



KIGGS

The German Health Survey for Children and Adolescents

Project leader:

Dr. Bärbel-Maria Kurth
Robert Koch Institute
Head Dept. of Epidemiology and Health Reporting
Seestr. 10, 13353 Berlin
Germany

Internet: www.kiggs.de
E-Mail: kiggs@rki.de

Berlin, January 2005

1 Rationale

Over the past century western industrialized countries have experienced an unprecedented decrease in perinatal, infant and child mortality. Thus, in these parts of the world the prevention of death has become a peripheral concern of health policy and the WHO's slogan 'add years to life' was altered to 'add life to years'. This reflects that the WHO's understanding of health takes these changes into account by placing emphasis on physical, mental and social welfare as the future task of its health policy rather than a mere increase in life expectancy.

While official statistics were an adequate source for describing mortality, additional data will be needed to provide insight into the health and health care needs of children and adolescents. Currently available information from government statistics, administrative process data on health care and preventive services or data from school entry health checkups, registers or original epidemiological studies do not sufficiently serve this purpose. Above all, they do not permit extensions to the national level, as their collection has been restricted to specific age groups and regions as well as different periods in time.

2 KiGGS-study objectives

Against this background KiGGS was designed as a representative nationwide health survey of children and adolescents from 0-17 years. The data collected at an individual level include objective measures of physical and mental health as well as self-reported information regarding subjective health status, health behaviour, health care services use, social and migrant status, living conditions and environmental determinants of health.

Together the study results will

- ▶ identify health risks and health care demands among children and adolescents in Germany as a whole as well as in specific subgroups of the population
- ▶ serve as a reference base for biomedical parameters such as height, weight, body mass index and various laboratory measures
- ▶ delineate subgroup-specific approaches to prevention
- ▶ serve as a basis for decision making and prioritization to health care providers, health authorities and politicians
- ▶ set the stage for future health monitoring programmes
- ▶ generate new hypotheses regarding disease aetiology and prevention hereby fuelling future epidemiological and etiological research

In 1998, the Robert Koch Institute (RKI) was commissioned by the Federal Ministry of Health (BMG) to develop approaches and instruments for a survey of this kind. After consulting with numerous experts, and evaluating national and international studies and data sources, a project proposal and survey instruments were produced and revised by an international panel of experts.

Because of the size and novelty of the project, the Federal Ministry of Education and Research (BMBF) became involved in 1999. The project description and instruments were thoroughly revised for a new assessment, reflecting suggestions the panel of experts had made in 1998. An operations manual with detailed working instructions was also prepared.

The ethical dimension of a health survey involving children and adolescents, in which information is intended to be gained from interviews, physical examinations and blood and urine samples, had to be reassessed especially carefully. Following positive reviews by the Ethics Commission of the Humboldt University of Berlin, the Federal Data Protection Commissioner, the Data Protection Commissioners of Berlin, Brandenburg and Lower Saxony, and finally by a panel of experts assembled by the Federal Ministry of Education and Research, the project was again recommended for sponsorship.

Link to names of members of the scientific advisory board:

http://www.kiggs.de/experten/wissen_beirat/index.html

3 Pilot study

Given its importance for research, the BMBF financed a pilot study. In this pilot, methodological issues played a significant part: interviewing tools were tested to determine their characteristics, indicators (for mental health, for example) were developed and evaluated, and different 'field approaches' (i.e. ways of selecting study participants) were tested alongside methods to increase willingness to take part in the study, as was the validity and ability to generalise the collected information.

The pilot study, for which the Robert Koch Institute took sole responsibility, ran from March 2001 to March 2002. In all, 1,630 children and adolescents 0 to 17 years of age were examined, and their parents also participated. Four different locations were selected to assess the feasibility of the main survey, representing a city and small town in the east and west of Germany respectively.

