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The "Gießener Beschwerdebogen
für Kinder und Jugendliche" (GBB-KJ):
Reliability, Factorial Validity and Standardization
of the Self- and Parent Report Form from 4 to 18 Years

Master Thesis

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Summary

The Gießen Physical Complaint List for Children and Adolescents (German abbreviation: GBB-KJ) is the only German questionnaire specifically designed for children and adolescents that allows a multidimensional measurement of parent and self-reported physical complaints. This study presents data on factorial validity, cross-sectional reliability, agreement of the parent and self-report, as well as standardization in a sample of 4 to 18 year-old children and adolescents representative for Germany ($N=1950$). Among other methods, linear structural equation modelling was used. In a population-based sample, the five-factor version of the GBB-KJ is considered to have acceptable to good factorial validity and satisfactory reliability. The main problem is the high difficulty of items or floor effects, respectively, especially the scale "circulation problems". Parental assessment can replace self-assessment only to a limited degree, and whenever possible, should be supplemented by self-report data. Further investigation of criterion and construct validity, test-retest reliability, and sensitivity to change is recommended not only in research but in clinical samples as well.

Keywords: physical complaints – psychosomatic – children and adolescents – factor structure – statistical standardization

1. Introduction

1.1 The GBB-KJ

The “Gießener Beschwerdebogen für Kinder und Jugendliche“ (GBB-KJ) is a psychometric personality test for the differentiated, systematic and comprehensive rating of physical complaints by a self- and a parent report form for children and adolescents between 9 and 15 years of age (Brähler, Ernst, Hettich, Klein & Otten, 1986, Psytcom access code 2264). Within the class of clinical questionnaires, this one belongs to the symptom checklists. The paper-pencil-test has been published by the Hans-Huber-Verlag since 1992 and consists of a manual, the self- and parent report form (each one being three DIN-A4 pages), and a single-sided evaluation sheet (a PC-Version is published by the Hogrefe Test system). According to the manual, the GBB-KJ has been developed for physicians, psychologists, pedagogues, and other health-related working groups that deal with mentally, psychosomatically, or somatically ill children or adolescents (Brähler, 1992). It is designated for the usage in clinical practice as well as in research studies for screening, selection, indication, classification, and therapy evaluation by status and process measurement.

1.2 Alternatives

To date, the GBB-KJ is the only German questionnaire that has been developed exclusively for the multidimensional measurement of physical complaints by children and their parents. The “Beschwerdebogen für Kinder und Kleinkinder“ (BFB-K/BFB-KK, Höck, Hess & Schwarz, 1981), a screening questionnaire for functional symptoms of 3-6 and 7-14 year old children, only obtains the parent report. Furthermore, there are a couple of questionnaires with proven psychometric properties for children and adolescents that measure physical complaints as one of several subscales: The CBCL-family for screening of emotional and behavioral problems (YSR, CBCL 2-3, CBCL 4-18 und TRF, AG Deutsche Child Behavior Checklist, 1994, 1993, 1998, 1994), the “Brief Symptom Inventory”(BSI, Franke, 2000), the “Gießener Elternfragebogen zu kindlichen Störungen” (Surrey, 1987), the “Berner Fragebogen zum Wohlbefinden Jugendlicher” (BFW, Grob et al., 1991), the “Fragebogen zur Erhebung von Stresserleben und Stressbewältigung im Kindesalter” (SSK, Lohaus et al., 1996), and the “Hamburger Persönlichkeitsfragebogen für Kinder” (HAPEF-K, Wagner und Baumgärtel, 1978). Besides, there are a couple of symptom lists for adults that have been used for

adolescents without showing an adequate selection and formulation of items (e. g. the “Gießener Beschwerdebogen für Erwachsene”(GBB, Brähler & Scheer, 1995), the “Symptom-Checkliste” by L.R. Derogatis (SCL-90-R, German version by Franke, 2002), or the “Freiburger Beschwerdeliste” (FBL-R, Fahrenberg, 1994)).

1.3 Dissemination

While there is no precise data on the dissemination of the GBB-KJ in clinical practice available, the abstract databases Medline, Embase, Psycinfo, Psyndex, and Web of Sciences show about 50 publications using the GBB-KJ up to now (almost completely carried out in Germany). Whereas about 10 studies report on the development and validation of the questionnaire, most publications deal with clinical objectives (public health, clinical pediatrics, child and adolescent psychiatry and psychosomatics, e.g. distress in medical rehabilitation, distress by alternative family structures and migration, effects of analytical psychotherapy, and therapy of dyslexia as well as prediction of substance abuse).

1.4 Epidemiology of Physical Complaints

1.4.1 Definition and Characteristics of Physical Complaints

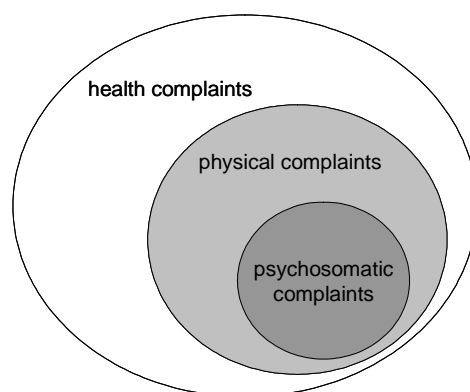


Fig. 1: Relation of health, physical, and psychosomatic complaints

Apart from similar constructs like health complaints (comprise physical complaints as well as emotional and behavioral problems) and psychosomatic or dissociative/somatoform complaints (shutting out exclusively physical founded complaints, relation see fig. 1), physical

complaints are not explicitly defined in the literature so far. Hence, consecutively an own definition and characterization is given:

- Physical complaints are subjectively and negatively experienced body-related sensations. Besides pain, other body perceptions like burning, prickling, itching, or irritative changes of functions like palpitation, cold feed, or feeling of weakness are comprised.
- Single complaints partly correlate specifically with each other and form cluster of complaints.
- Physical complaints are exclusively accessible by introspection at first. For other people, they are only indirectly accessible via speech and/or behavior. Indicators for possible physical complaints can be deviations from the individual norm in facial expression, gesture, posture, movements, or more complex behavior-like habits.
- In contrast to objective symptoms, complaints have a more emotional, vague, and temporary character. They can correspond to objective symptoms, but they do not have to. When there is no corresponding objective finding, physical complaints are interpreted as mentally- or psychosomatically-caused.
- They can be described more or less accurate with respect to localization, frequency, duration, intensity, complexity, and degree of impairment as well as possible trigger, maintaining, moderating, and finishing conditions. In this they are filtered by body perception, evaluation, and the ability and willingness of self-reporting. As a part of these intrapsychic processes, physical complaints are influenced by other psychological characteristics like personality, temperament, and emotionality.
- Primarily, they are a genuine part of medical-somatal responsibility. In somatic diagnostics, they are the smallest part in the hierarchy of description of symptom-syndrome-diagnosis. They function as an alarm signal, which helps to maintain the somatic and/or mental health of the individual.

1.4.2 Theories on Etiology and Course

When physical complaints are not caused primarily by somatic malfunctioning, psychosomatic concepts of disorders are used for etiological explanations (see Bosch, 1993). Besides more general paradigm-influenced theories of disorders, especially the concepts of Alexithymia (Marty, 1957), De- and Resomatization (Schur, 1955), the Model of Conversion by Freud (Breuer & Freud, 1985), the Organ-Specific Inferiority by Adler (1970), the Situation-Circle-Concept of Uexküll (1909), the hypothesis of Specificity by Alexander

(1950), the Stress Model of Selye (1950), or the Two-Step Suppression of Mitscherlich (1953) are used.

The natural course of somatically-caused physical complaints depends on genetic factors, congenital influences, constitutional characteristics, and their interaction with intrapsychological and social variables. The natural course of psychosomatic complaints additionally depends on the developmental phase of the child or adolescent. Relevant theories of explanation are e.g. the Defense Mechanisms of the I according to Anna Freud (1936), the Binding Theory of Bowlby (1975), the Concept of Developmental Challenges by Havighurst (1948), the Steps of Cognitive Development by Piaget (1969), the Steps of the Self by Kegan (1986), Oerter's Five Steps of the Human Being Picture (1995), or Kohlberg's Steps of Moral Evaluations (1976).

1.4.3 Empirical Research

In comparison to emotional and behavioral problems, relatively few German and international studies on type, frequency, distribution, age and sex effects as well as other correlates or predictors of physical complaints in children and adolescents have been carried out so far. Current results are quite homogenous (Berntsson & Kohler, 2001; Haugland & Wold, 2001), and existing differences can be explained by the variety of methods used (different instruments, case definitions, samples, and methods of obtaining data). Summarizing these studies, the following results have been found so far:

- Physical complaints in children and adolescents have at least the same frequency as in adults. Yet, the estimated prevalence varies clearly among the various studies conducted as a result of different methods used (Haugland & Wold, 2001; Lieb, Mastaler & Wittchen, 1998; Waligora, 2002; Zenz, Hrabal & Marschall, 1992).
- The most frequent complaints are fatigue, headache, backache, stomachache, and nervousness/restlessness (Berntsson, Kohler & Gustafsson, 2001; Hessel et al., 2003; Holler-Nowitzki, 1994; Knishkowsky, Palti, Tima, Adler & Gofin, 1995; Lien, Claussen, Hauff, Thoresen & Bjertness, 2005; Linna, Moilanen, Keistinen & Ernvall, 1991; Zenz et al., 1992).
- The frequency of complaints increases with increasing age, and girls have higher scores than boys. For specific complaints, different age and sex effects can be identified (Berntsson et al., 2001; Haugland & Wold, 2001; Hessel et al., 2003; Holler-Nowitzki,

- 1994; Knishkowsky et al., 1995; Lien et al., 2005; Marschall, 1989; Tanaka, Tamai, Terashima, Takenaka & Tanaka, 2000; Waligora, 2002; Zenz et al., 1992).
- Correlates of physical complaints are everyday stress situations such as conflicts with family or neighbors, school problems (Chapman, 1998; Holler & Hurrelmann, 1990; Holler-Nowitzki, 1994; Greene, Walker, Hickson, & Thompson, 1989); social support (Zenz et al., 1992); distress of migration (Siefen & Brähler, 1996; Waligora, 2002); emotional and behavioral problems as well as increased anxiety, depression and decreased aggressiveness (Dhossche et al., 2001; Larsson, 1991; Lien et al., 2005; Marschall, 1989; Rieffe, Terwogt & Bosch, 2004; whereas the type of associations depends on the specific complaint and sex (Egger, Costello, Erkanli & Angold, 1999; Roth, 2000) as well as parental diseases (Hotopf, 2002).
 - Multivariate models of prediction are: maternal health, mental health of the child, chronic diseases, social contacts/network, and socioeconomic status (Berntsson & Gustafsson, 2000; Berntsson, et al., 2001); early negative experience of emotions, negative binding, and minor perceived control (Hagekull & Bohlin, 2004); sex, abuse experiences, and internalized problems (Hilker, Murphy & Kelley, 2005); low parental interaction and video games in younger as well as school problems and peer conflicts in older children (Tanaka et al., 2000).
 - Factor models, depending on the choice of items and questionnaires, differ clearly with regard to number and content of the dimensions found (e.g. general factor model, somatic/mental, or classified by localization, see Haugland & Wold, 2001; Takata & Sakata, 2004).
 - All in all, especially longitudinal studies that allow recognition of complex predictive models and secular trends are missing.

1.5 Structure

The test consists of 58 items mostly formulated as keywords (examples: 01. "Schwächegefühl"; 02. "Herzklopfen, -jagen oder -stolpern"; 03. "Bauchweh") covering the following areas: extremities (11 items), belly (8), head- and sensory organs (8), breast/back/heart (7), psycho-physiological level of activation (7), coordination (6), nutrition and digestion (5), skin (4) and neck (3). All 59 items have to be judged on a Likert scale with regard to the degree of distress (0-4: "nie", "selten", "manchmal", "oft", "dauernd"). At the end, an open question for complaints that are not listed is given. Only 35 of the 59 items are used to calculate the scales (including all 24 items of the GBB for adults). Each of the five scales

consists of seven items (I. "Erschöpfung", II. "Magensymptomatik", III. "Gliederschmerzen", IV. "Kreislaufsymptomatik", V. "Erkältungssymptomatik"). All five scales can be combined to a sum score called "Beschwerdedruck". The only difference between the self- and parent report form is the appellation of the instruction. There is no parallel form.

1.6 Application, Evaluation, and Interpretation

The GBB-KJ can be used for individual or group testing. It takes fifteen minutes to fill out (Brähler, 1992). At the beginning, a short introduction defines the necessary circumstances (application before the first contact with the physician, no communication between children and parents during the test, etc.). Due to its clear and short structure, execution and evaluation of the test is fast and easy to use.

Evaluation by hand using the profile sheet takes five minutes. Information missing is coded as zero. Scales are calculated by the unweighted addition of item scores (seven items per scale, range of possible values is 0-28 per scale, 0-140 for the total score, item-scale-allocation see tab. 2). A scale should not be calculated if there are more than six missing items.

The following information can be obtained from the GBB-KJ (see Brähler, 1992): 59 single complaints (extreme answers should be interpreted as leading complaints ("Leitbeschwerden")), five dimensions/scales and one total score from the parent and self-report form as well as normative data for the self-report (percentiles for different age and sex groups, 9-11, 12-13, 14-15 years). There are no cut-off-values for clinical significance available. Multiple complaints of a subject in different areas are interpreted as a neurotic or psychosomatic personality trait. Existing physical diseases have to be taken into account.

