

Assessing parent–child agreement in health-related quality of life among three health status groups

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Abstract

Purpose To examine parent–child agreement regarding a child’s health-related quality of life (HRQOL) among three health status groups.

Methods Parent–child agreement was evaluated for three health status groups of a population-based sample: (1) children with mental health problems ($N = 461$), (2) children with physical health problems ($N = 281$), and (3) healthy controls ($N = 699$). The KIDSCREEN-27 was used to assess HRQOL. The children were 9–14 years of age.

Results Intraclass correlation coefficients were mostly good across all HRQOL scores and health status groups. This relatively high level of agreement was also reflected by the following findings: first, the AGREE group was the largest in three out of five HRQOL subscales in all health status groups; second, when disagreement occurred, it was often minor in magnitude. Despite this relatively high level of agreement, the means of self-ratings were significantly higher for all HRQOL scores and health status groups than the means of proxy ratings. These higher self-ratings were especially pronounced among children with mental health problems in certain HRQOL domains.

Conclusions Even though the level of parent–child agreement regarding a child’s HRQOL is relatively high, it should be considered that children (especially those with mental health problems) often report better HRQOL than their parents. It is, therefore, highly recommended that both proxy- and self-ratings are used to evaluate a child’s HRQOL comprehensively.

Keywords Health-related quality of life · Parent–child agreement · Mental · Physical

Introduction

While it is well established in the literature that discrepancies exist between proxy- and self-reports about emotional and behavioral problems among children [1–4], parent–child agreement regarding a child’s health-related quality of life (HRQOL) has less frequently been studied, at least to date.

HRQOL can be described as a subjective, multidimensional and dynamic construct that comprises physical, psychological and social functioning [5]. To account for the subjectivity of this construct, a child’s subjective perception should be considered [6]. However, in some instances, proxy ratings are the only means by which to assess a child’s HRQOL (e.g., when the child cannot self-rate his/her HRQOL due to suffering from a particular health condition) [7–9].

Due to possible discrepancies between the ratings of parents and children, it is important to study (1) whether it is useful to consider both HRQOL ratings because they represent two complementary perspectives [7, 10, 11]; and (2) whether proxy ratings can be used as a substitute for

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self-ratings when a child cannot or does not want to self-rate his/her HRQOL [10, 11].

Parent–child agreement can be studied via different methods. To date, Pearson product–moment correlations have been used most frequently [10, 11]. However, correlations may be high even when absolute agreement is low [11]. Therefore, intraclass correlation coefficients (ICCs) should be used instead [12]. Sattoe et al. [13] recently introduced another method. It describes whether parents and children agree in their ratings or whether disagreement in either direction occurs (self-ratings < parent rating; self-ratings > parent rating). Furthermore, this method can be used to classify the magnitude of disagreement. Lastly, paired-sample *t* tests have been used frequently [10, 11] to assess the degree of difference between the two raters.

In two review articles that mainly included physically ill or healthy children [10, 11], as well as in studies among children with mental health problems [14–22], correlations and/or ICCs have ranged from poor to good.

Despite the relatively low correlation coefficients that have been identified in some studies, it was demonstrated that 43 % of parent–child pairs agree regarding a child's HRQOL in one sample of children suffering from physical health problems [13]. For the remaining parent–child pairs, disagreement in both directions was identified (32 % self-rating > proxy rating; 25 % self-rating < proxy rating). However, this disagreement was mostly relatively small in magnitude.

When the means of self- and proxy ratings were compared, it was established that parents of physically ill children [11] as well as of children with mental disorders [14–22] rate most HRQOL domains (significantly) lower than the children themselves. With regard to non-clinical samples, Upton et al. [11] proposed that this pattern was reversed (i.e., self-ratings < parent ratings).

Even though several studies have already assessed agreement regarding self- and proxy rated HRQOL, certain gaps remain. First, only a limited number of studies have assessed agreement in children with mental health problems. Second, most HRQOL studies that examined the agreement among multiple informants included either healthy children or children with specific health constraints. How the agreement in HRQOL among children with mental health problems differs from children with physical health constraints and from healthy children has not yet been studied comprehensively.