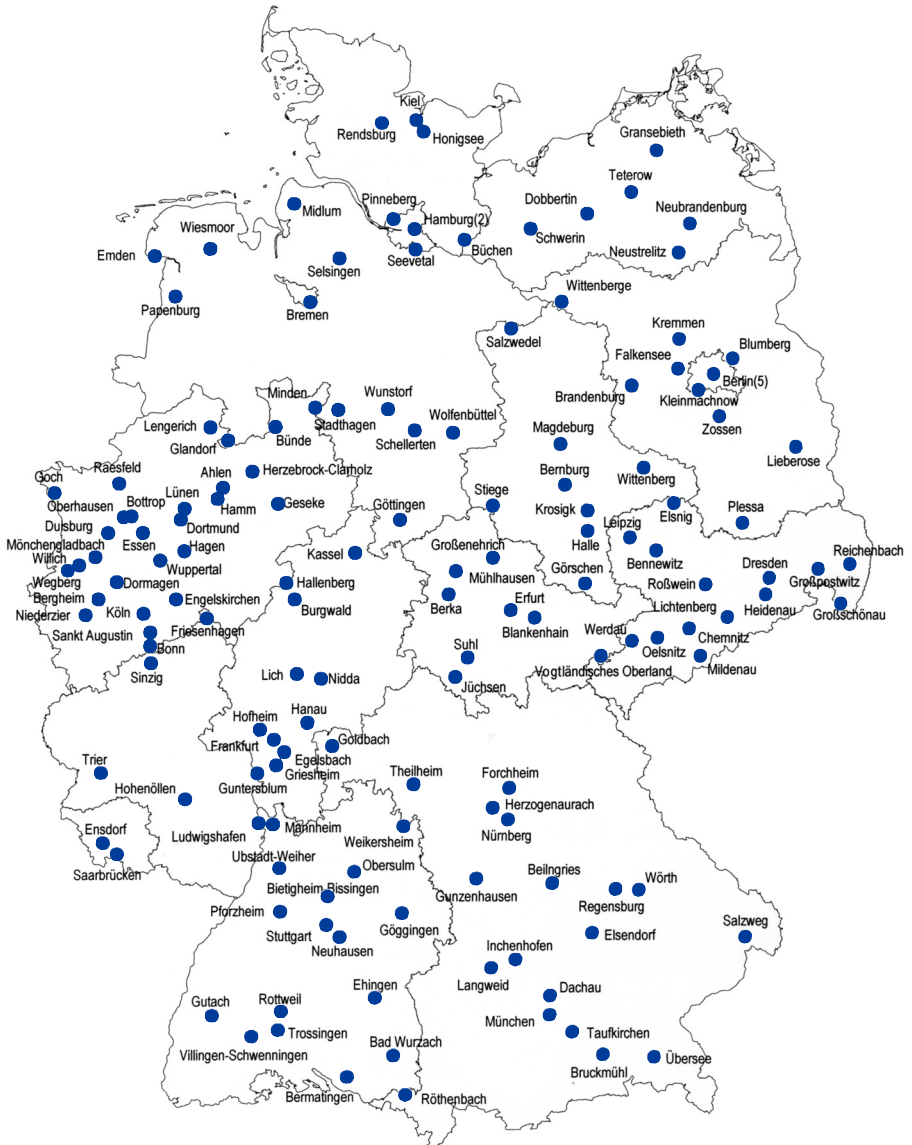
The results of the pilot were published in a comprehensive internal report addressed to the financing ministries. Extensive experience was gained, which helped to optimise the main survey's field phase. However, the most important finding was that the approach of the nationwide health survey of children and adolescents was feasible, as the pilot had been accepted by parents and children alike.

4 Sampling in the main Study

The target population consists of all children and adolescents aged 0 to 17 years, with the exception of those in hospitals, or in state institutions or foster homes. The aim is to achieve a random sample of approximately 18,000 children and adolescents. The survey is being undertaken in 150 randomly chosen locations of the Federal Republic of Germany. This number is necessary to take in all the federal states and all community sizes, and therefore guarantee a representative picture of the target population.

In the course of the pilot study, several random sampling methods were assessed as to their potential efficacy. Methods for increasing willingness to take part in the study were also tested. The sampling options were, on the one hand, a random sample from population registries and, on the other, a random sample of schools, and subsequently school classes for the 11 to 15 years age group and samples from population registries for the younger and the older age groups. After weighing up the advantages and disadvantages, a general random sample from population registries for all age groups was endorsed.

Study locations



5 Study Design

The question of which type of study would best reveal the health of children and adolescents in Germany was discussed at length. There are two competing approaches:

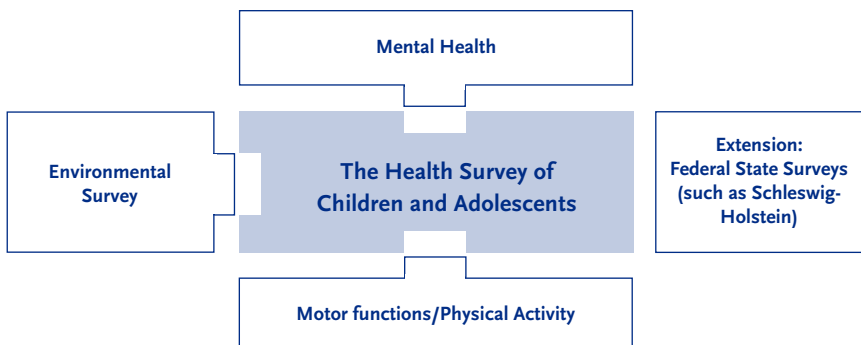
A **Cross-sectional Study**, that is to say, a single examination of a representative random sample of those under 18 years of age in Germany

