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EARNEST

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Title of activity: Similarities and differences in design and structure of the Danish National Birth Cohort (DNBC) and the Norwegian Mother-Child (MoBa) Cohort

Period covered from 15.04.2005 to 14.10.2010

Start date of project: 15.04.2005

Duration: 5,5 Years

Organisation Name of Lead Contractor for this report: Danish Epidemiology Science Centre, Statens Serum Institut (now: Centre for Fetal Programming, Statens Serum Institut)

Objective

To describe similarities and differences in design and structure of DNBC and MoBa.

Tasks

The two databases were examined for similarities and differences by going through assessment tools and variable lists.

Results

Overview of data collection instruments in the two birth cohorts

Danish National Birth Cohort (DNBC)

- Enrolment form (week 6-10)
- 1st telephone interview: week 12
- Food frequency questionnaire: week 25
- 2nd telephone interview: week 30
- 3rd telephone interview: six months postpartum
- 4th telephone interview: 18 months postpartum

Norwegian Mother and Child Cohort Study (MoBa)

- 1st questionnaire: week 17/ultra sound
- 2nd questionnaire: diet questionnaire, week 22
- 3rd questionnaire: week 30 of gestation
- 4th questionnaire: six months postpartum
- 5th questionnaire: 18 months postpartum
- 6th questionnaire: 36 months postpartum

Extensive comparisons across the two cohorts were undertaken. However, the present report focuses specifically on and summarises results from comparisons across the two cohorts of the Food Frequency Questionnaires (FFQs).

The time window for exposure

The time windows covered by the two questionnaires were not identical in the two questionnaires table 1. The Danish questionnaire covered 4 week in mid-pregnancy and the Norwegian questionnaire covered the first four months of pregnancy.

Table 1. Time window for the two FFQs

The Danish FFQ	The Norwegian FFQ
Were mailed to all participants in gestation week 25	Were mailed to all participants in gestation week 16-20
Covered the last 4 weeks	Covered start of gestation until week 16-20

The frequency categories

The greatest discrepancy between the two questionnaires is that the scale categories are placed in opposite direction of each other. The Danish FFQ starts with the lowest frequency and the Norwegian FFQ starts with the highest frequency of intake. The categories are listed in table 2. How this difference could affect the answers are unknown, but it is an advantage that the scales are identical.

Table 2: Frequency categories of the two FFQs

The Danish FFQ	The Norwegian FFQ
Per month: none, 1 or 2-3	Per day: 8+, 6-7, 4-5, 2-3, 1
Per week: 1-2, 3-4 or 5-6	Per week: 5-6, 3-4, 1-2
Per day: 1, 2-3, 4-5, 6-7 or 8 or more	Per month: 0, 1, 2-3

The Danish FFQ uses almost the same time scales during the entire FFQ. The highest category are depending upon the item asked for, e.g. for beverage the categories are as in table 2, but for sushi for dinner, the highest category are one or more times per day. The Norwegian FFQ uses different scales for some questions during the FFQ, e.g. bread where the scale are more detailed than in the Danish questionnaire, but the scale showed in table 2 are the one most commonly used during the FFQ, but like the Danish, the scale are truncated for some items.

General structure and order of components of the two FFQs

The general structures of the two FFQs have some similarities and some differences. Generally the questions are very similar, except for the differences in the time scale and frequencies as described above. Both FFQs have questions structured after meals, general questions about hot meals, very detailed questions about vegetables, the same questions about amount of meat and vegetables in casseroles, detailed questions about fruit, questions about organic foods and different types of water.

The major differences include that DNBC have open questions about fats on bread and for cooking, MoBa asked about genetically modified foods and MoBa asked about nausea. In table 3 the general structures for each questionnaire are presented. In the Norwegian questionnaire the first question are about the participants dietary habits and the Danish questionnaire have those questions in the end of the questionnaire, but besides this only breakfast and beverage are placed differently in the two questionnaires. It can be concluded that the structure of the DNBC and the MoBa FFQs are very similar.

Table 3 of the main compositions of the two dietary questionnaires

The Danish FFQ	The Norwegian FFQ
Number of meals	Dietary habits
Breakfast	Number of meals
Bread	Bread
Topping on bread	Topping on bread
Hot meals	Breakfast
Potatoes, rice, pasta	Beverage
Gravy and fats	Hot meals
Vegetables	Potatoes, rice, pasa
Fruit, deserts, cake...	Gravy and fats
Beverage	Vegetables
Dietary habits	Fruit, deserts, cake...
Change in habits	Genetically modified foods
Dietary supplements	Change in habits
	Dietary supplements

Red: Questions only in one of the questionnaire

Green: Questions in both questionnaires, but not in the same order

Items of the two FFQs

There are some differences in items asked about in the two FFQ's, e.g. there are more types of bread in MoBa, and there are open questions about fats on bread in DNBC and fixed answers in MoBa.

There are no eggs as topping on bread in DNBC and there are more types of coffee and tea in MoBa. Below are listed some examples of identical items, near-identical items (e.g. items where two questions in one of the questionnaires are identical with one question in the other questionnaire) and not identical items. A list of all items can be seen in appendix C. All items are in Danish and Norwegian language.

Examples of identical items (in Danish and Norwegian)

Fiskepålæg/fiskepålæg

- Sardin i olie
- Tun
- Kaviar

Varm mad med fisk

- Rødspætter, skrubber/Flyndrefisker
- Torsk, sej og lign

Examples of near-identical items (in Danish and Norwegian)

	MoBa
DNBC	
Røget sild og makrel	
Marineret sild og lign	Sild (sursild o.l.)
Makrel I tomat	Makrel/sardin i tomat
Sild	
Makrel	Makrell, sild

Examples of different items (in Danish and Norwegian)

DNBC	MoBa
Torskerogn	Svovlværpostei
Sushi	Fiskelever
Æggekage	Rensdyr steak
	Blodmat, lungemos

The calculations and underlying assumptions

There are major differences between the two cohorts in the way of calculating nutrient intake. Both cohorts use FoodCalc (www.foodcalc.dk), but the Danish and the Norwegian food tables are very different. In DNBC the data from the returned questionnaires was computerised and the daily frequencies of food intake were assessed. The categories were multiplied with standard portion sizes to obtain the daily amount of food and beverage consumed. The standard portion sizes used were medium portion sizes of Scandinavians. The standard recipes for mixed dishes were developed in the Danish Cancer Registry and were used where possible. In addition, new standard recipes were developed using popular Danish cook books (e.g. www.karoline.dk). Nutrient intakes were calculated using the programme FoodCalc (www.foodcalc.dk). This software can combine information on food items eaten, recipes, and the Danish Food Table. The Norwegian Food Table contains information of mixed dishes, thus MoBa did not develop standard recipes for nutrient calculation. Standard recipes were used to assess amounts of foods in food group as described for the Danish questionnaire.

Conclusions

The conclusion is that the food frequency questionnaires used by DNBC and MoBa are comparable and the data can be pooled for specific purposes, but the different time window should always be considered. The data level of interest should always be defined. The easiest is to keep it simple, i.e. to compare data at frequency level. When possible it is recommended to use frequencies of intake if data should be pooled, e.g. how many times per day participants have eaten fruit, vegetables or fish. There are no assumptions on this data level. If data should be pooled on food group level or nutrient level, it is recommended to make a working group with participants from the Danish and the Norwegian group, to compare the underlying assumptions of the calculations.

Next step

Further step is to ensure similar calculation principles and food group definitions across the two cohorts.