The aim of the present study, therefore, was to examine parent–child agreement regarding a child's HRQOL among three health status groups (children with mental health problems, children with physical health problems, and healthy children) using different methods: (1) ICCs and the method proposed by Sattoe et al. [13] were used to study the level of (dis)agreement; (2) paired-sample *t* tests and

the method of Sattoe et al. [13] were used to evaluate whether self- or proxy ratings were higher; and (3) across all methods, whether differences by health status groups existed was evaluated.

Methods

Procedures

We used data from the National Survey of Children with Special Health Care Needs in Switzerland. The protocol was approved by the ethics committee of the Canton of Zurich. A two-stage population-based sampling method was used to obtain a representative sample of children ages 9–14 years from all 26 Swiss cantons. In the first sampling stage, 258 representative cantons/municipalities were chosen. In the second sampling stage, children ages 9–14 years residing in these cantons/municipalities were randomly selected. Details about the two-stage sampling procedure used have been described elsewhere [23]. The cantons and municipalities provided valid demographic information about 16,496 children (last and first name, birth date, sex, address, nationality) and their parents (last and first name).

Children under 15 years old were targeted because other large-scale surveys in Switzerland have included respondents ≥ 15 years old. Furthermore, children ≥ 9 years old were chosen in order to obtain self-reports of HRQOL in addition to primary caretaker's proxy reports (the terms 'parents' and 'proxies' are used interchangeably in this paper, since 99.4 % of the HRQOL questionnaires that were of interest for the present article were filled out by mothers and/or fathers).

The survey consisted of two phases. The main aims of phases I and II were to screen children to determine whether they have special health-care needs (children with special health-care needs, CSHCN) and to assess their HRQOL (see "Measurements"), respectively. In both phases, it was emphasized that participation was voluntary. By answering the questions, the parents and/or children provided informed consent.

In phase I, 10,830 children (response rate 65.7 %) were screened. As a result, 1,492 children were classified as CSHCN, 9,294 as children without special health-care needs (controls), and 44 children were not classifiable due to missing data (excluded from further analyses). The 1,492 CSHCN were further subdivided into CSHCN with mental health problems ($N = 919$), CSHCN with physical health problems ($N = 543$), and CSHCN with no classifiable main health problem ($N = 30$; excluded from further analyses).

The main goal of phase II was to collect information about the self- and proxy-rated HRQOL of all CSHCN.

In addition, a group of randomly selected controls was invited to participate in the study as a comparison group (due to budget constraints, not all controls were invited to participate in phase II). However, not all CSHCN could be re-contacted, because (1) the parents refused to participate further in the study after the screening of phase I was completed ($N = 42$); or (2) because they did not send the screening questionnaire back in time (phase I) before phase II had ended ($N = 45$). Altogether, 2,658 HRQOL questionnaires were sent out immediately after screening (881 to CSHCN with mental health problems, 524 to CSHCN with physical health problems, and 1,253 to controls). Of these, seven parent–child pairs (2 CSHCN with mental health problems, 1 CSHCN with physical health problems, and 4 controls) were excluded because they could no longer be reached. Of the remaining 2,651 parent–child pairs, 1,606 parents and/or children questionnaires were returned (overall response rate 60.6 %; 60.9 % for CSHCN with mental health problems, 62.5 % for CSHCN with physical health problems, and 59.6 % for controls). However, only those children with both parent and child reports of HRQOL were included in the analyzed sample ($N = 1,441$).

Measurements

The well-validated and widely used CSHCN Screener [24] was applied to assess special health-care needs. According to this parent-reported measure, a child was classified as having special health-care needs if the following criteria were met: first, the child presently had to experience at least one of five health consequences (e.g., the need for or use of prescribed medicine). Second, this/these health consequence(s) had to be due to a health condition, which had lasted or was expected to last at least 12 months. If the child did not experience any health consequences, he/she was classified as a control.