1.7 Construction

The GBB-KJ originated from the need of a list of physical complaints in the psychosomatic care for children and adolescents (Brähler, 1992). Its concept is based on the difference between somatically explainable, objective physical symptoms and the subjective perception, evaluation, and utterance of physical complaints (Brähler et al., 1986). The GBB-KJ

exclusively measures subjective complaints and neglects possible physical causes. The item selection is not theoretically derived, but is based on existing item pools and expert interviews. Therefore, the test concept cannot be designated as a psychosomatic but as a phenomenological one.

Principles of construction are the deduction from the GBB for adults (Brähler & Scheer, 1983), the application of the classical test theory, and the factorial derivation of scales (see Brähler et al., 1986; Brähler, 1992; Prehler, 1991, and Prehler, Kupfer & Brähler, 1992). First, items of the GBB that are not suitable for children were eliminated, phrasings were simplified, and special complaints of children and adolescents were added (obtained via expert interviews). After a pilot test with $N=40$ mentally ill children, further single items were added, and the Likert scale was extended from three to five categories.

This second version of 72 items (called "Kinderbeschwerdebogen", KBB) was tested between 1983-86 in an $N=316$ 8-16 year old outpatient sample from the pediatric clinic of the Justus-Liebig-Universität Gießen (Lindloff, 1987).

Results of a principal component analysis (varimax rotation) showed a six-factor solution with 42% explained variance and a clear general factor (unrotated 49% explained variance, called "Überlastungssymptomatik"). After analysis of items, four factors remained with satisfactory internal consistency and odd-even split half reliabilities ("Hypertoniebeschwerden", "Atembeschwerden", "Überlastungssymptome" and "Gliederschmerzen").

A third version of the KBB originated from the addition of eight further items from the GBB for adults. This questionnaire was tested with $N=303$ 8-15 year old pupils of one elementary and two comprehensive schools (Hettich, 1987; Brähler et al., 1986). The factor analysis (mentioned above) showed a six-factor solution with 36% explained variance and a general factor ("Beschwerdedruck", unrotated 59% explained variance). Item analyses lead to the elimination of 13 items due to insufficient selectivity and homogeneity. The resulting scales were named (in contrast to Lindloff, 1987) "Bauchbeschwerden", "Erkältungsbeschwerden", "Mobilitätsbeschwerden", "Erschöpfung", and "Kreislaufbeschwerden".

This 67 item version was used to examine the final sample used for standardization, consisting of $N=1047$ 9-15 year old school children in Hessen (quoted for type of school and residence, see Prehler, 1991; Prehler et al., 1992). After elimination of eight items with bad comprehension and selectivity, the fifth and final version with 59 items was called GBB-KJ.

The principle component analysis of these 59 items obtained a six-factor solution with 58% explained variance (22.8%, 19.8%, 16.3%, 13.1%, 20.3%, and 7.7% explained variance of the single factors). The first factor explained 62.3% of the unrotated solution and was therefore interpreted as a general factor "Beschwerdedruck". The sixth factor was abandoned because it was based on two items representing similar contents (45: breathlessness, 48: feeling of suffocation; blown up specifics). To achieve an equal number of items for each scale, five items with low selectivity of the first factor and one item of high intercorrelations with other scales of the third factor were eliminated.

The average part-whole-corrected selectivity of the remaining five factors and the total score are (following the sequence of scale I to V): $r_{is}=.54, .48, .46, .49, .47$, and $.44$. The average selectivity of the total score are $r_{it}=.52, .46, .41, .44, .41$, and $.45$. The means of the scales range from $M=3.4$ ($SD=3.56$) for "Kreislaufsymptomatik" to $M=9.0$ ($SD=4.19$) for "Erkältungssymptomatik" (total score: $M=29.7$; $SD=14.73$). All scales are distributed more or less negatively skewed (between $S=.34$ for "Erkältungssymptomatik" and 1.48 for "Kreislaufsymptomatik") and hyperexcessive (range from $E=.15$ for "Erkältungssymptomatik" to 2.55 for "Kreislaufsymptomatik"). The intercorrelation of the scales range from $r=.38$ for "Magensymptomatik"/"Gliederschmerzen" to $.57$ for "Erschöpfung"/ "Kreislaufsymptomatik" (subscales / total score between $r=.74$ and $.82$).

1.8 Psychometric Properties

The instrument is objective with respect to application and evaluation due to its standardized instruction. The objectivity of the interpretation is limited because there are no hints for the interpretation of differences between the parent and self-report, no adjectives allocated to the normed scores (like under/above average), as well as no normative data for the parent form.

The essential data of reliability were obtained in the normative sample of $N=1047$ 9-15 year old school children in Hessen (only for the self-report form, Prehler, 1991; Prehler et al., 1992): The internal consistencies (Cronbach's α , in the sequence of the scales from I to V) are $\alpha=.81, .76, .74, .77, .75$, and $.90$ for the total score. The odd-even-split-half reliability is $r_{tt}=.66, .67, .62, .67, .51$, and $.81$ for the total score. Evidence on retest reliability is missing. Content validity is assumed as given (Brähler et al., 1986).

Factorial validity is claimed due to the construction. The item-factor allocation is unambiguous and homogeneous, all loadings are positive ($Md=.50$, $Min=.25$, $Max=.69$). The

five factors represent consistent groups of complaints, and the high correlation between the subscales is explained by the existence of a general factor. To date, there are no data on factor analyses with items of other instruments. Investigations of differential validity by the technique of known groups exist for the second version of the KBB (Lindloff, 1987) and the final version of the GBB-KJ (Roth, 1999).

Lindloff (1987, see 1.5 Construction) was able to show characteristic patterns of complaints in pediatric outpatients with different diseases (diabetes; heart diseases; lung diseases; nephrologic, neurological, and other diseases). Evidence about construct validity is missing.

The only independent evaluation of the GBB-KJ stems from Roth (1999). He compared $N=258$ 12-15 year old healthy pupils of different schools in Wesel (Niederrhein) with $N=101$ chronically ill children ($n=47$ with diabetes type I and $n=54$ with asthma, recruited from different hospitals and outpatient institutions). Internal consistency, selectivity, and correlation of scales were similar to the normative sample for both groups (Prehler, 1991; Prehler et al., 1992). The explorative factor analysis (principle component analysis, scree-test, varimax-rotation) confirmed the existing factor structure to a large extent.

Only the scale "Erschöpfung" was not replicable and distinguishable from "Magensymptomatik" and "Gliederschmerzen". The differentiation between the groups of healthy and chronically ill adolescents by comparison of frequencies, means, and a discrimination analysis was not successful, whether on the item nor the scale level. However, the conclusion of limited construct validity is questionable due to the low correlation between objective symptoms and subjective complaints as well as the small sample sizes and high selectivity of the groups. Besides, the a posteriori calculated standardized differences of means show small to medium effect sizes (on average: $d=.14$ for diabetes-healthy and $.34$ for asthma-healthy).

1.9 Critical Appraisal

The GBB-KJ detects, organizes, and quantifies physical complaints in a systematic and economical way, and by doing so avoids false negative findings. It is the only questionnaire for 9-15 year old children and adolescents including a self- and parent report form. Other instruments measure physical complaints only by using one dimension or are constructed for adults. Unlike in an un- or semistructured anamnesis, data of defined psychometric quality are obtained from two different perspectives and independent from influences by an

interviewer. Scores can be related to each other as well as to age and sex-specific normative data. Because all items of the scales are included in the GBB for adults, developmental studies beyond adolescence are possible.

On the other hand, many problems of the GBB for adults apply also for the GBB-KJ: missing period prevalence, partly old-fashioned items, many items are not considered for the scales, no information on the impact of response biases, no data on construct validity (see Psytcom, 2005, access code 230).

Further weaknesses are the small age range, the susceptibility for simulation and dissimulation, missing data on retest reliability, missing data on factorial validity in an independent analysis, missing normative data of the self- and parent report form in a representative sample, missing thoughts on a cut-off-value for clinical significance as well as missing data on the correlation of the self- and parent report form. Because parents have to rely on their evaluation of the expression of the child, observation of behavior and own fantasies, and because intentions of the parents are influencing their judgement (Döpfner & Lehmkuhl, 1997), the parent report data does not contain subjective complaints of the child.

For the precise interpretation of the test data, the additional information of non-/existence of an actual somatic disease is necessary. Only the combination of this information allows classifying a child according to the scheme of Beckmann and Scheer (1976) as “regularly ill”, “apparently ill”, “psychosomatically ill”, or “regularly healthy”. Without the somatical gold standard, the interpretation of the subject’s data as “complaints”, “psychosomatic”, or “neurotic” is not justifiable, even in cases of multiple complaints. The limited objectivity, reliability, and validity of somatical diagnoses in the clinical practices makes things even more complicated.

Due to the low correlation of subjective complaints, the non-/existence of objective somatical diseases cannot be used as a criterion for validity. Especially when correlations are small, the uncertainty in the interpretation of the results is high (valid or not). Unambiguous results on the basis of at least medium effect sizes can only be obtained using subjective validity criteria with samples already classified according to the scheme mentioned above. Correspondingly, for the test of validity in psychosomatic patients (without physical diseases), psychosomatic-psychological criteria of validity should be used.

1.10 Questions and Aims

The following questions shall be answered with respect to a field sample of children and adolescents between 4 and 18 years of age representative for Germany:

1. Can the factorial structure of the GBB-KJ postulated by Brähler (1992) be confirmed?
2. Are the scales reliable?
3. What are the differences between the parent and the self-report?
4. Which kind of normative data can be determined for the parent and self-report?

In each issue, differences between age and sex groups are considered.

The aims of the study are to test the psychometric properties of the GBB-KJ in an independent investigation, to update the existing evidence on the GBB-KJ, and to extend its range of validity.

2. Method

2.1 Study Design

The current data were collected in the Hamburg Health Survey (HAGES), which not only includes somatic complaints but also emotional and behavioral problems as well (see Barkmann, 2004). A cross-sectional design was chosen since this is sufficient to determine prevalence rates (Gordis, 2004). Separate questionnaires were used for parents (mothers and/or fathers) and children and adolescents of 11 years of age or older. Both questionnaires comprised study-specific items (sociodemographic data, living conditions, kindergarten, school, etc.) as well as standardized psychometric tests.

2.2 Sample

The simultaneous presence of the following attributes characterizes the population: (1) persons between the ages of 4 and 18, (2) who had their main residence in Germany in January and February 2001, (3) who speak German, and (4) who have at least one parent (or surrogate) that speaks German. The complete age range of 4-18 years was exclusively evaluated by the parent report. The self-report was evaluated from 11-18 years because only from this age is complete comprehension of all items likely, and thereby correct handling without help from adults can be presumed. Unit of sample selection was the family, i.e. children and adolescents with their biological parents or parent surrogates. Units of data collection were parents and children of 11 years of age and older. When both parents participated, they filled in one parent questionnaire together. A sample size was chosen creating tolerable inaccuracy with bearable costs. In order to examine the representativeness, the sample data were compared to the population data of the Federal Statistics Office of Germany. Altogether, three of the 13 tested variables showed deviances that could lead to a bias in the results. A correction of this bias by weighting the respective variables did not change the results in any case (see Barkmann, 2004).

2.3 Data Collection

A three-step sampling procedure based on population data was chosen: (1) selection of professional interviewers, distributed representatively according to communities, (2) selection of families by the interviewers according to children's age and gender quota (3) randomized selection of one index child to be evaluated in families with more than one child (the child with his or her birthday closest to the examination date). Data were collected between February and April 2001. Participation was voluntary, and written informed consent was obtained.

A total of 75.7% of the parent questionnaires for children between the ages of 4 and 10 came back completed. The return rate of the parent and child questionnaires regarding children and adolescents between 11 and 18 was 70.8%. The 1950 parent questionnaires and 1027 child questionnaires which were collected provided approximately 130 parent evaluations for each of the 15 age steps (4-18 years) and 130 additional self-evaluations for 11 to 18 year olds.

2.4 Statistical Analysis

Data were processed using SPSS 10.1, LISREL 8.54, and PRELIS 2.5. Besides common psychometric statistics, confirmatoric factor analyses (CFA) using structural linear modelling were calculated. The CFA can test theoretically or empirically based models or alternatives with regard to their goodness of fit. This is based on an advanced factor analysis for general factors under synthesis with a regression analysis. The CFA can measure so-called "latent variables" and trace them back to indicator variables (items) in a causal sense (Bühner, 2004). After defining a theoretical model of indicators and latent variables, various statistics are available to test the null-hypothesis, if the model can explain the empirical correlations to a sufficient extent.

All analyses were calculated separately for the 4-10 and 11-18 year old parent reports and the 11-18 year old self-reports to allow direct comparisons between these groups. Due to the polytom, graphical and verbal equidistant constructed response scale, a metric type of data was assumed. Missing values occurred only rarely and without recognizable pattern (casewise: 95% complete questionnaires, 4% with one missing, six missings at maximum (1x)). They were replaced by groupwise, integer-rounded means.

