discussed. It was agreed that this meeting had been very useful but a lack of funding would be the deciding factor in organising a repeat event. It was suggested that smaller working groups (based on areas of interest) could meet more readily with more manageable agendas. Another suggestion was to organise satellite meetings to major conferences such as ICDAM or CELSE. However, this would be a large commitment for anyone to take on.
- There was discussion around potentially arranging a consortium and/or some kind of pooling project (using ICAD as the physical activity example: <http://www.mrc->

[epid.cam.ac.uk/Research/Studies/ICAD/index.html](http://epid.cam.ac.uk/Research/Studies/ICAD/index.html)) again this would need substantial commitment and funding to make such a project a success.

- It was clear that there are many methodological issues affecting several research groups that need exploring. The issues specifically discussed included measurement error and confounding structures in different populations.
- Comparative analyses would be hugely beneficial and potential funding streams for such comparative analyses were discussed, with EU funding appearing to be the primary source.
- A number of areas regarding potential collaborative work were considered and included:
  - Tackling policy implications; the economics of food/eating and some qualitative work leading to a translation into possible intervention studies;
  - Exploring whether fruit and vegetable consumption really matters? This could be examined by considering a number of different outcomes and also examining exactly how much is important? Another question would be what types of fruit and vegetables are important?
  - Eating behaviours/psychology - How/where/when do we consume - this is an emerging area of research which several delegates expressed an interest in;
  - Food environment and availability and subsequent effects on health;
  - What are the characteristics of a healthy diet in contemporary children?

Despite all of these potential collaborative projects that could be performed, the funding and organisation required to take them forward would be substantial. Other problems identified that such collaborations would need to overcome included the different methods of dietary data collection and not having the same or compatible variables including confounding variables available across the cohorts.

### **3. Assessment of the results and impact of the event**

The presentations were all excellent and very well received with plenty of questions offered after each one. As a result, we are confident that the workshop raised awareness about a) the other European cohort studies that exist, which have substantial nutrition resources available and b) the wide range of research activities that are taking place across the world in nutritional epidemiology. Not all delegates were aware of all the different studies and the resources that they could offer to potential collaborators. Throughout the duration of the workshop there were many individual discussions during the available networking time.

These primarily revolved around seeking advice on data collection and statistical methods, potential collaborations and clarification on individual's research.

We attempted to bring all of this together in the final session. We used this time to summarise the workshop, to identify the burning issues and gaps in current nutritional research and finally, to discuss the ways in which we could take possible collaborations forward as described above. Fundamentally, it was agreed that the biggest problems were related to a) the leadership of collaborative studies; who would lead and how would this relate to the individual studies? And b) the funding sources for these potentially large comparative studies that require substantial organisation and coordination. One possible way forward would be to influence the calls put out by the EU for future research projects. These are constantly up dated and there is potential to suggest important collaborative pan-European projects.

We did not formally evaluate the workshop by gathering feedback from the delegates at the time, but have only ever received positive comments both immediately after the workshop and for some time afterwards. As we have met delegates in other professional situations they have all asked when the next meeting will be! The general consensus was that the take home message from the workshop was clearly that sharing expertise can only help to raise the standard of research output and spread best practice in the field of nutrition.

## Annex 1: Final programme

### Tuesday 18<sup>th</sup> October

10.00 - 10:30: Registration & coffee

10:30 - 10:45: Welcome and Introduction by Pauline Emmett

10:45 – 12:15: **Setting the dietary data scene**, chaired by Pauline Emmett;

5 minute talks providing an overview of the nutrition resources from the represented cohorts

Pauline Emmett	ALSPAC, UK
Sian Robinson	Southampton Women's Study, UK
Manon van Eijsden	Amsterdam Born Children and their Development (ABCD)
Jolien Steenweg-de Graaff	Generation R, The Netherlands
Kristine Vejrup	Norwegian Mother and Child cohort (MoBA)
Blandine de Lauzon-Guillain	EDEN and ELFIE, France
Richard Layte	Growing up in Ireland
Marie Standl	GINI and LISA, Germany
Andreia Oliveira	Generation XXI, Portugal
Annick Xhonneux	Childhood Obesity Project (CHOP), EU multicentre trial
Sesilje B Petersen	National Danish Birth Cohort
Jesus Vioque	INMA, Spain
Leda Chatzi	RHEA, Crete

12.15- 12.35: **New tool and demonstration**, chaired by Pauline Emmett

Janet Cade	"My Meal Mate" (MMM) a new smart phone application for weight loss: evaluation of its potential as a dietary assessment tool.
------------	-------------------------------------------------------------------------------------------------------------------------------