Two methods were used to classify CSHCN. The first method was based upon the parent-reported main health problem of CSHCN, which was coded according to the International Classification of Disease and Related Health Problems (ICD-10 [25]): If the reported main health problem described a disorder from Chapter V (mental and behavioral disorders) of the ICD-10, the child was assigned to CSHCN with mental health problems. However, if the main health problem was listed in Chapter I–IV or VI–XIX, the child was assigned to CSHCN with physical health problems. Altogether, 68 CSHCN could not be assigned to either CSHCN with a mental or physical health problem (e.g., because the parents did not specify the main health problem) with this first method. For these children, a second method was applied: if item 5 of the CSHCN Screener was affirmed (the need for or use of treatment or

counseling for emotional, developmental, or behavioral problems), the child was allocated to CSHCN with a mental health problem [26]. Accordingly, an additional 38 children became classifiable. The remaining 30 cases were excluded from further analysis.

The parallel self- and proxy-reported versions of the KIDSCREEN-27 [27] were used to assess HRQOL. This internationally validated instrument is applicable for children of ages 8–18 years. Five domains ('physical well-being', 'psychological well-being', 'autonomy and parent relation', 'social support and peers', and 'school environment') and a total HRQOL score (based on 10 items) were calculated. All scores were standardized to a scale ranging from 0 to 100, whereby higher scores indicated better HRQOL. Internal consistency (Cronbach's α [28]) of all health status groups and for both proxy- and self-ratings met or exceeded the threshold of 0.70 that is required for group comparisons [29].

Statistical analysis

Associations between the three health status groups (CSHCN with mental health problems, CSHCN with physical health problems, and controls) and demographic characteristics were assessed using chi-square tests. The following four methods were applied to evaluate the level of agreement: (1) ICCs of absolute agreement [12] were utilized to determine the level of concordance between the self- and proxy ratings; ICCs can be interpreted as poor to fair (≤ 0.40), moderate (0.41–0.60), good (0.61–0.80), or excellent agreement (0.81–1.00) [30]. (2) Paired-sample t tests were used to compare the means of the self- and proxy-reported HRQOL scores. (3) Agreement and the direction of disagreement between the self- and proxy reports were analyzed further, using the method proposed by Sattoe and colleagues [13]; for all HRQOL scores, the following three agreement groups were constructed: (a) AGREE group: children and parents were assumed to agree when the absolute difference between the self- and proxy-rated HRQOL scores was < 0.5 SD of the score with the largest variability; this threshold value of 0.5 SD was based on the definition of clinically meaningful differences in the HRQOL field [31]; (b) CHILD LOW group: this disagreement group was defined as when the child's self-report of HRQOL was lower than the proxy report at a level of at least 0.5 SD; (c) CHILD HIGH group: this disagreement group was defined as when the child's self-rating of HRQOL was higher than the proxy's report of HRQOL at a level of at least 0.5 SD. Chi-square tests were then used to assess whether the health status groups differed in the distribution of these three agreement groups. (4) To calculate the magnitude of disagreement across all HRQOL scores, the CHILD LOW and CHILD HIGH

groups were aggregated into one variable, whereby the direction of disagreement was no longer incorporated. This pooled disagreement was then categorized into minor ($0.5 - <1$ SD), intermediate ($1 - <1.5$ SD), major ($1.5 - <2$ SD), and substantial (>2 SD) [13]. Major and substantial disagreements were aggregated in the present article due to their small percentage and similar pattern among the three health status groups. Chi-square tests were used to assess whether the health status groups differed in their magnitude of disagreement.

Results

Sample characteristics

The final analyzed sample consisted of 1,441 children of ages 9–14 years and living in Switzerland, for which both self- and parent ratings about HRQOL were available. Of this 1,441, 461 were CSHCN with mental health problems, 281 were CSHCN with physical health problems, and 699 were controls. The mean age (SD) was 11.40 years (1.45) for CSHCN with mental health problems, 11.52 years (1.55) for CSHCN with physical health problems, and 11.45 years (1.52) for controls ($\chi^2_{10} = 5.81; p = 0.83$). The percentage of boys was 65.3, 54.4, and 46.2 %, respectively ($\chi^2_2 = 40.26; p < 0.0005$). The percentage of Swiss (vs. non-Swiss) children was 94.1, 94.3, and 89.3 %, respectively ($\chi^2_2 = 11.66; p = 0.003$).