3. Results

3.1 Factorial Validity

3.1.1 Confirmatoric Factor Analysis

The 35 item - five factor - one meta-factor - structure of the GBB-KJ (Brähler, 1992, fig. 1) was tested on the basis of the polychoric correlation matrices by a confirmatoric factor analysis using linear-structural-model-techniques (hypothesis: The correlation within each group of seven items (=indicators) is caused solely by their related dimension and the five dimensions (=latent exogenous factors) constitute a meta-factor). The indicators are defined reflexively, the complete model is defined recursively and congenetically. To identify the structure of the model, one indicator path per latent variable is set as one; all other parameters are set free. The model contains 35 indicators, 35 residual parameter, and six latent exogenous factors. This results in 630 empirical correlations, 75 estimation parameters and $df=630-75=555$ degrees of freedom. Therewith the model is over identified and an iterative technique is necessary. Because 13 of 35 items show a skewness >2 and a kurtosis >7 , a discrepancy function has to be used, which does not hypothesize multinomial distribution (West, Finch & Curran, 1995). Because the sample size is too small for the asymptotically distribution-free estimator (ADF), the unweighted-least-square-method (ULS) was used.

The goodness of fit was tested by the following indices for practical significance using the rules of thumb by Schermelleh-Engel and Moosbrugger (2003): Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMSR), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), and Adjusted Goodness of Fit Index (AGFI).

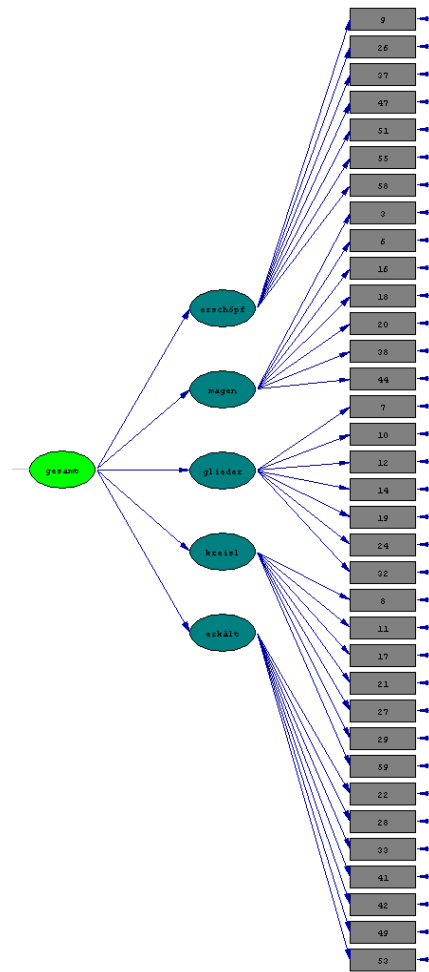


Fig. 1: The 35 item - five factor - one metafactor - model of the GBB-KJ (Brähler, 1992)

The goodness of fit for the complete structure is acceptable for the 4-10 year olds and good for the 11-18 year olds (see tab. 1). Thus, the factor model of the GBB-KJ is replicable. According to the GFI-Index, which can be seen as a coefficient of determination, 91%, 97%, and 98% of variance can be explained by the model. Table 2 shows the regression weights for all three groups and the loadings of the normative data of Brähler (1992; Prehler, 1991) for comparison. The average squared loadings as a measure for reliability of the indicators are $\underline{Md}_a^2 = .44, .55, \text{ and } .55$ (.30-.76 for the parent reports of the 4-10 year olds, .30-.71 for the parent reports of the 11-18 year olds and .23-.72 for the self-reports of the 11-18 year olds). The predominant part of the unexplained covariances is lower than .10. The correlation (with double correction for attenuation) between the latent exogenous variables range from $r = .47$ (stomach problems - limb pain) to .69 (exhaustion - cold, $\underline{Md} = .55$). The five dimensions correlate between $r = .71$ and .92 with the total score ($\underline{Md} = .81$).

Tab. 1: Fit indices for the test of the structure of the GBB-KJ

fit-index	accept-ability*	parent report 4-10 J. (n=923)	parent report 11-18 J. (n=1027)	self-report 11-18 J. (n=1027)
<u>RMSEA</u>	≤.08	.04	.04	.05
<u>RMSR</u>	≤.10	.11	.07	.06
<u>NNFI</u>	≥.95	.91	.97	.98
<u>CFI</u>	≥.95	.91	.97	.98
<u>GFI</u>	≥.90	.92	.97	.98
<u>AGFI</u>	≥.85	.91	.97	.98

Notes: Abbreviations see text; *thumb rules according to Schermelleh-Engel & Moosbrugger (2003); N=1950.

In a second step, the consistency of factorial structure between the three groups was tested. To achieve this, separate principal component analyses with a fixed number of five factors were conducted for each sample. Subsequently, each solution was rotated orthogonally onto the model matrix. Under the assumption of factor-homogenous distribution of loadings, the loadings for the items of each scale were defined as one, for all other items as zero. The consistency with respect to each single factor was calculated by the coefficient of factor congruency \underline{C} (Tucker, 1951), and the consistency of the complete structure of two groups at time was calculated by the coefficient of congruency \underline{FC} by Gebhardt (1967, see Bortz, 2005). Both coefficients can be interpreted like correlation coefficients, in which values $\geq .90$ are seen as high.

The coefficients of congruency for the single factors show a good correlation between the parent and self-reports of 11-18 year old children and adolescents and the model matrix (tab. 3). The values for the parent reports of the 4-10 year olds are lower but still acceptable. The same applies for the congruency of the complete matrices.

Tab. 2: Comparison of the ULS-calculated, standardized regression weights for the three groups and the loadings of the normative sample of Brähler (1992, values from Prehler, 1991).

scale/item	parent report 4-10 J. (n=923)	parent report 11-18 J. (n=1027)	self- report 11-18 J. (n=1027)	normative sample 9-15 J. (n=1047)
I Erschöpfung				
9 Müdigkeit	.64	.69	.74	.60
26 schnell müde werden	.74	.77	.76	.54
37 Mattigkeit	.84	.78	.80	.52
47 rasche Erschöpfbarkeit	.75	.82	.75	.45
51 Hitzegefühl	.58	.69	.71	.43
55 übermäßiges Schlafbedürfnis	.62	.61	.70	.60
58 Schwere/Müdigkeit in Beinen	.75	.79	.83	.41
II Magensymptomatik				
3 Bauchweh	.55	.55	.69	.52
6 Unterleibsschmerzen	.65	.57	.74	.37
16 Erbrechen	.61	.64	.58	.57
18 Übelkeit	.65	.73	.69	.53
20 oft zum Klo müssen	.59	.72	.69	.41
38 Durchfall	.63	.66	.59	.51
44 Magenschmerzen	.69	.71	.76	.55
III Gliederschmerzen				
7 Armschmerzen	.67	.77	.74	.48
10 Knieschmerzen	.65	.62	.67	.55
12 Gelenk-/Gliederschmerzen	.78	.76	.74	.50
14 Nacken-/Schulterschmerzen	.67	.68	.73	.46
19 Beinschmerzen	.72	.67	.76	.69
24 Arm-/Handverkrampfung	.71	.77	.79	.39
32 Fußschmerzen	.73	.76	.78	.57
IV Kreislaufsymptomatik				
8 schwarz vor Augen werden	.62	.76	.73	.64
11 Schwindelgefühl	.68	.83	.85	.54
17 verschwommen sehen	.87	.82	.79	.45
21 Augenflimmern	.55	.82	.74	.55
27 Schwanken/Torkeln	.70	.84	.85	.25
29 Benommenheit	.77	.79	.81	.33
59 anfallsweise Herzbeschwerden	.65	.74	.64	.35
V Erkältungssymptomatik				
22 Frieren	.81	.79	.81	.41
28 Husten	.61	.67	.54	.46
33 kalte Hände	.67	.75	.76	.41
41 Halsschmerzen	.64	.66	.48	.41
42 kalte Füße	.77	.77	.72	.45
49 verstopfte Nase	.62	.67	.64	.60
53 Schnupfen	.56	.57	.57	.67
Beschwerdedruck				
I Erschöpfung	.90	.89	.92	.82
II Magensymptomatik	.83	.81	.81	.74
III Gliederschmerzen	.72	.74	.79	.72
IV Kreislaufsymptomatik	.87	.83	.87	.74
V Erkältungssymptomatik	.71	.80	.79	.77

Notes. N=1950.

Tab. 3: Comparison of the factorial structure between the three samples for each single factor and the complete matrix

factor	parent report 4-10 J. (n=923)	parent report 11-18 J. (n=1027)	self- report 11-18 J. (n=1027)
I Erschöpfung	.80	.83	.83
II Magensymptomatik	.63	.88	.88
III Gliederschmerzen	.83	.86	.86
IV Kreislaufsymptomatik	.75	.88	.88
V Erkältungssymptomatik	.79	.87	.87
complete matrix (FC)	.76	.86	.86

Notes. Coefficient of factor congruency C; coefficient of consistency FC; N=1950.

3.1.2 Explorative Factor Analysis

Because the confirmation of the five-factor model does not exclude alternative solutions, additional explorative factor analyses were conducted (Principal Component Analysis, Scree Test / Parallel Analysis, Varimax Rotation): The inverse of the correlation matrices as well as the Anti-Image-Covariance-Matrices are diagonal matrices for all groups. The Bartlett Test and the Kaiser-Meyer-Olkin-Criterion show a good to very good coherence of the items. The unrotated initial solution identifies 15, 14, and 11 factors with eigenvalues $\lambda > 1$, which explain 56.4%, 57.9%, and 55.9% of the total variance. For each group, the distribution of eigenvalues indicates a general factor, of which almost all items show substantial loadings ($\alpha > .30$; 18.1%; 23.1%, and 28.2% explained variance). There are no hints of a five- or six-factor structure. Specifying the extraction of five factors, the resulting solutions show better loading structures, but the item-factor-allocation cannot be interpreted meaningfully. Dichotomous item distributions using the median lead to a somehow clearer solution, and the resulting factors correspond to the five dimensions of Brähler (1992). However, the exact item-factor-allocation still cannot be replicated. Only by using the mixed strategy of Prehler (1991, equal number of items per scale, simple structure, meaningful item-scale allocation, and selectivity) the approximation is possible.

Moreover, there was an attempt to extract a short-form from the GBB-KJ (not shown): The exclusive usage of the 35 items of the five scales (instead of all 59 items) allows preserving the scales of the complete version and their empirical evidence. Other solutions with three, four, or five items per scale would be more economical, but would also imply serious disadvantages like deficient heterogeneity of variables (blown-up-specifics), low ability of differentiation, low stability in varying samples, and diminished internal consistency.

3.2 Analysis of Reliability

Means and difficulty indices indicate that the items have a high difficulty in a population based sample (tab. 4). The difficulty indices are densely distributed in the lower and much more widely distributed in the higher range of values ($Md_M=.11$). Especially the scale "Kreislaufsymptomatik" shows difficult items with minimal variation. An exception is the scale "Erkältungssymptomatik" which does not have difficult items. The means of all items for the parent report are lower for the 4-10 year olds than for the 11-18 year olds ($M_M=.40$ respectively $.48$), and the self-report is the easiest ($M_M=.67$, tab. 5). The selectivity of all subscales and groups are nearly normally distributed with $Md_{ris}=.54$, the items of "Kreislaufsymptomatik" in the parent report of the 4-10 year olds are the lowest ($Md_{ris}=.32$, tab. 5).

The mean internal consistency (Cronbach's α) of all subscales and groups is $Md_{\alpha}=.81$ (.77 for the parent reports of the 4-10 year olds, .82 for the parent reports of the 11-18 year olds and .83 for the self-reports of the 11-18 year olds). "Kreislaufsymptomatik" in the parent report of the 4-10 year olds shows the lowest value (.61). The mean internal consistency of the total score among all groups is $Md_{\alpha}=.91$. None of the scales can be improved by elimination of items. The split-half reliabilities of the subscales ($Md_{tt}=.79$) range from .66 ("Erschöpfung" for the parent reports of the 4-10 year olds) to .84 ("Erkältungssymptomatik" for the parent reports of the 11-18 year olds). Again, "Kreislaufsymptomatik" is an outlier with .44.

