Care for consequences in children treated for leukemia or brain tumor

Aukema, Eline

Citation for published version (APA):
Aukema, E. J. (2013). Care for consequences in children treated for leukemia or brain tumor
CHAPTER 3

Childhood brain tumor survivors at risk for impaired Health-Related Quality of Life

E.J. Aukema M.Sc.
A.Y.N. Schouten-van Meeteren M.D., Ph.D.
B.F. Last Ph.D.
H. Maurice-Stam Ph.D.
M.A. Grootenhuis Ph.D.

Provisionally accepted in Journal of Pediatric Hematology/Oncology
Abstract

Aim: This study aimed to assess health-related quality of life (HRQOL) - mean scores and percentages at risk for impaired HRQOL - in childhood brain tumor survivors (CBTS) and to explore differences between CBTS treated with surgery only (SO) versus CBTS treated with surgery and adjuvant therapy (SA).

Methods: HRQOL was evaluated in 34 CBTS (mean age=14.7 yrs, mean time since the end of treatment=6.4 yrs) with the KIDSCREEN. Being at risk for impaired HRQOL was defined as a T-score ≥1 SD below the norm population mean.

Results: The total and the SA group, but not the SO group, had significantly lower mean scores than the Dutch norm population in the domains of “physical well-being”, “psychological well-being” and “peers and social support”. High percentages (35-53%) of both the SO and the SA group appeared to be at risk for impaired HRQOL in the domains of “physical well-being”, “moods and emotions”, “peers and social support”, and “bullying”, compared to 16% in the norm population.

Conclusions: Although HRQOL in some domains appeared similar to the norm population, a considerable number of CBTS reported impaired HRQOL in several other domains. It is recommended to systematically monitor HRQOL in CBTS regardless of the therapy applied.
Introduction

Surviving a brain tumor often comes with a high risk for a variety of moderate to severe physical, psychosocial and neuropsychological late effects [1-4] that last into adulthood [5]. With increased survival rates, insight in the quality of life of childhood brain tumor survivors (CBTS) becomes more important. Health-related quality of life (HRQOL) refers to the perceived satisfaction in various health-related domains of life and includes at least physical, psychological, and social functioning [6, 7]. Though HRQOL has become an important outcome measure in pediatric oncology research, CBTS are not often included in broad outcome studies in pediatric oncology because of the relatively small number of patients and the heterogeneity of this patient group [3, 4]. The heterogeneity concerns the tumor type (high and low grade tumors) and treatment modalities.

Thus far, HRQOL studies among CBTS have examined all types of brain tumors, including high grade brain tumors (medulloblastoma [8, 9]), low grade tumors (low grade glioma [10, 11], pilocitair astrocytoma [12-14] and craniopharyngeoma [15-18]), and combined diagnoses [19, 20]. The findings of these studies are not consistent. One of the reasons is possibly the heterogeneity of the diagnoses and treatment modalities. Low grade brain tumors are often treated with surgery only, whereas high grade brain tumors are treated with adjuvant therapy, including chemotherapy and/or cranial radiation therapy (CRT). Although CRT has been described as a risk factor for negative long-term sequelae [1] and low HRQOL [20], in other studies CRT appeared not to be related to psychological dysfunction [21] or social dysfunction [4]. Contradictory results were also found among CBTS treated with surgery only; their level of overall HRQOL range from low [12, 13, 16, 17] to high or equal compared to peers [10, 14, 15, 18]. Additionally, a variety of late effects on cognitive, social en emotional functioning have been described in CBTS treated with surgery only [12, 22, 23]. Special attention is therefore also required for CBTS treated with surgery only [22].

Although broad domains of HRQOL have been studied before, a comprehensive look at these domains is lacking. Because of the inconsistent findings in previous studies, we wanted to assess HRQOL of CBTS in more detail. The KIDSCREEN [7, 24] is a comprehensive HRQOL questionnaire that provides detailed information about important social and emotional facets of HRQOL. Since CBTS are at risk to become socially isolated and show deficits in social competencies, possibly due to cognitive late effects [4, 25], screening these aspects are of utmost importance. In addition to social functioning, the KIDSCREEN explores psychological functioning with questions about positive emotions, depressive and stressful feelings and about satisfaction with life. The KIDSCREEN assesses HRQOL of the past week, which provides a good insight in the daily functioning of survivors in dealing with their
late effects. As such this study will add useful information to the existing knowledge of psychosocial functioning of CBTS. To date the KIDSCREEN has only once been used in CBTS, in craniopharyngeoma patients who have their own specific late effects (e.g. hypothamalic obesity syndrome [15]).