Intraclass correlation coefficients and paired-sample *t* tests

As reported in Table 1, the ICCs of most HRQOL scores were good (exception: the ICC for ‘physical well-being’ was excellent for CSHCN with physical health problems). Furthermore, children’s self-reports of HRQOL were significantly higher than parents’ reports of HRQOL within all three health status groups.

Agreement and direction of disagreement

The distributions of the three agreement groups (CHILD LOW, AGREE, CHILD HIGH) by health status group are depicted in Fig. 1. Across all health status groups, the following pattern emerged: the CHILD LOW group was least common across all HRQOL domains (range 8.3–22.8 %). In contrast, the AGREE group was most common for ‘physical well-being’, ‘autonomy and parent relation’, and ‘school environment’ (range 46–57.5 %), and the CHILD HIGH group was most common for ‘psychological well-being’ and ‘social support and peers’

(range 43.7–55.2 %). Chi-square tests revealed that the distribution of the three agreement groups differed significantly by health status group, in terms of total HRQOL score, ‘psychological well-being’, and ‘school environment’. For the total HRQOL score, as well as for ‘psychological well-being’, the CHILD HIGH group was largest among CSHCN with mental health problems, followed by CSHCN with physical health problems, and subsequently by controls. The reverse pattern was found for the AGREE group. For ‘school environment’, CSHCN with mental health problems differed from the two other health status groups, by having an especially large CHILD HIGH group and relatively small AGREE and CHILD LOW groups.

Magnitude of disagreement

The distributions of the magnitude of disagreement by health status group are presented in Fig. 2. Minor disagreement was most common across all health status groups for the domains ‘psychological well-being’, ‘autonomy and parent relation’, and ‘social support and peers’ (range 47.5–64 %), whereas major-substantial disagreement was least common across all health status groups for total HRQOL score, ‘physical well-being’, ‘psychological well-being’, and ‘school environment’ (range 9.1–25.5 %). On chi-square analysis, the distribution of the magnitude of disagreement differed significantly by health status group for total HRQOL score, ‘psychological well-being’, ‘social support and peers’, and ‘school environment’. For these, a similar pattern always occurred: the ‘minor disagreement’ group was relatively small and the ‘major-substantial disagreement’ group was relatively large for CSHCN with mental health problems, with the reverse pattern identified for controls. Distributions among the CSHCN with physical health problems mostly rested between the two other health status groups.

Discussion

The present study examined levels of parent–child agreement regarding a child’s HRQOL in a large, population-based sample of children with different health conditions, using different methods. In all three health status groups, most ICCs were good. This result was consistent with the findings that (1) the AGREE group was the largest group in three out of five HRQOL subscales in all health status groups, and (2) when disagreement occurred, it was often minor in magnitude. Despite this relatively high level of agreement, self-ratings were always significantly higher

Table 1 Intraclass correlation coefficients and paired-sample *t* tests for the comparison of parent- and child-rated HRQOL scores by health status group

	ICC	Means (SD)		Paired-sample <i>t</i> tests		
		Parent rating	Child rating	<i>t</i>	<i>df</i>	<i>p</i>
CSHCN with mental health problems						
Physical well-being	0.79	72.54 (16.54)	73.37 (16.96)	−1.225	424	0.221
Psychological well-being	0.74	74.03 (13.94)	80.46 (14.89)	−10.266	439	<0.0005
Autonomy and parent relation	0.68	73.24 (13.66)	77.40 (15.94)	−5.868	426	<0.0005
Social support and peers	0.75	64.66 (21.21)	75.30 (22.07)	−11.463	434	<0.0005
School environment	0.76	66.08 (18.14)	72.48 (18.63)	−8.235	436	<0.0005
Total HRQOL score	0.74	70.79 (11.94)	76.48 (13.31)	−10.124	418	<0.0005
CSHCN with physical health problems						
Physical well-being	0.84	69.90 (17.62)	71.86 (16.48)	−2.506	262	0.013
Psychological well-being	0.68	77.97 (13.55)	82.90 (13.39)	−6.114	268	<0.0005
Autonomy and parent relation	0.62	76.05 (12.97)	82.18 (13.59)	−7.168	267	<0.0005
Social support and peers	0.71	66.72 (19.67)	77.95 (19.81)	−9.825	270	<0.0005
School environment	0.70	76.23 (15.43)	79.39 (14.80)	−3.588	268	<0.0005
Total HRQOL score	0.74	75.19 (11.60)	80.66 (11.60)	−8.302	259	<0.0005
Controls						
Physical well-being	0.77	78.69 (14.01)	79.66 (14.28)	−2.020	648	0.044
Psychological well-being	0.71	82.07 (10.29)	85.94 (11.50)	−9.698	669	<0.0005
Autonomy and parent relation	0.67	77.91 (12.74)	83.20 (13.87)	−10.192	647	<0.0005
Social support and peers	0.67	72.45 (17.13)	82.61 (15.89)	−15.993	664	<0.0005
School environment	0.78	78.69 (14.43)	80.69 (15.80)	−3.985	669	<0.0005
Total HRQOL score	0.78	79.18 (10.02)	83.19 (11.05)	−11.309	643	<0.0005