Tab. 4a: Item statistics of the GBB-KJ scales for the parent and self-report forms of the 4-10 and 11-18 year olds

item	parent report (4-10 J.) n=923					parent report (11-18 J.) n=1027					self-report (11-18 J.) n=1027					
	M	SD	r _{is}	r _{it}	p	M	SD	r _{is}	r _{it}	p	M	SD	r _{is}	r _{it}	p	
I Erschöpfung																
9 Müdigkeit	.70	.77	.52	.49	.18	.96	.89	.68	.56	.24	1.26	.75	.69	.62	.32	
26 schnell müde werden	.35	.64	.67	.53	.09	.56	.80	.72	.58	.14	.89	.71	.71	.63	.22	
37 Mattigkeit	.41	.62	.61	.59	.10	.64	.75	.67	.60	.16	.84	.64	.70	.66	.21	
47 rasche Erschöpfbarkeit	.20	.54	.54	.44	.05	.29	.58	.63	.56	.07	.44	.53	.65	.57	.11	
51 Hitzegefühl	.22	.57	.27	.31	.06	.16	.46	.30	.38	.04	.48	.56	.44	.53	.12	
55 übermäßiges Schlafbedürfnis	.33	.58	.42	.42	.08	.62	.83	.58	.46	.16	.68	.69	.65	.54	.17	
58 Schwere/Müdigkeit in Beinen	.15	.44	.40	.44	.04	.20	.45	.46	.51	.05	.39	.49	.55	.63	.10	
II Magensymptomatik																
3 Bauchweh	1.08	.76	.47	.43	.27	.95	.83	.52	.41	.24	1.12	.64	.58	.52	.28	
6 Unterleibsschmerzen	.15	.45	.33	.31	.04	.56	.82	.41	.41	.14	.66	.69	.48	.55	.17	
16 Erbrechen	.51	.64	.51	.44	.13	.33	.55	.48	.40	.08	.45	.48	.52	.39	.11	
18 Übelkeit	.50	.63	.52	.45	.13	.56	.67	.60	.50	.14	.68	.57	.60	.50	.17	
20 oft zum Klo müssen	.31	.66	.26	.37	.08	.23	.55	.34	.40	.06	.45	.58	.42	.45	.11	
38 Durchfall	.69	.64	.46	.46	.17	.49	.59	.47	.45	.12	.57	.46	.44	.41	.14	
44 Magenschmerzen	.38	.63	.47	.45	.10	.51	.69	.53	.49	.13	.68	.57	.61	.56	.17	
III Gliederschmerzen																
7 Armschmerzen	.13	.38	.42	.30	.03	.19	.47	.51	.41	.05	.32	.43	.57	.47	.08	
10 Knieschmerzen	.24	.59	.57	.36	.06	.43	.80	.52	.36	.11	.64	.71	.57	.44	.16	
12 Gelenk-/Gliederschmerzen	.30	.61	.69	.43	.08	.44	.72	.66	.47	.11	.51	.57	.66	.50	.13	
14 Nacken-/Schulterschmerzen	.10	.39	.27	.26	.03	.41	.73	.38	.42	.10	.62	.65	.50	.52	.16	
19 Beinschmerzen	.32	.66	.63	.40	.08	.34	.65	.59	.39	.09	.44	.56	.66	.49	.11	
24 Arm-/Handverkrampfung	.04	.26	.18	.26	.01	.09	.35	.36	.34	.02	.29	.46	.54	.49	.07	
32 Fußschmerzen	.17	.47	.54	.38	.04	.23	.53	.48	.42	.06	.32	.47	.53	.50	.08	
IV Kreislaufsymptomatik																
8 schwarz vor Augen werden	.04	.22	.38	.20	.01	.27	.58	.67	.49	.07	.43	.58	.66	.52	.11	
11 Schwindelgefühl	.11	.36	.36	.31	.03	.40	.69	.63	.57	.10	.60	.61	.69	.65	.15	
17 verschwommen sehen	.04	.24	.47	.34	.01	.12	.42	.62	.43	.03	.30	.49	.60	.52	.08	
21 Augenflimmern	.03	.20	.32	.21	.01	.13	.43	.68	.43	.03	.31	.45	.61	.49	.08	
27 Schwanken/Torkeln	.03	.24	.26	.24	.01	.05	.25	.47	.37	.01	.19	.37	.60	.54	.05	
29 Benommenheit	.04	.23	.30	.30	.01	.09	.34	.49	.40	.02	.33	.49	.62	.56	.08	
59 anfallsweise Herzbeschwerden	.02	.17	.26	.19	.01	.06	.30	.33	.33	.02	.13	.33	.34	.35	.03	

Notes. Abbreviated items; 0-4 (never-permanently); r_{is}= part-whole-corrected selectivity with respect to each scale; r_{it}= part-whole-corrected selectivity with respect to the total score; p=difficulty; N=1950.

Tab. 4b: Item statistics of the GBB-KJ scales for the parent and self-report forms of the 4-10 and 11-18 year olds

item	parent report (4-10 J.) $n=923$					parent report (11-18 J.) $n=1027$					self-report (11-18 J.) $n=1027$				
	<u>M</u>	<u>SD</u>	r_{is}	r_{it}	p	<u>M</u>	<u>SD</u>	r_{is}	r_{it}	p	<u>M</u>	<u>SD</u>	r_{is}	r_{it}	p
V Erkältungssymptomatik															
22 Frieren	.43	.69	.47	.52	.11	.65	.86	.57	.59	.16	1.18	.74	.59	.62	.30
28 Husten	1.32	.88	.57	.48	.33	1.06	.84	.55	.51	.27	1.31	.61	.46	.40	.33
33 kalte Hände	.53	.76	.46	.45	.13	.70	.93	.58	.56	.18	1.14	.83	.58	.57	.29
41 Halsschmerzen	1.01	.77	.55	.49	.25	.99	.79	.58	.52	.25	1.14	.57	.43	.36	.29
42 kalte Füße	.60	.76	.56	.53	.15	.70	.91	.61	.57	.18	1.10	.76	.60	.55	.28
49 verstopfte Nase	1.19	.90	.60	.50	.30	1.01	.88	.57	.51	.25	1.31	.65	.55	.49	.33
53 Schnupfen	1.48	.85	.59	.47	.37	1.29	.82	.57	.44	.32	1.42	.65	.56	.44	.36

Notes. Abbreviated items; 0-4 (never-permanently); r_{is} = part-whole-corrected selectivity with respect to each scale; r_{it} = part-whole-corrected selectivity with respect to the total score; p =difficulty; $N=1950$.

Tab. 5: Psychometric properties of the GBB-KJ scales for the parent- and self-report forms of the 4-10 and 11-18 year olds

scale	α	r_{tt}	r_{is}	p	M	SD	skew- ness	kurtosis	SEM	95%-CI (X+/-)	SEE	95%-MI (X+/-)
Elternurteil 4-10 J.												
I Erschöpfung	.77	.66	.49	.08	2.4	2.72	1.62	1.30	1.30	2.6	1.14	2.2
II Magensymptomatik	.72	.69	.43	.13	3.6	2.72	.82	1.44	1.44	2.8	1.22	2.4
III Gliederschmerzen	.76	.79	.47	.05	1.3	2.23	2.30	1.09	1.09	2.1	0.95	1.9
IV Kreislaufsymptomatik	.61	.44	.34	.01	.3	.93	4.09	0.58	0.58	1.1	0.45	0.9
V Erkältungssymptomatik	.81	.83	.54	.23	6.6	3.82	.43	1.67	1.67	3.3	1.50	2.9
Ges Beschwerdedruck	.88	.83	.39	.10	14.1	9.20	.95	3.19	3.19	6.3	2.99	5.9
Elternurteil 11-18 J.												
I Erschöpfung	.83	.79	.58	.12	3.4	3.43	1.52	1.41	1.41	2.8	1.29	2.5
II Magensymptomatik	.76	.72	.48	.13	3.6	3.03	.85	1.48	1.48	2.9	1.29	2.5
III Gliederschmerzen	.77	.75	.50	.08	2.1	2.82	1.70	1.35	1.35	2.7	1.19	2.3
IV Kreislaufsymptomatik	.80	.71	.56	.04	1.1	2.14	3.15	0.96	0.96	1.9	0.86	1.7
V Erkältungssymptomatik	.83	.84	.58	.23	6.4	4.23	.66	1.74	1.74	3.4	1.59	3.1
Ges Beschwerdedruck	.91	.86	.46	.12	16.7	11.87	1.18	3.56	3.56	7.0	3.40	6.7
Selbsturteil 11-18 J.												
I Erschöpfung	.86	.82	.63	.18	5.0	3.24	1.11	1.21	1.21	2.4	1.12	2.2
II Magensymptomatik	.79	.76	.52	.16	4.6	2.68	.80	1.23	1.23	2.4	1.09	2.1
III Gliederschmerzen	.82	.79	.58	.11	3.1	2.71	1.52	1.15	1.15	2.3	1.04	2.0
IV Kreislaufsymptomatik	.84	.80	.59	.08	2.3	2.40	2.01	0.96	0.96	1.9	0.88	1.7
V Erkältungssymptomatik	.81	.82	.54	.31	8.6	3.28	.29	1.43	1.43	2.8	1.29	2.5
Ges Beschwerdedruck	.93	.90	.52	.17	23.6	11.36	.90	3.01	3.01	5.9	2.90	5.7

Notes. Raw scores for the subscales 0-28, total score 0-140; α =Cronbach's alpha; r_{tt} =split-half-reliability corrected according to Spearman-Brown; r_{is} =average selectivity with respect to each scale; p =average difficulty; SEM=standard error of measurement; SEE=standard error of estimation; N=1950.

3.3 Scale Statistics and Sociodemographic Correlates

Table 5 describes the distribution of the GBB-KJ scales. They are more or less negatively skewed and hypoexcessively, unimodally distributed (“Erkältungssymptomatik“ in the self-report is slightly hyperexcessive). Subgroup analyses show that these are real log-normal distributions, which allow an ideal differentiation in the lower range of values. The average intercorrelation of scales is $Md_r=.41$ for the parent reports of the 4-10 year olds, .43 for the parent reports of the 11-18 year olds, and .54 for the self-reports of the 11-18 year olds. A 3x2-factorial ANOVA of each age/group combination covering all scales of the GBB-KJ shows the following results (4-5, 6-7, 8-10 for the 4-10 year olds parent report; 11-12, 13-15, 16-18 years for the parent and self-report of the 11-18-years old; boys, girls; see tab. 6): Some scales have small age effects (increasing values, exception: “Erkältungssymptomatik“ for the parent report of the 4-10 year olds). Sex effects occur predominantly in the 11-18 year olds (small or medium effects), which mean higher scores for girls (exception: “Gliederschmerzen“ for the parent report of the 4-18 year olds). Interactions exist only as small effects in the 11-18 year old children and adolescents (more or less severe increase for girls, constant or decreasing scores for boys). Whereas the effects for the parent and self-report form of the 11-18 year olds are relatively consistent, the younger group shows almost no differentiation.

Regarding the type of school (lower, middle and higher secondary school, comprehensive school), there are no differences in the extent or type of physical complaints in the parent or self-report. The only exception is a small effect on the scale “Magensymptomatik“ for the parent report (pupils of comprehensive schools show higher values than pupils of higher secondary schools). Neither the parental education nor the household income correlate with the GBB-KJ scales (tab. 7). An inference statistic on the nationality was not calculated due to the low number of foreign nationalities ($n=24$). Descriptive statistics show partly higher means and standard deviations for children and adolescents of foreign nationality.

Tab. 5: Intercorrelation of the GBB-KJ scales

	parent report (4-10 J.) n=923					parent report (11-18 J.) n=1027					self-report (11-18 J.) n=1027				
	II	III	IV	V	Ges	II	III	IV	V	Ges	II	III	IV	V	Ges
I Erschöpfung	.50	.42	.43	.48	.79	.49	.42	.49	.55	.80	.56	.55	.63	.58	.85
II Magensymptomatik		.29	.39	.53	.78		.36	.44	.53	.75		.46	.53	.57	.78
III Gliederschmerzen			.32	.31	.61			.42	.42	.68			.53	.45	.75
IV Kreislaufsymptomatik				.23	.51				.42	.68				.46	.76
V Erkältungssymptomatik					.81					.83					.80

Notes. Pearson correlation; N=1950.

Tab. 6: Age and sex effects in the GBB-KJ parent and self-report form

scale	age (df=2)			sex (df=1)			age x sex (df=2)		
	F	p	η^2	F	p	η^2	F	p	η^2
Elternurteil (4-10 J.; $n=923$)									
I Erschöpfung	.055	.946	.00	1.328	.249	.00	.423	.655	.00
II Magensymptomatik	.815	.443	.00	.728	.394	.00	.340	.712	.00
III Gliederschmerzen	11.988	.000	.03	6.018	.014	.01	.250	.779	.00
IV Kreislaufsymptomatik	9.485	.000	.02	.207	.649	.00	1.487	.227	.00
V Erkältungssymptomatik	3.600	.028	.01	.341	.559	.00	.688	.503	.00
Ges Beschwerdedruck	1.186	.306	.00	.792	.374	.00	.237	.789	.00
Elternurteil (11-18 J.; $n=1027$)									
I Erschöpfung	7.465	.001	.01	20.650	.000	.02	2.391	.092	.01
II Magensymptomatik	1.640	.194	.00	81.385	.000	.07	5.208	.006	.01
III Gliederschmerzen	1.224	.295	.00	.067	.796	.00	2.392	.092	.01
IV Kreislaufsymptomatik	4.097	.017	.01	19.265	.000	.02	3.477	.031	.01
V Erkältungssymptomatik	.763	.467	.00	59.889	.000	.06	1.663	.190	.00
Ges Beschwerdedruck	2.197	.112	.00	52.362	.000	.05	4.310	.014	.01
Selbsturteil (11-18 J.; $n=1027$)									
I Erschöpfung	15.410	.000	.03	31.748	.000	.03	1.265	.283	.00
II Magensymptomatik	.125	.882	.00	101.569	.000	.09	8.919	.000	.02
III Gliederschmerzen	1.338	.263	.00	4.714	.030	.01	.194	.823	.00
IV Kreislaufsymptomatik	10.377	.000	.02	42.491	.000	.04	2.345	.096	.01
V Erkältungssymptomatik	1.150	.317	.00	70.030	.000	.06	5.452	.004	.01
Ges Beschwerdedruck	5.352	.005	.01	69.409	.000	.06	3.978	.019	.01

Notes. Univariate 3x2 factorial ANOVA; partialised η^2 ; N=1950.

