

Study design of KiESEL – a food survey of infants, toddlers and other children up to 5 years

Lahnwitz C., Parreidt N., Ehlscheid N., Greiner M., Lindtner O.

Background

KiESEL is a cross-sectional study on food consumption of children in the age of 6 month up to 5 years. KiESEL collects representative data of 1000 children in 167 sample points throughout Germany and is conducted by the Federal Institute for Risk Assessment (BfR) in the years 2014 to 2018. It is a module of the KiGGS study on health of children and adolescents in Germany, conducted by the Robert Koch-Institute. The data gained by KiESEL will update the consumption data among German children collected in 2001/2002 by the VELS-study (University of Paderborn) and will further complement the considered age-group by 5 years old children. Therefore it will provide an updated and comprehensive data base that will be used for exposure assessment, as part of risk assessment of Germany's youngest consumers.

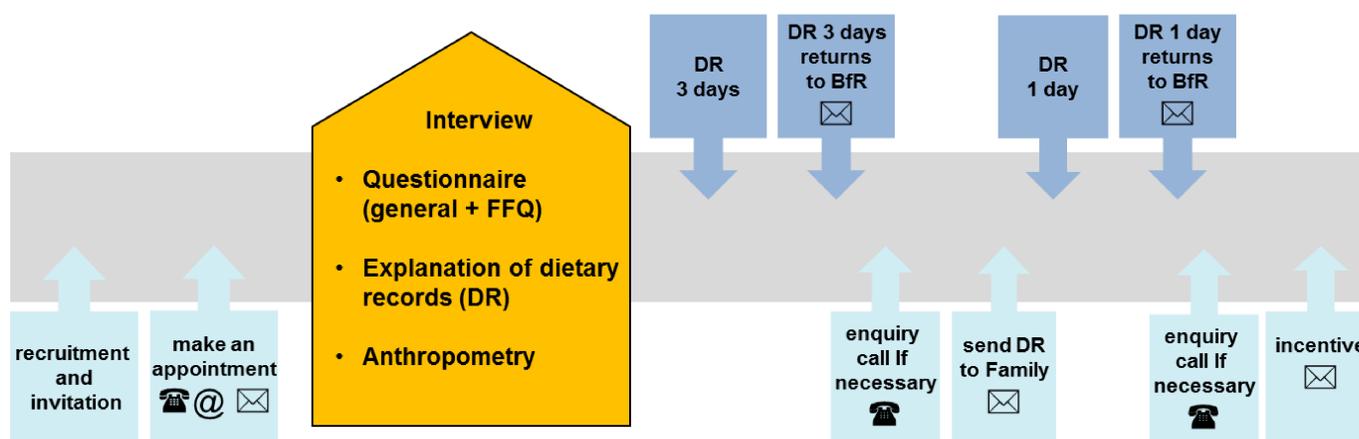


Fig. 1: Flow chart KiESEL

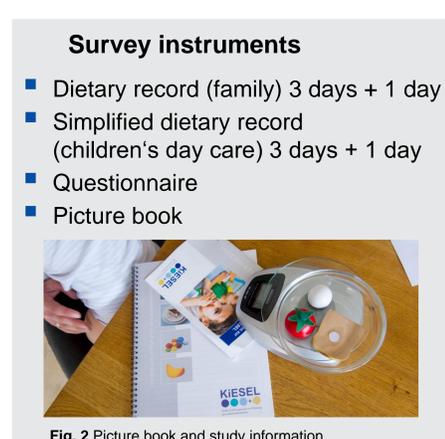


Fig. 2 Picture book and study information

Methods

- Conducted a pretest with 40 participants
- The study population of 1000 children is composed of 83 children per age and per gender. Seasonality and regional origin are included in the route planning.
- Parents and child care workers are asked to fill out a 3-day dietary record (DR) and some weeks later another independent 1-day DR (Fig. 3).
- During home visits interviewers explain the use of DR and conduct a parental interview about dietary habits (e.g. breastfeeding, formulas, dietary supplements) including a Food Frequency Questionnaire (FFQ) to cover also seldom eaten foods (Fig. 4).
- Children's weight and height are measured in a standardized manner.
- Parents are trained to measure food which is eaten at home with a standardized kitchen scale. Foods that are eaten outside the home (e.g. children's day care, restaurants) are estimated via a picture book which contains images of various foods in different portions (Fig. 2).
- Returned DR are controlled with regard to contents and plausibility. In case of missing information participants are contacted again to close the information gaps.
- The consumption data is coded with the software EAT v3 which is also linked to FoodEx2 (Fig. 5).