A survey of a representative random sample of newborn children and their longitudinal observation over future years (a **Birth Cohort Study**)

The outcome of this discussion was to opt for a cross-sectional study, because its findings are established relatively quickly and are therefore better geared to implementation. The disadvantage of a cross-sectional study, that it records incidences retrospectively and thus limits the quantity and precision of research into their causes, can be offset if the same group is re-examined after a fixed interval and changes since the first survey are noted as 'observed' incidences. This longitudinal element will be incorporated by getting participants to agree in principle to a follow-up examination.

6 Data Collection

Following positive experiences with the 'German National Health Interview and Examination Survey' of adults in 1998, the health survey of children and adolescents has also been based on modules. It is structured thus:



In the core module (core survey), benchmark health information is being compiled from the complete sample of children and adolescents. This core survey is supplemented by three other modules, which are investigating specific problems using subsamples and focus on:

- ▶ environmental impact relevant to health (the Environmental Survey module),
- ▶ mental health (the Mental Health module), and
- ▶ motor development (the Motor functions/Physical Activity module).

The environmental survey by the Federal Environmental Agency consists of a personal interview, the measurement of noise pollution and hearing impairment, and the analysis of drinking water, dust and air samples from the home. Blood and urine samples are being tested for substances related to environmental health.

The mental health module is using the benchmark data from the core survey concerning behavioural problems and subjective wellbeing and is supplementing the data with targeted questions and additional instruments. The frequency of specific psychological disorders, such as attention deficit or hyperactivity disorder, is being identified using interviews. A subsequent re-examination will then enable a connection between risk and protective factors to be analysed.

In the course of the motor functions module, children and adolescents will be asked about their physical capabilities and sporting activities, and their endurance, strength, co-ordination, flexibility and constitution will be tested.

By merging conjunct data from the core survey with that from the additional, individual modules, a cost-effective opportunity is created for the survey partners as well as for the RKI to increase the information potential of the whole survey and, at the same time, to conduct very thorough specialist studies on the health of children and adolescents.

Besides the described modules, regional modules can also be added in which federal states would examine additional participants using the approaches of the survey, its instruments and logistic framework. Federal states that would like, for example, to help fill the much lamented deficit of data for their regional health reports, can do so: by using the methodology of the national survey, the logistic framework developed by the Robert Koch Institute and the national data from their region to produce a random sample of their own, they would get representative data for their regions at a comparatively low cost. At present, several federal states are working towards financing such samples, and Schleswig-Holstein is already conducting a state module.

The areas chosen from the huge variety of interesting aspects of the health of children and adolescents were those for which no other source of information was available, but yet for which there already existed proven tools for gathering the data. Furthermore, those chosen were either relevant to public health or those in which secular trends were suspected. A condition of inclusion in the portfolio was a relevant frequency of occurrence, specified as at least one percent.

As a result, in addition to collecting socio-demographic data, the following areas are being investigated:

- ▶ physical wellbeing and complaints,
- ▶ acute and chronic illness,
- ▶ disability,
- ▶ accidents and health risks,
- ▶ mental health and behavioural problems,
- ▶ subjective health (quality of life),
- ▶ social contact, social net, support systems,
- ▶ personal resources (protection factors, healthy mental development),
- ▶ nutrition, eating disorders, adiposity,
- ▶ health awareness and leisure activities,
- ▶ drug usage, vaccination status, and
- ▶ use of medical services.

This information is being obtained via questionnaires filled in by parents (with parallel questionnaires for their children from the age of 11 years onwards). Medical staff is conducting a physical examination, recording body size and physical endurance, strength of vision and blood pressure. Voluntary blood and urine samples make it possible to calculate health risks that the other examinations cannot detect. In addition, participants are being interviewed by a doctor at the local study centre to record data on their (legal) drug use, vaccination status and medical history. The participants must set aside two hours for the examination and interview.

Because of its broad investigative range, the project will produce ‘benchmark figures’ for the most important indicators (core survey) in the different areas it covers. Additional examinations are being carried out for more detailed surveillance in sub-samples (modules).

Publications summarizing the aims and methods of the German Health Survey for Children and Adolescents can be downloaded from the specialist pages of the KiGGS internet site:

<http://www.kiggs.de/experten/index.html>

The questionnaires can also be ordered from this site:

<http://www.kiggs.de/experten/frageboegen/index.4ml>

The guidelines and recommendations on good epidemiological practice, issued by the German Association of Epidemiology (DAE), were strictly followed during planning and the production of project documentation.