Tab. 7: Correlation of the GBB-KJ scales with socioeconomic variables

scale	type of school (df=2)			parental education* (df=1)			household income* (df=1)		
	F	p	η^2	F	p	η^2	F	p	η^2
parent report (4-10 J.; n=923)									
I Erschöpfung	-	-	-	.208	.648	.00	.010	.921	.00
II Magensymptomatik	-	-	-	.502	.479	.00	1.837	.176	.00
III Gliederschmerzen	-	-	-	.313	.576	.00	.051	.822	.00
IV Kreislaufsymptomatik	-	-	-	.002	.961	.00	1.367	.243	.00
V Erkältungssymptomatik	-	-	-	.728	.394	.00	.123	.725	.00
total Beschwerdedruck	-	-	-	.020	.889	.00	.337	.562	.00
parent report (11-18 J.; n=1027)									
I Erschöpfung	.863	.460	.00	.008	.929	.00	.022	.883	.00
II Magensymptomatik	5.125	.002	.02	1.091	.297	.00	.677	.411	.00
III Gliederschmerzen	1.391	.244	.00	.202	.653	.00	.152	.696	.00
IV Kreislaufsymptomatik	1.764	.153	.00	2.190	.139	.00	.122	.727	.00
V Erkältungssymptomatik	1.079	.357	.00	.035	.851	.00	.136	.712	.00
Ges Beschwerdedruck	.926	.428	.00	.111	.739	.00	.014	.905	.00
self-report (11-18 J.; n=1027)									
I Erschöpfung	2.197	.087	.00	.345	.557	.00	.176	.675	.00
II Magensymptomatik	.483	.694	.00	.177	.674	.00	.002	.965	.00
III Gliederschmerzen	.609	.609	.00	.013	.910	.00	.187	.666	.00
IV Kreislaufsymptomatik	1.916	.125	.00	1.006	.316	.00	.008	.927	.00
V Erkältungssymptomatik	.140	.936	.00	.015	.904	.00	.001	.974	.00
total Beschwerdedruck	.552	.647	.00	.018	.892	.00	.001	.972	.00

Notes. Univariate 1-factorial ANOVA; *highest values reported per parent; N=1950.

3.4 Consistency and Differences between the Parent and Self-Report

Table 8 shows the Intra-Class-Correlation of the two sources of information (two-way, random, single rater). The ICC-values for the agreement of the absolute raw scores range from ICC=.32 (“Kreislaufsymptomatik” in 11-14 year old girls) to .66 (“Magensymptomatik” in 11-14 year old boys, Md=.46). Partialising out the difference in means of the rater (consistency) results in an average interrater agreement of Md=.49 (Min=.35, Max=.67), in which the different raters evaluate physical complaints based on similar anchors. All five dimensions are evaluated similarly and consistently. Only “Kreislaufsymptomatik” is judged a bit more inconsistently. Furthermore, the interrater agreement is independent of the child’s age. However, there is an interaction with sex: While consistency for boys in every dimension decreases slightly with increasing age, consistency for girls increases slightly (descriptive analyses).

Figure 2 illustrates the distribution of the parent and self-report data for 11-18 year olds by box plots. Means and standard deviations of all subscales are higher in the self-report (also for the total score, not shown). The age- and sex- specific comparison of means of the parent and self-report for the 11-18 year olds with a 2x2x2-factorial ANOVA (repeated measure) indicates a significant rater effect of at least medium size for all scales (tab. 9). Low interaction effects (rater and age) exist for “Erschöpfung”, rater and sex interactions exist for “Kreislaufsymptomatik“, and “Beschwerdedruck“. In all cases the self-report shows higher scores (compare fig. 2). Interactions of second order do not exist.

Tab. 8: Correlation of the parent and self-report GBB-KJ scales in 11-18 years old children and adolescents with respect to age and sex

scale	absolute agreement				consistency				absolute agreement total	con- sistency total
	boys		girls		boys		girls			
	11-14 (n=261)	15-18 (n=245)	11-14 (n=257)	15-18 (n=264)	11-14 (n=261)	15-18 (n=245)	11-14 (n=257)	15-18 (n=264)		
I Erschöpfung	.55	.42	.41	.52	.57	.47	.44	.58	.50	.53
II Magensymptomatik	.66	.51	.39	.43	.67	.53	.40	.47	.53	.56
III Gliederschmerzen	.48	.47	.51	.50	.49	.49	.54	.54	.49	.52
IV Kreislaufsymptomatik	.44	.45	.32	.43	.45	.49	.35	.50	.42	.46
V Erkältungssymptomatik	.47	.36	.44	.50	.52	.42	.48	.58	.48	.54
total Beschwerdedruck	.58	.43	.37	.46	.62	.49	.41	.55	.48	.54

Notes. Intra-Class-Correlation (2-way, random, single rater); $p \leq .001$ for all correlations; $N=1027$.

Tab. 9: Differences of means of the parent and self-report form with respect to age and sex

scale	source of information (df=1)			source x age (df=1)			source x sex (df=1)			source x age x sex (df=1)		
	F	p	η^2	F	p	η^2	F	p	η^2	F	p	η^2
	I Erschöpfung	170.211	.000	.14	14.802	.000	.01	5.782	.016	.00	.249	.618	.00
II Magensymptomatik	97.536	.000	.09	2.738	.098	.00	9.792	.002	.00	.815	.367	.00
III Gliederschmerzen	99.108	.000	.09	1.476	.225	.00	4.387	.036	.00	.817	.366	.00
IV Kreislaufsymptomatik	170.674	.000	.14	6.037	.014	.00	18.400	.000	.02	.177	.674	.00
V Erkältungssymptomatik	277.804	.000	.21	4.660	.031	.00	1.940	.164	.00	.360	.549	.00
total Beschwerdedruck	279.756	.000	.22	9.178	.003	.00	11.151	.001	.01	.003	.959	.00

Notes. Univariate 2x2x2-factorial repeated measure ANOVA; $df(\text{error})=1023$; partialised η^2 ; $N=1027$.

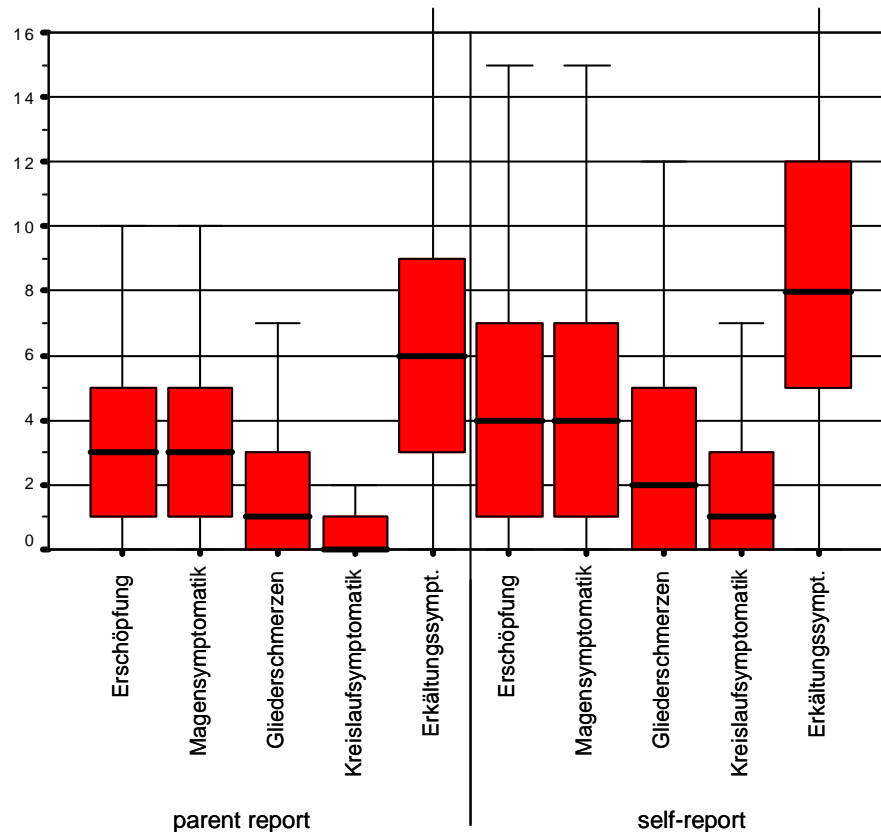


Fig. 2: Distribution of the GBB-KJ scales in the parent and self-report of 11-18 years old children and adolescents ($N=1027$)

3.5 Standardization

According to the definition of population, normative data represent 4-18 year old children and adolescents who have their main residence in Germany, are German-speaking, and have at least one German-speaking parent or surrogate parent. Thereby physically and/or mentally ill persons are included according to their natural prevalence in the population. The heterogeneity of the data requires groupwise standardization separated for age, sex, and source of information. The chosen age classes 4-6, 7-10, 11-14, and 15-18 years are a compromise for age effects, number of subjects per group, and equal distribution of group sizes. Due to the significant aberrance of the raw scores from normal distribution, percentiles were first calculated. To each raw score, the groupwise, specific percentile was assigned using a correction of the cumulative frequencies to the middle of the interval (tab. 10a-f). Moreover T-scores are presented, which were calculated by assignment of z-values to the

percentiles (following McCall, compare Lienert & Raatz, 1994; tab. 11a-f, the 100th percentile of each scale was set as a T-value of 100).

Because a clinical validation of cut-off-values is not possible with this data set, provisional statistical cut-offs are offered: For the five subscales the values from the 95th percentile and above, for the total score the 90th percentile and above are chosen. The corresponding cells in the normative tables 10 and 11 are emphasized in grey. The total score gets a lower threshold to clinical significance because it includes many more complaints than the subscales.

4. Discussion

4.1 Main Results

A Psychometric Properties

1. The 35 item - five factor - one metafactor - Model of Brähler (1992) can be confirmed in this data set: The global fit over all three groups and different indices is acceptable to good. The reliability of the single indicators ranges from $\lambda^2=.23$ to .76 ($Md=.52$), and the intercorrelation of scales ranges from $r=.47$ to .69 ($Md=.55$).
2. The item difficulties are densely in the lower and much more widely distributed in the higher range of values ($Md_g=.11$). The subscale-specific selectivity coefficients are scattered around $Md_{ris}=.54$, internal consistency around $Md_g=.81$ and split-half-reliabilities around $Md_{tt}=.79$.

B Interrater Reliability

3. The agreement of the absolute raw scores between the parent and self-report of the 11-18 year olds ranges from $ICC=.32$ to .66 ($Md=.46$).
4. The parent and self-report use similar anchors for their judges, but means and standard deviations are a bit higher for the self-report.

C Normative Data

5. Groupwise percentiles and T-Scores can be calculated for age (4-6, 7-10, 11-14, and 15-18 years), sex, and source of information.
6. Because a clinical validation of cut-off-values is not possible with this data set, provisional statistical cut-offs are offered. These represent a significant subjective impairment due to physical complaints in the sense of a (psycho-)somatic need for diagnostics (subscales ≥ 95 th and total score ≥ 90 th percentile).

4.2 Discussion of Selected Results

Although the model of the GBB-KJ can be confirmed in all three groups, the fit indices for the parent reports of the 4-10 year olds are only just acceptable. Yet, the explorative analyses indicate that objective and systematic strategies do not lead to a better model (tested with different age groups, dichotomized item distributions, and elimination of the most difficult items). The lack of an exact statistical test for significance when using the ULS algorithm is not relevant due to its inferior meaningfulness in large sample sizes (Bortz, 2005). Other (parametric) methods of estimation showed an unacceptable fit, probably due to the

aberration of the multinomial distribution, which could not be improved by logarithm transformations. The test of the five-factor model without the metafactor led to similar results. The additional comparison of the factorial structure of all three groups with the model matrix offers a combination of hypotheses testing according to the five-factor model and test of congruency of the three solutions in the sense of interrater agreement. The results confirm the data of the linear structure analyses, also in the weaker fit for the 4-10-year old parent reports.

The exclusive use of the 35 items for building the five scales lead to a size reduction of 41%. Thereby such a short version of the GBB-KJ is recommended for use in large sample studies like epidemiological analyses. In contrast, for individual clinical diagnostics, the remaining 24 complaints are essential.

There are no items that can be eliminated due to theoretical reasons or regarding content (social norms, redundancy, etc.). Item difficulties are mostly high and not balanced, although there are no large breaks. Item curves (not presented) are mostly monotonous, steeply increasing corresponding to the selectivity, and predominantly indicate a better differentiation in the lower range of values. About one item per scale has a non-monotonous increase, also decreasing curves between the response categories "oft" and "dauernd" partly occur. Altogether, the GBB-KJ is a difficult test for an unselected field population. Possibly, other response categories would improve its ability of differentiation.

On average, all parameters of reliability are worst for the 4-10 year old parent reports and best for the 11-18 year old self-reports. Yet, under consideration of differences of samples, the results correspond to the data of the normative study of Prehler (1991). In consideration of the high item difficulties, the scalewise selectivity has to be appraised as good (exception: "Kreislaufsymptomatik" for the 4-10 year old parent reports). Internal consistencies in all groups are also satisfactory (with the same exception). Split-half-reliabilities confirm this picture. Data on retest reliability could not have been obtained with this data set (but requires an explicitly defined period prevalence anyway).

Means and standard deviations of all three groups are clearly lower than in the normative sample of Prehler (1991). This can be interpreted as an actual decrease in physical complaints between both time points or as a non-representativeness of one or both samples. Newest study results indicate that e.g. the interview setting has a systematic influence on the self-report of complaints (Prüß, Widdern, Ferber, Ferber & Lehmkuhl, 2005). The constant floor effects are extreme for "Kreislaufsymptomatik". Apparently, these characteristics occur

very seldom in children and adolescents. The average intercorrelation of scales is in the area of medium effect sizes, which indicate a moderate association between the different dimensions of physical complaints.

The five dimensions show different courses with respect to age and sex, especially at the beginning of puberty. Increasing complaints for girls and lower scores for boys correspond to the biological and social changes that are typical in this stage of development (e.g. start of menstruation and takeover of masculine role behavior).