12:35 - 13:35: *Lunch*

13:35 - 14:15: **Comparative analyses**, chaired by Sian Robinson

Michelle Mendez	Dietary intakes during pregnancy across Europe: A collaborative multi-country analysis
Blandine de Lauzon-Guillain	Early parental feeding practices and later fruit and vegetable intake in 4 European birth cohorts

Leda Chatzi Mediterranean diet adherence during pregnancy and fetal growth: INMA (Spain) and RHEA (Greece) mother–child cohort studies

14:15 - 15:30: **Patterns and indices**, chaired by Kate Northstone

Gina Ambrosini Reduced Rank Regression (RRR) – a powerful method for identifying *a-priori* empirical dietary patterns

Rebecca Golley An index measuring adherence to weaning guidelines has face validity as a measure of infant diet quality

Andreia Oliveira The Southern European Atlantic diet index – definition and effects on cardiovascular health

Andrew Smith Dietary patterns in the ALSPAC cohort: Cluster analysis

Jessica Kiefte-de Jong Socio-demographic and lifestyle determinants of dietary patterns in toddlers

15:30 - 16:00: *Coffee break*

16:00 - 17:30: **Biomarkers**, chaired by Jean Golding

Jean Golding Dietary predictors of mother’s prenatal blood mercury level

Jolien Steenweg-de Graaff Maternal folate status in early pregnancy and child behavioral development. The Generation R Study.

Marie Standl FADS1 FADS2 gene cluster, PUFA intake and blood lipids in children. Results from the GINIplus and LISApplus studies.

Sarah Bath Investigation of the effect of maternal iodine status on cognitive outcomes in the offspring

Carolina Bonilla Vitamin B12 status during pregnancy and lactation and child’s IQ at age 8: A Mendelian randomization study in the Avon Longitudinal Study of Parents and Children

Kristine Vejrurp Reuse of results from analysis done on biological material in the Norwegian Mother and Child cohort study (MoBa)

Nisreen Alwan Maternal iron in pregnancy and offspring’s cardiovascular risk: an example of using data from multiple longitudinal studies to address a scientific hypothesis

18.30: Meet at the hotels for a guided walk to the restaurant on the Bristol Waterfront

19.00: Meet at Bordeaux Quay to order from menu

19:30: Dinner at the Bordeaux Quay

## Wednesday 19<sup>th</sup> October

9:30 - 11:00: **Dietary behaviours and eating habits**, chaired by Nadia Micali

Louise Jones	Dietary variety in toddlers and preschool children
Nadia Micali	Eating patterns in a population-based sample of children aged 5-7: association with psychopathology and parentally perceived impairment
Cathal McCrory	Breastfeeding and risk of overweight and obesity at nine years of age: results of an Irish cohort study.
Megan Jarman	Better maternal diet and a covert style of control over children's eating habits improve the quality of children's diets.
Suzana Al Moosawi	Circadian dietary rhythms: secular trends and associations with cardiometabolic risk factors in the 1946 British birth cohort
Sesilje B Petersen	Socio-demographic characteristics and food habits of organic consumers: A study from the Danish National Birth Cohort

*11:00 - 11:30: Coffee break*

11:30 - 13:00: **Longitudinal analysis**, chaired by P.K. Newby

Laura Howe	Longitudinal analysis of diet data from the Avon Longitudinal Study of Parents and Children
Abigail Easter	Growth Trajectories in the children of mums with eating disorders:
Lisa Smithers	Diet pattern trajectories from 6 to 24 months and intelligence quotient (IQ) at 8 years of age
Gina Ambrosini	Tracking dietary patterns in longitudinal studies
P.K. Newby	A Tale of Two Challenges Conducting Longitudinal Studies in Children and Adolescents: Accurately Measuring Diet and Body Composition in ALSPAC