ICC intraclass correlation coefficient

The number of subjects (*N*) varies between the domain and total HRQOL scores due to missing data. The largest *N* consists of 440 parent–child pairs for CSHCN with mental health problems, 271 pairs for CSHCN with physical health problems and 670 pairs for controls. ICCs represent poor to fair (equal or lower than 0.40), moderate (0.41–0.60), good (0.61–0.80), and excellent agreement (0.81–1.00) [30]

than proxy ratings, in all three health status groups. Furthermore, this pattern was especially pronounced among children with mental health problems in some HRQOL domains.

The ICCs that were identified in the current study lay in the upper range of previously described levels of agreement that ranged from poor to good [10, 11, 14–22]. These relatively high ICCs may be due to any of the following reasons. First, Cronbach's α was sufficient for group comparisons in our study. Hence, the requirement to achieve a high level of agreement was fulfilled [10, 11, 32], whereas it was not met for some domains (e.g., [14]) or subgroups (e.g., [19]) in other studies. This might have decreased ICCs in these studies. Second, the KIDSCREEN-27 has parallel versions for children and parents, whereas the self- and proxy versions of the HRQOL measurements used in some previous studies were similar, but not identical. Again, this might have reduced agreement in these investigations [11]. Third, in the current study, the HRQOL questionnaires were filled out at home. Hence, it was possible that parents sometimes

helped their children to answer the questions, whereby agreement increased.

The relatively high levels of parent–child agreement assessing HRQOL that was established in the current study by ICCs also were confirmed by the results that the group that agreed was often largest across the three health status groups. In addition, when disagreement occurred, it was often minor in magnitude. These findings were further in line with the results of Sattoe et al. [13]. However, we extended the results of this previous study by demonstrating that the pattern of high agreement or minor disagreement was detectable in different HRQOL domains and across all three health status groups.

Our finding that self-ratings were significantly higher than proxy ratings among CSHCN with mental and physical health problems is consistent with the results of previous research [11, 14–22]. It is possible that parents rate their child's HRQOL lower due to experienced burdens and concerns associated with the child's health condition [7, 8, 33]. Children, on the other hand, may rate their HRQOL