Previous studies have compared survivors with the normal population using mean HRQOL scores and effect sizes. An alternative is to analyze the percentage of the patient group that can be considered at risk for impaired HRQOL [26]. This could add more clinical value to the individuals’ scores and provide better insight into the number of patients at risk [27-29].

The purpose of the present study was to obtain insight into the HRQOL of CBTS using the mean scores as well as percentages of CBTS at risk for impaired HRQOL, compared to the Dutch norm population. Furthermore, we aimed to explore differences in HRQOL between survivors who were treated with surgery only (SO group), survivors who were treated with surgery and with adjuvant therapy (SA group) and the norm population.

Materials and Methods

Participants and Procedures

Children who were treated for a brain tumor between 1990 and 2006 at the Emma Children’s Hospital Academic Medical Center, Amsterdam, The Netherlands (N=57) and who met the inclusion criteria (N=47), were invited to participate in the study, which was approved by the local medical ethics committee. The inclusion criteria were as follows: (1) treated for a brain tumor of any histology and diagnosed between the ages of 0 and 18, (2) current age of the survivor between 8-18 years, (3) complete remission or a stable residual tumor, (4) at least 1 year after the end of treatment, and (5) ability to complete a questionnaire in Dutch. Children with neurofibromatosis were excluded because of their specific cluster of impairments.

Parents or adolescents were first contacted by phone and then received an informed consent form and several questionnaires, including the KIDSCREEN and a survey about long-term sequelae and aftercare in CBTS [22].

Measures

Patient characteristics

Individual patient data on gender, date of birth and medical information, including date of primary diagnosis, histological tumor type, location of the tumor, type of treatment, secondary operations (because of progression or relapse) and duration of adjuvant treatment, were gathered from the medical files. The presence of late effects (yes/no; physical, neurocognitive, emotional and social domain) was assessed by parent report, as described in a previous study [22].
HRQOL was evaluated by the KIDSCREEN-52, a self-report questionnaire that was derived from focus groups of children and adolescents across Europe [7, 24, 30]. It is applicable for both healthy and chronically ill children and adolescents between 8 and 18 years of age. The KIDSCREEN-52 assesses generic HRQOL in ten domains, using 52 items that refer to HRQOL in the previous week: “physical well-being”, “psychological well-being”, “moods and emotions, “self-perception”, “autonomy”, “parent relation and home life”, “financial resources”, “peers and social support”, “school environment” and “social acceptance/bullying”. Appendix 1 provides a more detailed overview of the HRQOL domains with examples of items in each domain of the KIDSCREEN. Items are scored on a five-point scale. Depending on the question, the range of responses is as follows: “not at all-slightly-moderately-very-extremely” or “never-seldom-quite often-very often-always”. Within each domain, the item scores are summed and transformed into a T-value. Children in the European norm population have a mean score of 50 with a standard deviation (SD) of 10. Higher values indicate better HRQOL. The KIDSCREEN was validated in a Dutch population of 1960 children (norm population). Means of the Dutch norm population vary across domains but are generally 2-3 points higher than in the European norm population. Cronbach’s Alphas for the KIDSCREEN scales ranged from .72-.94 which were satisfactory and comparable with those reported in other studies [30].

Statistical analysis
The Statistical Package for the Social Sciences (SPSS version 16.0) was used for all analyses.

First, several preparatory analyses were performed. Independent sample t-tests and Chi-square tests were used to compare participants with non-participants on demographic (age during the study, gender) and medical characteristics (age at diagnosis, time since diagnosis, time since the end of treatment, duration of adjuvant therapy, tumor location, tumor type, and type of treatment). Then, we compared the demographic and medical characteristics of the survivors treated with surgery only (SO group) with that of survivors treated with surgery plus adjuvant therapy (SA group) (see Table 1).

KIDSCREEN T-scores were computed and missing values were handled according to the guidelines provided in the manual of the KIDSCREEN-52. The percentage of missing data was <10%. Subsequently, T-scores on the KIDSCREEN domains were dichotomized: T-scores ≥1 SD below the mean T-score in the norm population were defined as being at risk for impaired HRQOL [29]. We used age-adjusted norms, thereby already accounting for the possible impact of age on HRQOL.

