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



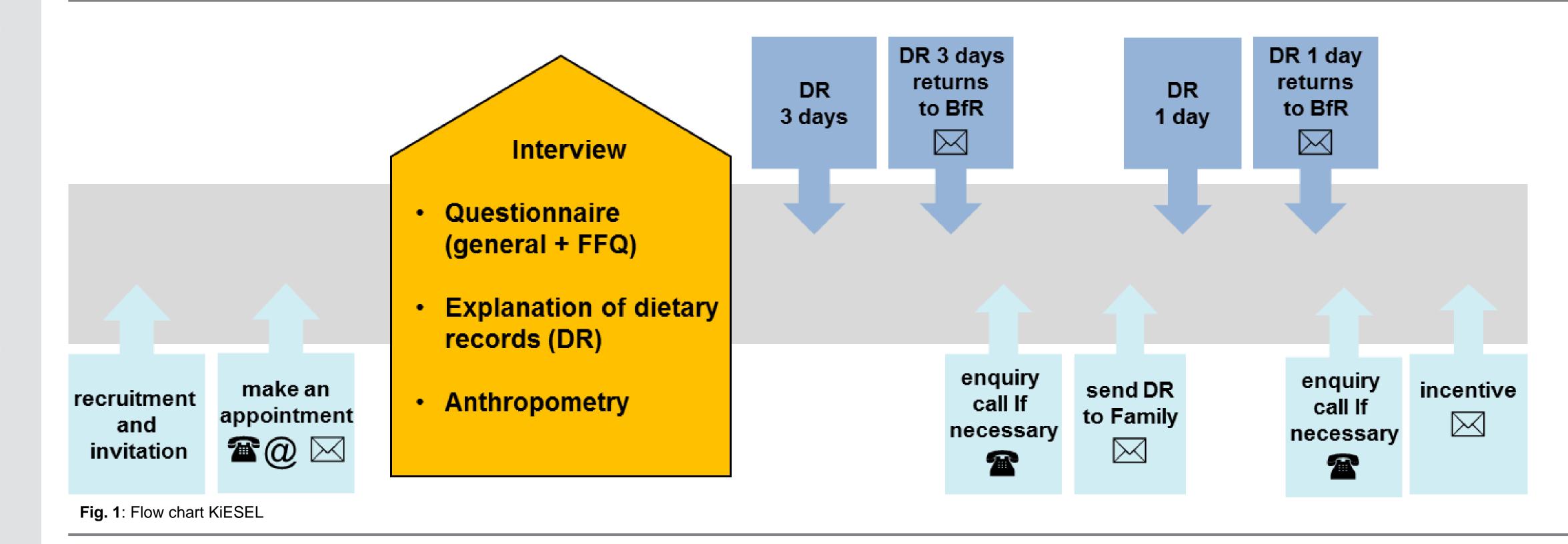
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Background

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.



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.

	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 Brei								
Mit Stevia gesüßte Lebensmittel wie z. B. Joghurts, Marmeladen oder Getränke								
Kalorienreduzierte Erfrischungsgetränke wie z. B. Cola light, Limonaden light, Fruchtsaftgetränke light etc.								
Kaffeeersatz- produkte wie z. B. Malzkaffee								
Energy-Drinks wie z. B. Red Bull, Monster								

Survey instruments

- Dietary record (family) 3 days + 1 day
- Simplified dietary record (children's day care) 3 days + 1 day
- Questionnaire
- Picture book



Fig. 2 Picture book and study information

Questionnaire

- General Information about parents and child
- Current dietary habits
- Diet in the first year of life

- 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.

- Diet in children's day care
- Seldom eaten foods via FFQ
- Parents personal approach of some nutritional issues

Fig. 4: Example of questions in the FFQ

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

ebensmittel				FOODEX-Code		FOODEX Facette			
brot				A004V		Qualitative-info	facet		
		suc	chen	Grains and grain-based products	<u> </u>	Code	Bezeichnung	Deskriptor	
				Cereals and similar			-		
Code	Bezeichnung	Zuordnung	<u> </u>	Bread and similar products		A077A	Full fat	The food item has all th	
3840300	Brotwürfel geröstet	A007B	=	Pasta, doughs and similar products		A077B	Half fat	The food item has half	
L011200	Brot dunkl mit Johannisbrotkernmehl ei	A004V		Fine bakery wares		A077C	Low fat	The food item has an al	
R282000	Brotgewürzmischung	A016S		Breakfast cereals		A077D	No fat/fat free	The food has a negligibl	
3100000	Vollkornbrote	A004V		Cereal-based snacks		A077E	Double cream	Product (e.g. cheese) wi	
3101000	Vollkornbrot	A004V		Vegetables and vegetable products		A077F	Single cream	Product (e.g. cheese) wi	
3105100	Vollkornbrot mit Soja	A005K		Starchy roots or tubers and products thereof, sugar plants	=	A077G	Semi-skimmed	The food item has half	
105800	Vollkornbrot mit Malz	A005K		Legumes, nuts, oilseeds and spices		A077H	Skimmed	The food item has an al	
B106200	Vollkombrot mit Leinsamen	A005K		Fruit and fruit products		A077J	With added sugar	Product where all or par	
3106300	Vollkornbrot mit Sesam	A005K		Meat and meat products		A077K	Without added sugar	Product where the suga	
3106400	Vollkornbrot mit Mohn	A005K		Fish, seafood, amphibians, reptiles and invertebrates		A077L	Sugar free	Product non containing	
B106500	Vollkornbrot mit Sonnenblumenkernen	A005K		Milk and dairy products		A077M	Reduced sugar	Product with at least 30	
B107300	Vollkornbrot mit Buttermilch	A005K	_	Eggs and egg products Super confectioners and water based sweet descerts		AUTIVI	Neduced sugar	Froduct with at least 50	
B111000	Volkombrot-Weizenvolkombrot	A005K		Sugar, confectionery and water-based sweet desserts					
B121000	Vollkornbrot-Roggenvollkornbrot	A005E	_	 Animal and vegetable fats and oils Fruit and vegetable juices and nectars 					



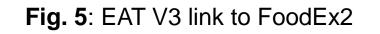
Fig. 3: Instruction of DR use

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)

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B122000	Vollkornbrot-Roggenvollkornschrotbrot	A005H	b Water and water-based beverages
0101000	v/ m = 1 + 1 + 2 = m = 1 - 2	40050	b Coffee, cocoa, tea and infusions
Bearbeiter:			Alcoholic beverages
		speichern	



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.

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