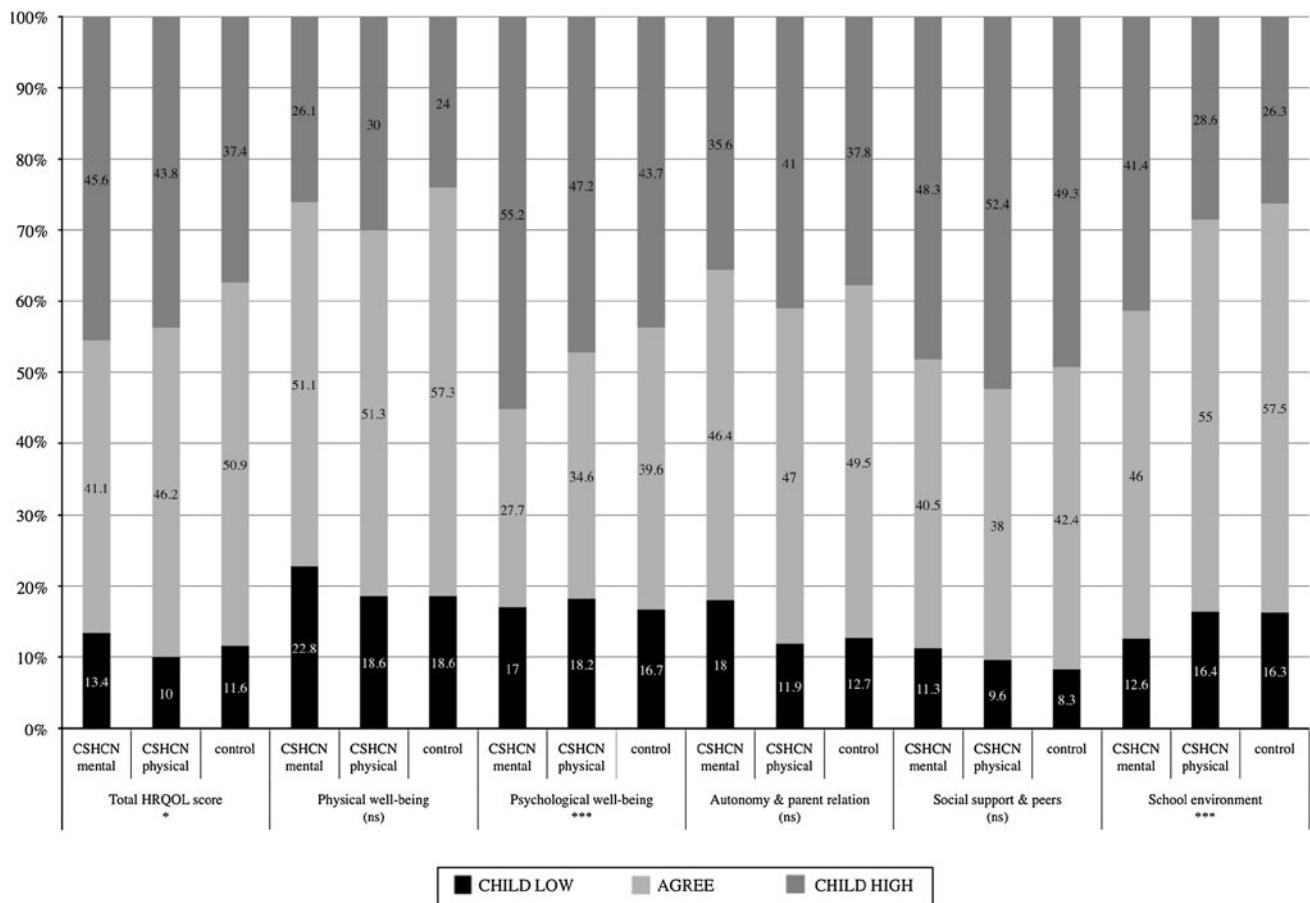


Fig. 1 Agreement between child and parent reports in the KID-SCREEN-27, by health status group. CSHCN mental, CSHCN with mental health problems; CSHCN physical, CSHCN with physical health problems; the number of subjects (N) varies between the domain and total HRQOL scores due to missing data. The largest N consists of 440 parent–child pairs for CSHCN with mental health problems, 271 pairs for CSHCN with physical health problems, and

670 pairs for controls; agreement and direction of disagreement: child–parent score $< \pm 0.5$ (AGREE), ≤ -0.5 (CHILD LOW), ≥ 0.5 (CHILD HIGH) greatest SD of scores (see [13]); chi-square tests were conducted to evaluate whether a significant association existed between health status group and agreement: **significant at $p < 0.01$; ***significant at $p < 0.001$; ns not significant

higher, because they do not want to admit how much their health condition affects them [7, 21, 33], because they are not fully aware of restrictions due to this condition [7, 19, 33] or because they have adapted to their situation [21, 34].