After that, the final analyses were performed. First, one-sample t-tests were conducted to analyze differences in the HRQOL mean scores between the CBTS total group
and the norm group, and between the treatment groups and the norm group (SO versus norm; SA versus norm). Mann-Whitney U tests were used to analyze the differences between the treatment groups (SO versus SA).

Second, binominal tests were used to compare the percentage of CBTS (total, SO, SA) at risk for impaired HRQOL with the percentage at risk in the Dutch norm population (16%, based on the normal distribution of the T-values). Furthermore, we compared the percentages at risk in the SO group with the percentages at risk in the SA group using Chi-square tests.

A significance level of p<0.05 was used for all tests.

Table 1: Characteristics of the participants (n=34)

<table>
<thead>
<tr>
<th></th>
<th>SO (n=17)</th>
<th></th>
<th>SA (n=17)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
</tr>
<tr>
<td>Age at study (yrs)</td>
<td>14.1</td>
<td>3.2</td>
<td>17</td>
<td>15.3</td>
</tr>
<tr>
<td>Age at diagnosis (yrs)</td>
<td>6.6</td>
<td>3.7</td>
<td>17</td>
<td>6.9</td>
</tr>
<tr>
<td>Time since diagnosis (yrs)</td>
<td>7.5</td>
<td>3.4</td>
<td>17</td>
<td>8.4</td>
</tr>
<tr>
<td>Time since the end of treatment (yrs)</td>
<td>7.1</td>
<td>3.5</td>
<td>17</td>
<td>5.7</td>
</tr>
<tr>
<td>Duration of adjuvant treatment (yrs)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Gender
- Male: SO 6 (35%), SA 9 (53%)
- Female: SO 11 (65%), SA 8 (47%)

Tumor location
- Infratentorial: SO 10 (59%), SA 11 (65%)
- Supratentorial: SO 7 (41%), SA 6 (35%)

Tumor Type *
- High grade: SO 2 (12%), SA 13 (77%)
- Low grade: SO 15 (88%), SA 4 (23%)

Type of adjuvant treatment
- Surgery and radiation therapy: SO 1 (6%), SA 4 (25%)
- Surgery and chemotherapy: SO 12 (71%)

More than one operation (including progression, relapses)
- SO 2 (12%), SA 5 (30%)

Late effects (yes)
- Physical domain: SO 14 (82%), SA 17 (100%)
- Neurocognitive domain: SO 10 (59%), SA 14 (82%)
- Emotional domain: SO 9 (53%), SA 11 (65%)
- Social domain: SO 8 (47%), SA 11 (65%)

Total domains *
- SO 2.4, SA 3.1

SO=surgery only group, SA=surgery plus adjuvant therapy group
High grade=medulloblastoma, ependymoma and high grade glioma, Low grade=low grade glioma and craniopharyngeoma
* Significant difference between SO and SA (p<0.01)
* Mean number of domains with late effects as reported by the parents
Results

Participants
A total of 34 of the 47 (72%) eligible survivors participated. Participants did not differ significantly from the non-participants with respect to the demographic and medical characteristics. The reasons given by the parents and adolescents for not participating were a lack of interest or no time to complete the questionnaires. Table 1 provides the characteristics of the participants by treatment group (SO and SA). As expected, the SO group consisted of more CBTS with low grade brain tumors, and the SA group consisted of more CBTS with high grade brain tumors. No other differences were found regarding the demographic and medical characteristics. Parents reported a high number of late effects (Table 1). No differences in late effects were seen between the treatment groups.

HRQOL mean scores
In 7 of the 10 HRQOL domains the mean T-score of the CBTS (total group) did not differ from the scores in the Dutch norm population (Table 2). Significantly lower scores in CBTS (total group) compared to the norm group were found for “physical well-being”, “psychological well-being” and “peers and social support”. The explorative subgroup analysis revealed that the SA group also had significantly lower HRQOL than the norm population in these three domains, while the SO group had no significantly lower scores in any domain. No significant differences in the mean scores were found between the treatment groups.