Because the GBB-KJ obtains subjective physical complaints, the self-report could be seen as a gold standard and the parent report as a predictor or estimator. The goodness of this estimation has to be appraised as statistically moderate, yet is typical for clinical parent- and self-ratings (Döpfner & Lehmkuhl, 1997). Differences can be explained by the latent and subjective character of the items as well as possible tendencies of dramatization or trivialization of children, adolescents, and parents.

Cut-off values can only be valid with respect to unambiguously defined constructs and populations. Under the assumption that all subjects of the normative sample are physically healthy, a cut-off can be used as a case definition for clinical psychosomatic significance in a sense of clinically indicated need for diagnostic, counselling and/or treatment. Under the assumption that the physical reasons are still unclear, the cut-off is a case definition of clinically significant subjective impairment in the sense of a need for somatic diagnostic. When physical reasons cannot be verified, a psychological-psychosomatic diagnostic should follow. Under the assumption of positively diagnosed physically ill subjects, disease-specific normative data should be used, which then can represent a case definition for clinical significant impairment by physical complaints for this specific disease.

4.3 Conclusion

In summary, the following conclusions can be drawn from the current data:

- The GBB-KJ in the current five-factorial version can be seen as satisfactory to good factorial valid and reliable in unselected field populations of 4-18 year old children and adolescents in the parent and self-report. Whether this applies to clinical populations, future studies need to be conducted.

- The main problem of the questionnaire is the high item difficulty, or floor effects respectively, especially for the scale "Kreislaufsymptomatik". This may be responsible for the fact that the parent reports of the 4-10 year olds showed the worst properties in all psychometric aspects.
- The cross-sectional coefficients of reliability range from satisfactory to good (exception: "Kreislaufsymptomatik"). The test-retest-reliability and sensitivity of change still have to be determined.
- Besides Lindloff (1987) and Roth (1999), there are no explicit investigations of criterion and construct validity. However, the age and sex effects consistently found in different independent studies correspond to theoretical expectations and can at least be viewed as an implicit proof of validity.
- The parent reports can only be seen as a limited substitute for the self-report and should be complemented by questionnaires for children and adolescents whenever possible.
- The transparency of the questionnaire requires a systematic investigation of possible forms of bias.
- In research studies, the 35-item short form is recommended.
- The interpretation of normative data and clinical cut-offs depends on the knowledge of existence of an actual physical disease; physical complaints should not automatically be seen as psychosomatic complaints. To date, appropriate samples and ROC-analyses are still lacking.

Up to now, comparatively few empirical data on frequency, distribution and correlates of items and scales of the GBB-KJ are available. One reason for this may be its restricted utility due to the disadvantages listed above. However, there are no alternatives to the GBB-KJ for clinical practice as well as scientific research to date so continuing investigations on its psychometric properties may prove worthwhile.

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6. Appendix

Tab. 10a: Percentiles of the GBB-KJ scales (N=1950)

4-6y, boys, parent report (n=204)											4-6y, girls, parent report (n=196)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	17	5	32	44	1	1	29	93	58		0	16	5	36	45	4	2	29	94	58	
1	44	18	69	91	4	3	30	94	59		1	40	17	76	93	8	4	30	94	59	
2	61	33	78	97	9	5	31	96	60		2	55	30	85	96	11	6	31	95	60	
3	72	47	86	98	15	7	32	96	61		3	67	44	91	98	17	8	32	95	61	
4	79	61	90	99	25	9	33	97	62		4	76	57	93	99	24	10	33	96	62	
5	83	72	93	99	36	13	34	98	63		5	84	70	95	100	33	13	34	97	63	
6	88	81	95	100	45	18	35	98	64		6	90	82	97	...	41	16	35	97	64	
7	93	88	97	...	54	23	36	99	65		7	94	90	98	...	50	21	36	97	65	
8	96	92	98	...	62	27	37	99	66		8	96	94	99	...	61	25	37	97	66	
9	97	95	98	...	69	32	38	99	67		9	97	96	99	...	71	30	38	98	67	
10	98	97	99	...	77	37	39	99	68		10	99	98	100	...	80	36	39	99	68	
11	98	98	100	...	84	43	40	99	69		11	99	99	...	...	86	41	40	99	69	
12	99	99	...	...	89	48	41	99	70		12	99	100	...	...	91	47	41	99	70	
13	99	100	...	...	93	51	42	99	71		13	100	...	...	...	93	53	42	99	71	
14	100	...	...	...	96	53	43	99	72		14	...	...	...	...	95	58	43	99	72	
15	...	...	...	...	97	58	44	99	73		15	...	...	...	...	97	62	44	99	73	
16	...	...	...	...	98	64	45	99	74		16	...	...	...	...	98	66	45	99	74	
17	...	...	...	...	99	68	46	100	75		17	...	...	...	...	99	69	46	99	75	
18	...	...	...	...	99	72	47	...	76		18	...	...	...	...	99	73	47	100	76	
19	...	...	...	...	100	75	48	...	77		19	...	...	...	...	99	77	48	...	77	
20	...	...	...	...	...	77	49	...	78		20	...	...	...	...	99	80	49	...	78	
21	...	...	...	...	...	79	50	...	79		21	...	...	...	...	99	82	50	...	79	
22	...	...	...	...	...	81	51	...	80		22	...	...	...	...	100	84	51	...	80	
23	...	...	...	...	...	83	52	...	...		23	...	...	...	...	...	85	52	...	...
24	...	...	...	...	...	85	53	...	...		24	...	...	...	...	...	87	53	...	...
25	...	...	...	...	...	86	54	...	...		25	...	...	...	...	...	89	54	...	...
26	...	...	...	...	...	88	55	...	...		26	...	...	...	...	...	91	55	...	...
27	...	...	...	...	...	89	56	...	...		27	...	...	...	...	...	92	56	...	...
28	...	...	...	...	...	91	57	...	...		28	...	...	...	...	...	93	57	...	...

Tab. 10b: Percentiles of the GBB-KJ scales ($N=1950$)

7-10y, boys, parent report (n=280)											7-10y, girls, parent report (n=243)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	16	6	26	42	3	1	29	91	58		0	17	7	27	41	4	2	29	94	58	
1	39	19	60	88	8	3	30	91	59		1	44	20	60	85	8	5	30	94	59	
2	53	33	70	94	13	6	31	92	60		2	59	33	74	91	13	7	31	95	60	
3	65	46	77	96	21	9	32	94	61		3	72	47	83	95	20	10	32	95	61	
4	73	58	83	98	31	13	33	95	62		4	81	61	89	97	27	12	33	96	62	
5	80	69	89	99	42	17	34	96	63		5	88	76	93	99	36	15	34	97	63	
6	87	79	93	100	51	21	35	97	64		6	93	86	95	99	45	18	35	97	64	
7	91	87	95	...	61	25	36	97	65		7	95	91	97	99	57	23	36	97	65	
8	95	93	96		70	29	37	97	66		8	97	94	98	100	67	27	37	98	66	
9	97	95	97		78	32	38	98	67		9	98	96	98	...	76	29	38	98	67	
10	98	97	98		85	36	39	98	68		10	99	98	99		84	34	39	98	68	
11	99	98	99		90	42	40	99	69		11	99	99	99		89	41	40	98	69	
12	99	99	99		94	47	41	99	70		12	99	99	100		93	47	41	99	70	
13	99	99	99		96	51	42	99	71		13	99	99	...		95	53	42	99	71	
14	100	100	100		98	54	43	99	72		14	99	100			97	58	43	99	72	
15	...	...	...		99	58	44	99	73		15	100	...			99	62	44	99	73	
16					99	63	45	99	74		16	...				99	67	45	99	74	
17					99	66	46	99	75		17					99	71	46	99	75	
18					100	69	47	99	76		18					100	74	47	99	76	
19					...	73	48	100	77		19					...	77	48	99	77	
20						75	49	...	78		20						80	49	99	78	
21						78	50		79		21						82	50	100	79	
22						81	51		80		22						85	51	...	80	
23						83	52		...		23						88	52		...	
24						84	53				24						90	53			
25						86	54				25						90	54			
26						87	55				26						91	55			
27						88	56				27						92	56			
28						90	57				28						93	57			

Tab. 10c: Percentiles of the GBB-KJ scales (N=1950)

11-14y, boys, parent report (n=261)							11-14y, girls, parent report (n=257)														
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	16	11	24	38	3	2	29	90	58		0	9	4	24	29	2	0	29	85	58	99
1	37	29	53	81	10	5	30	91	59		1	27	14	55	67	6	1	30	86	59	99
2	50	41	63	88	17	9	31	93	60		2	41	27	65	78	11	4	31	87	60	99
3	61	54	72	92	25	12	32	93	61		3	55	42	73	86	17	6	32	88	61	100
4	71	65	80	95	34	16	33	95	62		4	66	54	80	92	25	8	33	89	62	...
5	81	75	85	97	45	20	34	96	63		5	75	64	84	95	35	10	34	90	63	
6	88	83	89	98	55	24	35	96	64		6	82	71	90	97	42	12	35	92	64	
7	93	88	93	98	66	28	36	96	65		7	86	80	94	97	51	15	36	93	65	
8	96	93	95	99	75	32	37	97	66		8	90	87	97	98	60	19	37	94	66	
9	96	96	97	99	82	36	38	98	67		9	93	90	98	98	68	23	38	94	67	
10	97	97	98	99	88	40	39	98	68		10	95	94	99	98	75	27	39	94	68	
11	98	98	99	100	93	45	40	98	69		11	96	96	99	99	81	30	40	95	69	
12	99	99	99	...	96	49	41	99	70		12	97	98	99	99	86	33	41	95	70	
13	99	100	99		97	53	42	99	71		13	98	99	99	99	90	36	42	96	71	
14	100	...	100		98	57	43	99	72		14	98	99	100	99	94	40	43	96	72	
15	...		...		99	60	44	99	73		15	99	100	...	99	97	46	44	96	73	
16					100	63	45	99	74		16	99	...		100	98	49	45	97	74	
17					...	66	46	99	75		17	99			...	98	53	46	97	75	
18						68	47	100	76		18	99				99	58	47	97	76	
19						70	48	...	77		19	100				99	61	48	98	77	
20						72	49		78		20	...				99	64	49	98	78	
21						75	50		79		21					100	68	50	98	79	
22						77	51		80		22					...	71	51	98	80	
23						79	52		...		23						74	52	98	...	
24						82	53				24						76	53	99		
25						85	54				25						78	54	99		
26						86	55				26						79	55	99		
27						88	56				27						82	56	99		
28						89	57				28						84	57	99		

Tab. 10d: Percentiles of the GBB-KJ scales ($N=1950$)

15-18y, boys, parent report (n=245)											15-18y, girls, parent report (n=264)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	12	14	22	33	5	2	29	90	58	99	0	7	5	20	23	3	1	29	79	58	99
1	32	38	49	73	14	7	30	92	59	99	1	19	14	46	55	8	2	30	80	59	99
2	46	55	61	83	22	10	31	93	60	99	2	30	22	58	70	12	3	31	82	60	100
3	59	67	72	89	33	13	32	94	61	99	3	42	32	67	79	16	5	32	84	61	...
4	70	79	78	93	47	18	33	95	62	99	4	54	43	75	85	22	7	33	85	62	
5	77	88	85	96	56	24	34	96	63	99	5	65	56	81	89	30	8	34	86	63	
6	82	92	91	97	64	28	35	97	64	99	6	74	69	87	92	38	11	35	87	64	
7	88	96	94	98	74	31	36	97	65	100	7	80	79	91	96	49	13	36	89	65	
8	91	97	96	99	79	34	37	98	66	...	8	83	86	94	98	59	15	37	90	66	
9	94	99	98	99	83	38	38	98	67		9	87	91	96	99	66	17	38	91	67	
10	97	99	98	99	87	43	39	98	68		10	91	95	98	99	72	19	39	92	68	
11	97	100	99	99	93	48	40	98	69		11	93	97	99	99	76	21	40	92	69	
12	98	...	99	99	96	52	41	98	70		12	95	98	100	99	81	25	41	93	70	
13	99		99	99	97	59	42	98	71		13	97	99	...	100	86	29	42	93	71	
14	99		100	100	98	64	43	98	72		14	98	100		...	90	33	43	94	72	
15	99		...	...	99	67	44	98	73		15	98	...			92	35	44	94	73	
16	100				99	69	45	98	74		16	99				94	39	45	95	74	
17	...				100	71	46	98	75		17	99				95	42	46	95	75	
18					...	73	47	99	76		18	99				96	46	47	95	76	
19						77	48	99	77		19	99				97	49	48	96	77	
20						80	49	99	78		20	99				98	52	49	96	78	
21						82	50	99	79		21	100				99	56	50	96	79	
22						83	51	99	80		22	...				100	60	51	96	80	
23						84	52	99	...		23					...	63	52	96	...	
24						85	53	99			24						66	53	96		
25						86	54	99			25						70	54	96		
26						87	55	99			26						73	55	97		
27						88	56	99			27						75	56	97		
28						89	57	99			28						77	57	99		

Tab. 10e: Percentiles of the GBB-KJ scales (N=1950)