*13:00 - 14:00: Lunch*

14:00 - 15:30: **The way forward**, chaired by Andy Ness

General discussion resulting from the two days led by Andy Ness

*15:30: Close; Coffee and tea available until 16:00*

## Annex2: full list of speakers and participants.

Name	Organisation	E-mail
Al Moosawi, Suzana	MRC human nutrition research, Cambridge	Suzana.AlMoosawi@mrc-hnr.cam.ac.uk
Alwan, Nisreen	University of Leeds	n.alwan@leeds.ac.uk
Ambrosini, Gina	MRC human nutrition research, Cambridge	Gina.Ambrosini@mrc-hnr.cam.ac.uk
Appannah, Geeta	MRC human nutrition research, Cambridge	Geeta.Appannah@mrc-hnr.cam.ac.uk
Bath, Sarah	University of Surrey	s.bath@surrey.ac.uk
Bonilla, Carolina	University of Bristol	C.Bonilla@bristol.ac.uk
Cade, Janet	University of Leeds	j.e.cade@leeds.ac.uk
Chatzi, Leda	University of Crete	lchatzi@med.uoc.gr
Cribb, Vicky	University of Bristol	Vicky.Cribb@bristol.ac.uk
de Lauzon-Guillain, Blandine	INSERM, France	blandise.delauzon@inserm.fr
Duarte Salles, Talita	CREAL, Spain	talitaduarte.salles@gmail.com
Easter, Abigail	Institute of Psychiatry, London	abigail.easter@kcl.ac.uk
Emmett, Pauline	University of Bristol	p.m.emmett@bristol.ac.uk
Gispert, Mariona	Universitat Rovira i Virgili, Reus, Spain	mariona.gispert@urv.cat
Golding, Jean	University of Bristol	jean.golding@bristol.ac.uk
Golley, Rebecca	University of South Australia	rebecca.golley@unisa.edu.au
Haugen, Margaretha	Norwegian Institute of Public Health	margaretha.haugen@fhi.no
Howe, Laura	University of Bristol	laura.howe@bristol.ac.uk
Jarman, Megan	University of Southampton	mj@mrc.soton.ac.uk
Jones, Louise	University of Bristol	louise-rena.jones@bristol.ac.uk
Kieft-de Jong, Jessica	Erasmus Medical Center, Rotterdam	j.c.kieft-dejong@erasmusmc.nl
Layte, Richard	The Economic and Social Research Institute, Dublin	Richard.layte@esri.ie
Lennox, Alison	MRC human nutrition research, Cambridge	Alison.lennox@mrc-hnr.cam.ac.uk
McCorry, Cathal	The Economic and Social Research Institute, Dublin	cathal.mccorry@esri.ie
Mendez, Michelle	University of North Carolina-Chapel Hill	mmendez@creal.cat
Micali, Nadia	Institute of Child health, London	n.micali@ucl.ac.uk
Ness, Andy	University of Bristol	Andy.Ness@bris.ac.uk
Newby, P.K.	Boston University, USA	<a href="mailto:pknewby@bu.edu">pknewby@bu.edu</a>
Northstone, Kate	University of Bristol	<a href="mailto:kate.northstone@bristol.ac.uk">kate.northstone@bristol.ac.uk</a>
Oliveira, Andreia	University of Porto Medical School, Portugal	acmatos@med.up.pt
Petersen, Sesilje	Danish National Birth Cohort	<a href="mailto:ssp@ssi.dk">ssp@ssi.dk</a>
Rayman, Margaret	University of Surrey	m.rayman@surrey.ac.uk
Robinson, Sian	University of Southampton	smr@mrc.soton.ac.uk
Rubio, M Carmen	Universitat Rovira i Virgili, Reus, Spain	carme.rubio@urv.cat
Sahota, Pinki	Leeds Metropolitan University	<a href="mailto:P.sahota@leedsmet.ac.uk">P.sahota@leedsmet.ac.uk</a>
Sato, Yuki	National Institute for Environmental Studies, Japan	yusato@nies.go.jp
Smith, Andrew	University of Bristol	<a href="mailto:Andrew.D.Smith@bristol.ac.uk">Andrew.D.Smith@bristol.ac.uk</a>
Smithers, Lisa	University of Adelaide, Australia	<a href="mailto:lisa.smithers@adelaide.edu.au">lisa.smithers@adelaide.edu.au</a>
Standl, Marie	Helmholtz Centre Munich	marie.standl@helmholtz-muenchen.de
Steenweg-de Graaff, Jolien	Erasmus Medical Center, Rotterdam	j.steenweg-degraaff@erasmusmc.nl



<b>Name</b>	<b>Organisation</b>	<b>E-mail</b>
Strom, Marin	Statens Serum Institut, Copenhagen	mrm@ssi.dk
Taylor, Caroline	University of Bristol	caroline.m.taylor@bristol.ac.uk
van Eijdsen, Manon	Public Health Service, Amsterdam	mveijdsen@ggd.amsterdam.nl
Vejrup, Kristine	Norwegian Institute of public health	kristine.vejrups@fhi.no
Vioque, Jesus	University Miguel Hernandez, Alicante, Spain	<a href="mailto:vioque@umh.es">vioque@umh.es</a>
Xhonneux, Annick	ULB, Brussels, Belgium	annick.xhonneux@chc.be
Zaragoza, Marta	Universitat Rovira i Virgili, Reus, Spain	marta.zaragoza@urv.cat