However, that higher self-ratings also were identified among healthy controls contradicts the pattern proposed by Upton et al. (self-rating $<$ parent rating) [11]. On the other hand, our findings were comparable to the results described by Rotsika et al. [21]. Consistently lower proxy- than self-reports may indicate that parents' ratings could be influenced by their concerns and worries or by experienced burdens (e.g., burdens that are due to concurrently having to work and care for their family), or by their own health conditions. Furthermore, it is possible that this general pattern occurs because (1) children tend to provide more extreme answers than their parents; and/or (2) children and parents differ with respect to the reasons they provide for

their answers [35]—a pattern that possibly occurs independent of the health status of the child. The higher self-versus proxy ratings also were confirmed by the method of Sattoe et al. [13] and were in line with this particular study. That is, when children and parents disagreed, the group in which children rated themselves higher than their parents did was always larger than the group in which children rated themselves lower. However, we again extended the findings of Sattoe et al. [13] by illustrating that this pattern emerges regardless of the HRQOL domain or health status group.

The higher self- versus proxy ratings were especially pronounced among CSHCN with mental health problems within the 'psychological well-being' and 'school environment' domains. Furthermore, CSHCN with mental health problems also were characterized by a relatively large level of disagreement in those HRQOL scores that differed by health status group ('psychological well-being',