11-14y, boys, self-report (n=261)											11-14y, girls, self-report (n=257)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	11	8	20	30	2	1	29	81	58	99	0	8	4	16	20	1	1	29	66	58	96
1	30	24	47	67	5	1	30	82	59	99	1	19	12	39	48	4	1	30	69	59	96
2	43	38	59	79	8	5	31	83	60	99	2	28	19	51	61	5	2	31	72	60	97
3	53	49	69	85	13	8	32	84	61	99	3	39	28	62	71	7	2	32	73	61	97
4	64	58	74	90	18	10	33	86	62	99	4	51	39	70	77	11	3	33	75	62	97
5	73	67	79	94	26	12	34	87	63	99	5	59	52	75	81	18	4	34	77	63	97
6	80	75	84	96	36	15	35	89	64	99	6	66	61	80	85	25	6	35	78	64	97
7	87	82	89	97	48	17	36	90	65	99	7	75	70	86	88	33	9	36	79	65	97
8	91	88	91	98	60	21	37	91	66	99	8	82	77	89	91	41	11	37	80	66	98
9	93	93	92	98	67	25	38	92	67	99	9	85	83	92	94	49	13	38	81	67	98
10	95	96	95	99	74	29	39	92	68	100	10	87	88	94	96	58	16	39	82	68	98
11	96	97	97	99	81	32	40	93	69	...	11	90	93	95	96	67	19	40	82	69	99
12	97	98	98	100	87	35	41	93	70	...	12	91	96	97	97	76	22	41	84	70	98
13	98	99	98	...	90	39	42	94	71	...	13	93	98	98	97	84	24	42	85	71	98
14	99	99	99	...	94	43	43	95	72	...	14	94	98	98	98	87	27	43	86	72	99
15	99	99	99	...	97	47	44	96	73	...	15	96	99	99	98	90	30	44	87	73	99
16	99	100	99	...	99	51	45	97	74	...	16	98	99	99	98	93	32	45	88	74	99
17	99	...	100	...	100	54	46	97	75	...	17	99	99	99	99	95	35	46	89	75	99
18	100	...	...	...	...	56	47	98	76	...	18	100	100	99	99	96	38	47	89	76	99
19	...	...	...	...	...	59	48	98	77	...	19	...	...	99	99	98	40	48	90	77	99
20	...	...	...	...	...	62	49	99	78	...	20	...	...	99	100	99	44	49	91	78	100
21	...	...	...	...	...	64	50	99	79	...	21	...	...	100	...	99	47	50	92	79	...
22	...	...	...	...	...	67	51	99	80	...	22	...	...	...	...	100	49	51	93	80	...
23	...	...	...	...	...	70	52	99	...	...	23	...	...	...	...	...	51	52	94	...	...
24	...	...	...	...	...	72	53	99	...	...	24	...	...	...	...	...	54	53	95	...	...
25	...	...	...	...	...	74	54	99	...	...	25	...	...	...	...	...	56	54	95	...	...
26	...	...	...	...	...	76	55	99	...	...	26	...	...	...	...	...	58	55	95	...	...
27	...	...	...	...	...	78	56	99	...	...	27	...	...	...	...	...	61	56	96	...	...
28	...	...	...	...	...	80	57	99	...	...	28	...	...	...	...	...	64	57	96	...	...

Tab. 10f: Percentiles of the GBB-KJ scales (N=1950)

15-18y, boys, self-report (n=245)											15-18y, girls, self-report (n=264)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	8	11	15	25	3	2	29	77	58	99	0	5	4	14	15	1	1	29	51	58	92
1	21	32	38	55	7	4	30	78	59	99	1	13	11	34	38	3	2	30	53	59	93
2	32	48	50	66	11	6	31	80	60	99	2	20	15	46	49	4	2	31	55	60	93
3	41	60	60	74	16	8	32	81	61	99	3	29	22	56	57	6	2	32	57	61	93
4	50	69	69	80	23	9	33	82	62	99	4	37	32	65	65	10	3	33	60	62	94
5	58	75	75	85	32	11	34	84	63	99	5	43	42	72	72	14	4	34	64	63	95
6	65	81	80	89	41	14	35	86	64	99	6	52	50	77	78	20	5	35	66	64	95
7	72	88	86	92	51	18	36	87	65	100	7	59	59	81	84	25	7	36	68	65	96
8	78	93	91	95	60	20	37	88	66	...	8	63	69	84	88	33	7	37	70	66	96
9	84	95	93	97	67	22	38	89	67	...	9	68	77	88	90	40	9	38	71	67	98
10	88	97	95	98	74	25	39	90	68	...	10	75	84	91	92	47	9	39	73	68	98
11	91	99	96	98	80	28	40	91	69	...	11	79	88	92	94	56	10	40	74	69	98
12	93	100	97	99	86	31	41	91	70	...	12	84	92	94	96	63	12	41	76	70	98
13	95	...	97	99	91	35	42	92	71	...	13	89	95	95	97	69	15	42	78	71	99
14	96	...	98	100	94	40	43	92	72	...	14	91	97	98	98	74	18	43	79	72	99
15	97	...	100	...	96	43	44	93	73	...	15	92	98	99	98	80	20	44	80	73	99
16	98	...	...	...	98	45	45	94	74	...	16	94	98	99	99	85	22	45	80	74	99
17	98	...	...	...	99	48	46	94	75	...	17	96	98	100	100	90	25	46	82	75	99
18	99	...	...	...	99	51	47	95	76	...	18	98	99	...	...	95	27	47	82	76	100
19	99	...	...	...	100	54	48	95	77	...	19	99	100	...	...	96	29	48	83	77	...
20	99	...	...	...	...	56	49	96	78	...	20	99	...	...	...	98	31	49	84	78	...
21	99	...	...	...	...	58	50	96	79	...	21	99	...	...	...	99	34	50	86	79	...
22	100	...	...	...	...	60	51	97	80	...	22	100	...	...	...	100	36	51	86	80	...
23	...	...	...	...	...	64	52	97	...	...	23	...	...	...	...	...	38	52	87	...	...
24	...	...	...	...	...	66	53	97	...	...	24	...	...	...	...	...	40	53	88	...	...
25	...	...	...	...	...	69	54	97	...	...	25	...	...	...	...	...	41	54	89	...	...
26	...	...	...	...	...	71	55	97	...	...	26	...	...	...	...	...	44	55	90	...	...
27	...	...	...	...	...	73	56	98	...	...	27	...	...	...	...	...	47	56	92	...	...
28	...	...	...	...	...	76	57	98	...	...	28	...	...	...	...	...	49	57	92	...	...

Tab. 11a: T-Scores of the GBB-KJ-Scales (N=1950)

4-6y, boys, parent report (n=204)										4-6y, girls, parent report (n=196)												
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	
0	40	34	45	48	27	27	29	65	58	0	40	34	46	49	32	29	29	66	58	0	66	58
1	48	41	55	63	32	31	30	66	59	1	47	40	57	65	36	32	30	66	59	1	66	59
2	53	46	58	69	37	34	31	68	60	2	51	45	60	68	38	34	31	66	60	2	66	60
3	56	49	61	71	40	35	32	68	61	3	54	48	63	71	40	36	32	66	61	3	66	61
4	58	53	63	73	43	37	33	69	62	4	57	52	65	73	43	37	33	68	62	4	68	62
5	60	56	65	73	46	39	34	71	63	5	60	55	66	100	46	39	34	69	63	5	69	63
6	62	59	66	100	49	41	35	71	64	6	63	59	69	...	48	40	35	69	64	6	69	64
7	65	62	69	...	51	43	36	73	65	7	66	63	71	...	50	42	36	69	65	7	69	65
8	68	64	71	...	53	44	37	73	66	8	68	66	73	...	53	43	37	69	66	8	69	66
9	69	66	71	...	55	45	38	73	67	9	69	68	73	...	56	45	38	71	67	9	71	67
10	71	69	73	...	57	47	39	73	68	10	73	71	100	...	58	46	39	73	68	10	73	68
11	71	71	100	...	60	48	40	73	69	11	73	73	...	...	61	48	40	73	69	11	73	69
12	73	73	...	...	62	49	41	73	70	12	73	100	...	...	63	49	41	73	70	12	73	70
13	73	100	...	...	65	50	42	73	71	13	100	...	...	...	65	51	42	73	71	13	73	71
14	100	...	...	...	68	51	43	73	72	14	...	...	...	...	66	52	43	73	72	14	73	72
15	...	...	...	...	69	52	44	73	73	15	...	...	...	...	69	53	44	73	73	15	73	73
16	...	...	...	...	71	54	45	73	74	16	...	...	...	...	71	54	45	73	74	16	73	74
17	...	...	...	...	73	55	46	100	75	17	...	...	...	...	73	55	46	73	75	17	73	75
18	...	...	...	...	73	56	47	...	76	18	...	...	...	...	73	56	47	100	76	18	...	76
19	...	...	...	...	100	57	48	...	77	19	...	...	...	...	73	57	48	...	77	19	...	77
20	...	...	...	...	...	57	49	...	78	20	...	...	...	...	73	58	49	...	78	20	...	78
21	...	...	...	...	...	58	50	...	79	21	...	...	...	...	73	59	50	...	79	21	...	79
22	...	...	...	...	...	59	51	...	80	22	...	...	...	...	100	60	51	...	80	22	...	80
23	...	...	...	...	...	60	52	...	...	23	...	...	...	...	...	60	52	...	...	23	...	...
24	...	...	...	...	...	60	53	...	...	24	...	...	...	...	...	61	53	...	...	24	...	...
25	...	...	...	...	...	61	54	...	...	25	...	...	...	...	...	62	54	...	...	25	...	...
26	...	...	...	...	...	62	55	...	...	26	...	...	...	...	...	63	55	...	...	26	...	...
27	...	...	...	...	...	62	56	...	...	27	...	...	...	...	...	64	56	...	...	27	...	...
28	...	...	...	...	...	63	57	...	...	28	...	...	...	...	...	65	57	...	...	28	...	...

Tab. 11b: T-Scores of the GBB-KJ-Scales (N=1950)

7-10y, boys, parent report (n=280)											7-10y, girls, parent report (n=243)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	40	34	44	48	31	27	29	63	58		0	40	35	44	48	32	29	29	66	58	
1	47	41	53	62	36	31	30	63	59		1	48	42	53	60	36	34	30	66	59	
2	51	46	55	66	39	34	31	64	60		2	52	46	56	63	39	35	31	66	60	
3	54	49	57	68	42	37	32	66	61		3	56	49	60	66	42	37	32	66	61	
4	56	52	60	71	45	39	33	66	62		4	59	53	62	69	44	38	33	68	62	
5	58	55	62	73	48	40	34	68	63		5	62	57	65	73	46	40	34	69	63	
6	61	58	65	100	50	42	35	69	64		6	65	61	66	73	49	41	35	69	64	
7	63	61	66	...	53	43	36	69	65		7	66	63	69	73	52	43	36	69	65	
8	66	65	68		55	44	37	69	66		8	69	66	71	100	54	44	37	71	66	
9	69	66	69		58	45	38	71	67		9	71	68	71	...	57	44	38	71	67	
10	71	69	71		60	46	39	71	68		10	73	71	73		60	46	39	71	68	
11	73	71	73		63	48	40	73	69		11	73	73	73		62	48	40	71	69	
12	73	73	73		66	49	41	73	70		12	73	73	100		65	49	41	73	70	
13	73	73	73		68	50	42	73	71		13	73	73	...		66	51	42	73	71	
14	100	100	100		71	51	43	73	72		14	73	100			69	52	43	73	72	
15	...	...	...		73	52	44	73	73		15	100	...			73	53	44	73	73	
16					73	53	45	73	74		16	...				73	54	45	73	74	
17					73	54	46	73	75		17					73	56	46	73	75	
18					100	55	47	73	76		18					100	56	47	73	76	
19					...	56	48	100	77		19					...	57	48	73	77	
20						57	49	...	78		20						58	49	73	78	
21						58	50		79		21						59	50	100	79	
22						59	51		80		22						60	51	...	80	
23						60	52		...		23						62	52			
24						60	53				24						63	53			
25						61	54				25						63	54			
26						61	55				26						63	55			
27						62	56				27						64	56			
28						63	57				28						65	57			

Tab. 11c: T-Scores of the GBB-KJ-Scales (N=1950)

11-14y, boys, parent report (n=261)											11-14y, girls, parent report (n=257)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	40	38	43	47	31	29	29	63	58		0	37	32	43	44	29	-	29	60	58	73
1	47	44	51	59	37	34	30	63	59		1	44	39	51	54	34	27	30	61	59	73
2	50	48	53	62	40	37	31	65	60		2	48	44	54	58	38	32	31	61	60	73
3	53	51	56	64	43	38	32	65	61		3	51	48	56	61	40	34	32	62	61	100
4	56	54	58	66	46	40	33	66	62		4	54	51	58	64	43	36	33	62	62	...
5	59	57	60	69	49	42	34	68	63		5	57	54	60	66	46	37	34	63	63	
6	62	60	62	71	51	43	35	68	64		6	59	56	63	69	48	38	35	64	64	
7	65	62	65	71	54	44	36	68	65		7	61	58	66	69	50	40	36	65	65	
8	68	65	66	73	57	45	37	69	66		8	63	61	69	71	53	41	37	66	66	
9	68	68	69	73	59	46	38	71	67		9	65	63	71	71	55	43	38	66	67	
10	69	69	71	73	62	47	39	71	68		10	66	66	73	71	57	44	39	66	68	
11	71	71	73	100	65	49	40	71	69		11	68	68	73	73	59	45	40	66	69	
12	73	73	73	...	68	50	41	73	70		12	69	71	73	73	61	46	41	66	70	
13	73	100	73		69	51	42	73	71		13	71	73	73	73	63	46	42	68	71	
14	100	...	100		71	52	43	73	72		14	71	73	100	73	66	47	43	68	72	
15	...		...		73	53	44	73	73		15	73	100	...	73	69	49	44	68	73	
16					100	53	45	73	74		16	73	...		100	71	50	45	69	74	
17					...	54	46	73	75		17	73			...	71	51	46	69	75	
18						55	47	100	76		18	73				73	52	47	69	76	
19						55	48	...	77		19	100				73	53	48	71	77	
20						56	49		78		20	...				73	54	49	71	78	
21						57	50		79		21					100	55	50	71	79	
22						57	51		80		22					...	56	51	71	80	
23						58	52		...		23						56	52	71	...	
24						59	53				24						57	53	73		
25						60	54				25						58	54	73		
26						61	55				26						58	55	73		
27						62	56				27						59	56	73		
28						62	57				28						60	57	73		