- Parents and childcare facilities receive an incentive.

	Nicht	< 1 Mal/ Monat	1-3 Mal/ Monat	1 Mal/ Woche	2-3 Mal/ Woche	4-5 Mal/ Woche	6-7 Mal/ Woche	K. A.
Süßstoff als Tabletten oder Flüssigkeit z. B. selbst zugesetzt zu Getränken oder Brot	<input type="checkbox"/>							
Mil Stevia gesüßte Lebensmittel wie z. B. Joghurts, Marmeladen oder Getränke	<input type="checkbox"/>							
Kalorienreduzierte Erfrischungsgetränke wie z. B. Cola light, Limonaden light, Fruchtsaftgetränke light etc.	<input type="checkbox"/>							
Kaffeersatzprodukte wie z. B. Malzkaffee	<input type="checkbox"/>							
Energy-Drinks wie z. B. Red Bull, Monster	<input type="checkbox"/>							

Fig. 4: Example of questions in the FFQ

Questionnaire

- General Information about parents and child
- Current dietary habits
- Diet in the first year of life
- Diet in children's day care
- Seldom eaten foods via FFQ
- Parents personal approach of some nutritional issues

Software: EAT v3

- Used for documentation of DR
- Is linked with the German nutrient database (Bundeslebensmittelschlüssel) and FoodEx2 for coding eaten foods (Fig. 5)
- Includes portion sizes of images in the picture book
- Option to manage new brands in the database
- Option to document recipes

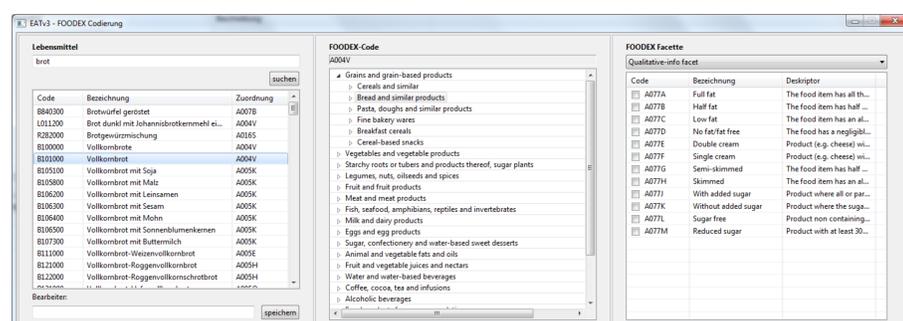


Fig. 5: EAT v3 link to FoodEx2



Fig. 3: Instruction of DR use

Dietary record

- Brand name
- Description of food
- Fat content
- Enrichment (vitamins, minerals,...)
- Packaging (paper, glass,...)
- Condition (fresh, conserved,...)
- Type and place of preparation
- Place of consumption
- Organic quality (organic seal)

Results and conclusion

The results of the pretest (2014) lead to modifications regarding increasing compliance of the child care workers by simplification of dietary records and offering incentives for their institutions. Moreover DR is revised with more visual guidance and the picture book is completed with an index of foods to simplify the utilisation. Finally, the provided data can be analyzed in terms of food safety and exposure assessment of children (e.g. contaminants, pesticides, additives, process contaminants, migrating substances from packaging materials) as well as nutritional aspects and they will be provided for EFSA's use.