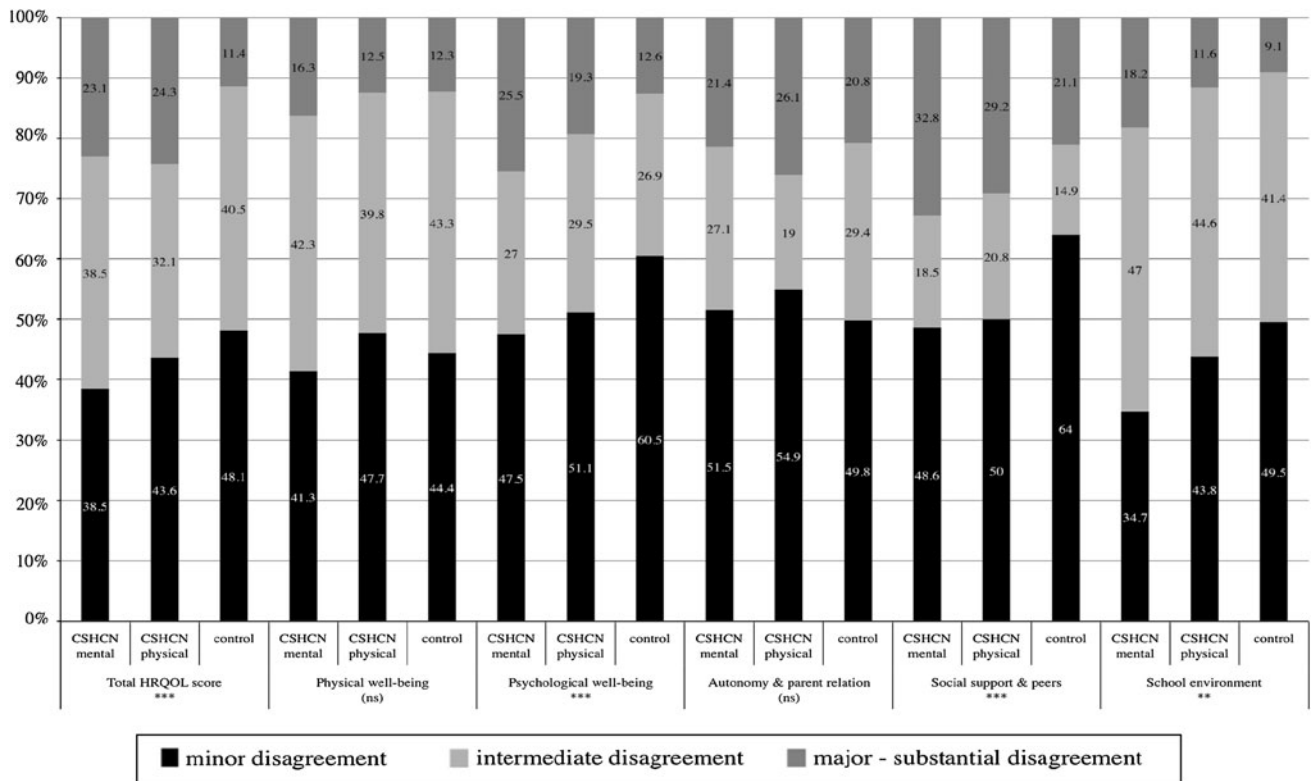


Fig. 2 Magnitude of disagreement between child and parent reports in the KIDSCREEN-27 reports, by health status group. CSHCN mental, CSHCN with mental health problems; CSHCN physical, CSHCN with physical health problems; the number of subjects (*N*) varies between the domain and total HRQOL scores due to missing data. The largest *N* consists of 318 parent–child pairs for CSHCN with mental health problems, 176 pairs for CSHCN with

physical health problems, and 405 pairs for controls; magnitude of disagreement = child–parent score: 0.5 to <1 (minor), 1 to <1.5 (intermediate) >1.5 (major-substantial) times the SD of the HRQOL score with the highest variability (see [13]); chi-square tests were conducted to evaluate whether a significant association existed between health status group and magnitude of disagreement: **significant at *p* < 0.01; ***significant at *p* < 0.001; *ns* not significant

‘social support and peers’, and ‘school environment’). That higher self-ratings were especially pronounced in the above-mentioned HRQOL domains may be attributed to the composition of our sample. For example, the most frequently reported mental health problem was attention deficits. Such deficits are associated with the above-mentioned HRQOL domains directly (e.g., school functioning) or via comorbid disorders (e.g., mood disorders, which are frequent comorbid disorders among those with attention deficits [36], may influence psychological functioning). The possible reasons for discrepancies between parents and children have been mentioned above. However, it is also possible that they are especially influential in those HRQOL domains that are closely related to a particular health constraint that a child has. Parents of children with attention deficits may, for instance, be particularly burdened and consequently rate their child’s HRQOL as especially low in domains that are associated with the school-related problems of their child.

Furthermore, we found that healthy controls have a higher percentage in the AGREE group compared to the

other two health status groups. Even when we only examined the parent–child dyads that disagreed (CHILD HIGH and CHILD LOW group), the magnitude of disagreement was smaller in healthy controls compared to the other two health status groups in those HRQOL scores that differed by health status groups, especially compared to the group of children with mental health problems. The latter finding is in line with previous studies that described a higher concordance for healthy children and their parents than for children with mental health problems and their caretakers [19, 21].

Despite the strengths of the present study (e.g., assessing parent–child agreement with different methods and among different health status groups), the results should be interpreted with some caution. The most important limitation of this study is that the influence of particular health conditions on agreement could not be studied because (1) detailed diagnostic information about the child’s health problem was not available (group composition was based on parent reports), and (2) some of the mental and physical health constraints that were included rarely occurred.

However, it is still meaningful to aggregate different health problems into two categories (CSHCN with mental vs. physical health problems), since it can be assumed that children from the same cluster often have very similar challenges. Another study limitation was that the three health status groups differed in their gender and nationality distributions. However, additional analyses revealed similar results for both sexes (boys vs. girls) and for the two nationality subgroups (Swiss vs. non-Swiss). Hence, it can be assumed that whatever demographic differences existed between our three health status groups likely did not alter our results meaningfully. A last limitation was that the questionnaires were filled out at home. Hence, the possibility exists that parents helped their children to answer the questions. However, as Varni et al. [17] highlight, such bias would probably be equally distributed across different health status groups.

Conclusions

Even though the agreement was good to excellent between parents and children with regard to the child's HRQOL, children often reported better HRQOL than their parents. This effect seemed to be especially pronounced among children with mental health problems. Furthermore, the less frequently occurring case scenario that the self-ratings are lower than the proxy ratings must be considered as well. Due to the various differences, it can be concluded that it is valuable to use both self- and proxy ratings, because they sometimes represent two different, but equally important perspectives. Furthermore, it must be emphasized that, when proxy ratings are used as a substitute for self-ratings, the possibility of disagreement must be taken into consideration. This being said, further research clearly is needed to determine which characteristics of the child and/or parents determine whether children and their parents agree or disagree in either direction, in different health status groups and using different statistical methods.

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Conflict of interest The authors declare that they have no conflicts of interest.

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