Tab. 11d: T-Scores of the GBB-KJ-Scales (N=1950)

15-18y, boys, parent report (n=245)											15-18y, girls, parent report (n=264)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	38	39	42	46	34	29	29	63	58	73	0	35	34	42	43	31	27	29	58	58	73
1	45	47	50	56	39	35	30	64	59	73	1	41	39	49	51	36	29	30	58	59	73
2	49	51	53	60	42	37	31	65	60	73	2	45	42	52	55	38	31	31	59	60	100
3	52	54	56	62	46	39	32	66	61	73	3	48	45	54	58	40	34	32	60	61	...
4	55	58	58	65	49	41	33	66	62	73	4	51	48	57	60	42	35	33	60	62	
5	57	62	60	68	52	43	34	68	63	73	5	54	52	59	62	45	36	34	61	63	
6	59	64	63	69	54	44	35	69	64	73	6	56	55	61	64	47	38	35	61	64	
7	62	68	66	71	56	45	36	69	65	100	7	58	58	63	68	50	39	36	62	65	
8	63	69	68	73	58	46	37	71	66	...	8	60	61	66	71	52	40	37	63	66	
9	66	73	71	73	60	47	38	71	67		9	61	63	68	73	54	40	38	63	67	
10	69	73	71	73	61	48	39	71	68		10	63	66	71	73	56	41	39	64	68	
11	69	100	73	73	65	49	40	71	69		11	65	69	73	73	57	42	40	64	69	
12	71	...	73	73	68	51	41	71	70		12	66	71	100	73	59	43	41	65	70	
13	73		73	73	69	52	42	71	71		13	69	73	...	100	61	44	42	65	71	
14	73		100	100	71	54	43	71	72		14	71	100		...	63	46	43	66	72	
15	73		...	...	73	54	44	71	73		15	71	...			64	46	44	66	73	
16	100				73	55	45	71	74		16	73				66	47	45	66	74	
17	...				100	56	46	71	75		17	73				66	48	46	66	75	
18					...	56	47	73	76		18	73				68	49	47	66	76	
19						57	48	73	77		19	73				69	50	48	68	77	
20						58	49	73	78		20	73				71	51	49	68	78	
21						59	50	73	79		21	100				73	52	50	68	79	
22						60	51	73	80		22	...				100	53	51	68	80	
23						60	52	73	...		23					...	53	52	68	...	
24						60	53	73			24						54	53	68		
25						61	54	73			25						55	54	68		
26						61	55	73			26						56	55	69		
27						62	56	73			27						57	56	69		
28						62	57	73			28						57	57	73		

Tab. 11e: T-Scores of the GBB-KJ-Scales (N=1950)

11-14y, boys, self-report (n=261)											11-14y, girls, self-report (n=257)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	38	36	42	45	29	27	29	59	58	73	0	36	32	40	42	27	27	29	54	58	68
1	45	43	49	54	34	27	30	59	59	73	1	41	38	47	49	32	27	30	55	59	68
2	48	47	52	58	36	34	31	60	60	73	2	44	41	50	53	34	29	31	56	60	69
3	51	50	55	60	39	36	32	60	61	73	3	47	44	53	56	35	29	32	56	61	69
4	54	52	56	63	41	37	33	61	62	73	4	50	47	55	57	38	31	33	57	62	69
5	56	54	58	66	44	38	34	61	63	73	5	52	51	57	59	41	32	34	57	63	69
6	58	57	60	68	46	40	35	62	64	73	6	54	53	58	60	43	34	35	58	64	69
7	61	59	62	69	49	40	36	63	65	73	7	57	55	61	62	46	37	36	58	65	69
8	63	62	63	71	53	42	37	63	66	73	8	59	57	62	63	48	38	37	58	66	71
9	65	65	64	71	54	43	38	64	67	73	9	60	60	64	66	50	39	38	59	67	71
10	66	68	66	73	56	44	39	64	68	100	10	61	62	66	68	52	40	39	59	68	71
11	68	69	69	73	59	45	40	65	69	...	11	63	65	66	68	54	41	40	59	69	73
12	69	71	71	100	61	46	41	65	70	...	12	63	68	69	69	57	42	41	60	70	71
13	71	73	71	...	63	47	42	66	71	...	13	65	71	71	69	60	43	42	60	71	71
14	73	73	73	...	66	48	43	66	72	...	14	66	71	71	71	61	44	43	61	72	73
15	73	73	73	...	69	49	44	68	73	...	15	68	73	73	71	63	45	44	61	73	73
16	73	100	73	...	73	50	45	69	74	...	16	71	73	73	71	65	45	45	62	74	73
17	73	...	100	...	100	51	46	69	75	...	17	73	73	73	73	66	46	46	62	75	73
18	100	...	...	...	...	52	47	71	76	...	18	100	100	73	73	68	47	47	62	76	73
19	...	...	...	...	...	52	48	71	77	...	19	...	...	73	73	71	47	48	63	77	73
20	...	...	...	...	...	53	49	73	78	...	20	...	...	73	100	73	48	49	63	78	100
21	...	...	...	...	...	54	50	73	79	...	21	...	...	100	...	73	49	50	64	79	...
22	...	...	...	...	...	54	51	73	80	...	22	...	...	...	...	100	50	51	65	80	...
23	...	...	...	...	...	55	52	73	...	...	23	...	...	...	...	...	50	52	66	...	...
24	...	...	...	...	...	56	53	73	...	...	24	...	...	...	...	...	51	53	66	...	...
25	...	...	...	...	...	56	54	73	...	...	25	...	...	...	...	...	52	54	66	...	...
26	...	...	...	...	...	57	55	73	...	...	26	...	...	...	...	...	52	55	66	...	...
27	...	...	...	...	...	58	56	73	...	...	27	...	...	...	...	...	53	56	68	...	...
28	...	...	...	...	...	58	57	73	...	...	28	...	...	...	...	...	54	57	68	...	...

Tab. 11f: T-Scores of the GBB-KJ-Scales (N=1950)

15-18y, boys, self-report (n=245)											15-18y, girls, self-report (n=264)										
raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total	raw-score	I	II	III	IV	V	total	raw-score	total	raw-score	total
0	36	38	40	43	31	29	29	57	58	73	0	34	32	39	40	27	27	29	50	58	64
1	42	45	47	51	35	32	30	58	59	73	1	39	38	46	47	31	29	30	51	59	65
2	45	49	50	54	38	34	31	58	60	73	2	42	40	49	50	32	29	31	51	60	65
3	48	53	53	56	40	36	32	59	61	73	3	44	42	52	52	34	29	32	52	61	65
4	50	55	55	58	43	37	33	59	62	73	4	47	45	54	54	37	31	33	53	62	66
5	52	57	57	60	45	38	34	60	63	73	5	48	48	56	56	39	32	34	54	63	66
6	54	59	58	62	48	39	35	61	64	73	6	51	50	57	58	42	34	35	54	64	66
7	56	62	61	64	50	41	36	61	65	100	7	52	52	59	60	43	35	36	55	65	68
8	58	65	63	66	53	42	37	62	66	...	8	53	55	60	62	46	35	37	55	66	68
9	60	66	65	69	54	42	38	62	67	...	9	55	57	62	63	47	37	38	56	67	71
10	62	69	66	71	56	43	39	63	68	...	10	57	60	63	64	49	37	39	56	68	71
11	63	73	68	71	58	44	40	63	69	...	11	58	62	64	66	52	37	40	56	69	71
12	65	100	69	73	61	45	41	63	70	...	12	60	64	66	68	53	38	41	57	70	71
13	66	...	69	73	63	46	42	64	71	...	13	62	66	66	69	55	40	42	58	71	73
14	68	...	71	100	66	47	43	64	72	...	14	63	69	71	71	56	41	43	58	72	73
15	69	...	100	...	68	48	44	65	73	...	15	64	71	73	71	58	42	44	58	73	73
16	71	...	...	...	71	49	45	66	74	...	16	66	71	73	73	60	42	45	58	74	73
17	71	...	...	...	73	49	46	66	75	...	17	68	71	100	100	63	43	46	59	75	73
18	73	...	...	...	73	50	47	66	76	...	18	71	73	...	...	66	44	47	59	76	100
19	73	...	...	...	100	51	48	66	77	...	19	73	100	...	...	68	44	48	60	77	...
20	73	...	...	...	...	52	49	68	78	...	20	73	...	...	...	71	45	49	60	78	...
21	73	...	...	...	...	52	50	68	79	...	21	73	...	...	...	73	46	50	61	79	...
22	100	...	...	...	...	53	51	69	80	...	22	100	...	...	...	100	46	51	61	80	...
23	...	...	...	...	...	54	52	69	...	...	23	...	...	...	...	...	47	52	61	...	...
24	...	...	...	...	...	54	53	69	...	...	24	...	...	...	...	...	47	53	62	...	...
25	...	...	...	...	...	55	54	69	...	...	25	...	...	...	...	...	48	54	62	...	...
26	...	...	...	...	...	56	55	69	...	...	26	...	...	...	...	...	48	55	63	...	...
27	...	...	...	...	...	56	56	71	...	...	27	...	...	...	...	...	49	56	64	...	...
28	...	...	...	...	...	57	57	71	...	...	28	...	...	...	...	...	50	57	64	...	...

GIESSENER BESCHWERDEBOGEN FÜR KINDER UND JUGENDLICHE (GBB-KJ)

Wie heißt Du?

Wie alt bist Du?

Manchmal fühlen sich Jungen und Mädchen nicht wohl. Sie leiden unter bestimmten körperlichen Beschwerden oder es tut ihnen etwas weh. Überlege nun bitte, unter welchen Beschwerden Du leidest und mache ein X in die entsprechende Spalte, je nachdem wie häufig die Beschwerden auftreten. Es kann sein, daß Du etwas nicht verstehst. Dann mache einfach ein Fragezeichen an den Rand.

Du kannst bei diesen Fragen nichts falsch machen.

	nie	selten	man- chmal	oft	dau- ernd
1. Schwächegefühl					
2. Herzklopfen, -jagen oder -stolpern					
3. Bauchweh					
4. Weinen					
5. Hautjucken, Hautausschlag					
6. Unterleibsschmerzen (Schmerzen im Unterbauch)					
7. Schmerzen in den Armen					
8. Schwarz vor den Augen werden					
9. Müdigkeit					
10. Schmerzen im Knie					
11. Schwindelgefühl					
12. Gelenk- oder Gliederschmerzen					
13. Kreuz- oder Rückenschmerzen					
14. Nacken- oder Schulterschmerzen					
15. Stolpern oder Hinfallen					
16. Erbrechen (sich übergeben, kotzen)					
17. Verschwommen sehen					
18. Übelkeit					

	nie	selten	man- chmal	oft	dau- ernd
19. Schmerzen im Bein					
20. Häufig zum Klo rennen müssen					
21. Flimmern vor den Augen					
22. Frieren					
23. Sodbrennen oder saures Aufstoßen					
24. Verkrampfung im Arm oder in der Hand					
25. Kopfschmerzen					
26. Schnell müde werden					
27. Schwanken und Torkeln					
28. Husten					
29. Gefühl der Benommenheit (nicht ganz da sein)					
30. Brennen oder Kribbeln in Händen und Füßen					
31. Verstopfung (nicht aufs Klo können)					
32. Schmerzen in den Füßen					
33. Kalte Hände					
34. Einschlafen von Armen oder Beinen					
35. Nachts aufwachen					
36. Keinen Appetit					
37. Mattigkeit (schlapp sein)					
38. Durchfall					
39. Stiche, Schmerzen oder Ziehen in der Brust					
40. Zittern					
41. Halsschmerzen					
42. Kalte Füße					
43. Fressanfälle					
44. Magenschmerzen					
45. Atemnot (keine Luft kriegen)					

	nie	selten	man- chmal	oft	dau- ernd
46. Druckgefühl im Kopf					
47. Rasche Erschöpfbarkeit					
48. Erstickungsgefühl					
49. Verstopfte Nase					
50. Zappeligkeit					
51. Hitzegefühl					
52. Hautunreinheiten, Pickel					
53. Schnupfen					
54. Druck- oder Völlegefühl im Leib					
55. Übermäßiges Schlafbedürfnis					
56. Kloßgefühl, Engigkeit oder Würgen im Hals					
57. Aufstoßen					
58. Schweregefühl oder Müdigkeit in den Beinen					
59. anfallsweise Herzbeschwerden					

Falls Du noch andere Beschwerden hast, die in der Liste nicht vorgekommen sind, kannst Du diese hier aufschreiben:

Affidavit

Hereby I confirm that I have written this thesis autonomously and without help and that I have only used the specified equipment. Citations and issues from other authors are denoted by the source of information.

A handwritten signature in black ink, appearing to read "Claus Farnus". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Hamburg, February 27, 2006