Table 2: HRQOL (KIDSCREEN) a: CBTS (total, SO, SA) versus the norm population (means, SD’s)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Total (n=34)</th>
<th>SO (n=17)</th>
<th>SA (n=17)</th>
<th>Norm (n=1960)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Well-being</td>
<td>47.1*</td>
<td>49.7</td>
<td>44.5*</td>
<td>52.7</td>
</tr>
<tr>
<td>Psychological Well-being</td>
<td>49.5*</td>
<td>51.1</td>
<td>47.8*</td>
<td>58.2</td>
</tr>
<tr>
<td>Moods &amp; Emotions</td>
<td>48.3</td>
<td>45.6</td>
<td>51.0</td>
<td>51.1</td>
</tr>
<tr>
<td>Self-Perception</td>
<td>51.4</td>
<td>50.0</td>
<td>52.8</td>
<td>52.4</td>
</tr>
<tr>
<td>Autonomy</td>
<td>53.8</td>
<td>52.5</td>
<td>55.1</td>
<td>54.5</td>
</tr>
<tr>
<td>Parent Relation and homelife</td>
<td>54.6</td>
<td>55.2</td>
<td>54.0</td>
<td>53.4</td>
</tr>
<tr>
<td>Financial Resources b</td>
<td>54.2</td>
<td>52.2</td>
<td>56.1</td>
<td>52.3</td>
</tr>
<tr>
<td>Peers &amp; Social Support</td>
<td>46.1*</td>
<td>48.2</td>
<td>44.0*</td>
<td>52.2</td>
</tr>
<tr>
<td>School Environment c</td>
<td>53.5</td>
<td>58.6</td>
<td>58.4</td>
<td>53.3</td>
</tr>
<tr>
<td>Bullying</td>
<td>44.8</td>
<td>42.6</td>
<td>47.0</td>
<td>48.6</td>
</tr>
</tbody>
</table>

a Higher scores represent better HRQOL CBTS=childhood brain tumor survivors, SO=surgery only group, SA=surgery and adjuvant therapy group

b p<0.01

c Total: n=31, SO: n=15, SA: n=16

d Total: n=33, SO: n=16, SA: n=17
At risk for impaired HRQOL

Figure 1 shows the percentages of CBTS who were at risk for impaired HRQOL for the ten domains of the KIDSCREEN. Compared to the norm population (16%), a significantly higher percentage of the total group of CBTS was considered ‘at risk’ for impaired HRQOL with respect to “physical well-being” (41%), “moods and emotions” (44%), “peers and social support” (38%), and “social acceptance/bullying” (38%).

Explorative comparison of the treatment groups with the norm population revealed similar results as in the total group of CBTS. A significantly higher percentage of participants in both treatment groups were considered at risk for impaired HRQOL than the 16% in the norm group: “physical well-being” (SO 35%, SA 47%), “moods and emotions” (SO 53%, SA 35%), “peers and social support” (SO 35%, SA 41%), and “social acceptance/bullying” (SO 41%, SA 35%). Across all domains, no significant differences were found between the treatment groups regarding the percentage at risk for impaired HRQOL.

Figure 1: Percentages of CBTS (total, SO and SA group) at risk for impaired HRQOL

Figure legend
Total childhood brain tumor survivors (CBTS) (n=34), SO=surgery only (n=17), SA=surgery plus adjuvant therapy (n=17). The striped line represents the 16% of children in the Dutch norm population with impaired HRQOL as measured with the KIDSCREEN. a p<0.05; b p<0.01: Differences between the percentages at risk in CBTS (total, SO, SA groups) and the norm population (16%).
Discussion

Our results indicate that though CBTS adapt well in some domains of HRQOL, a considerable number appeared to be at risk for impaired HRQOL in several other domains, especially in physical and social functioning. Overall, these domains correspond with the domains of late effects that have been described as problematic by parents [22]. In general, studies among childhood cancer survivors, spanning different age groups and using different measures and instruments, reported consistently impaired physical well-being [21, 31-34]. We found a high percentage of CBTS at risk for impaired social relations and social acceptance. Survivors reported feelings of rejection and being bullied and reported problems with social relationships with friends and peers. The KIDSCREEN is one of the few HRQOL questionnaires that explicitly assess bullying and social support. As far as we know these aspects of HRQOL were never studied in pediatric survivors before. Our results, however, are consistent with the following findings in adolescent and adult long term survivors: deficits in social competence [4], diminished social functioning [21] and the achievement of fewer milestones in the social domain [35]. We also found that a high percentage of CBTS were at risk for negative moods and emotions. The CBTS reported depressive emotions and stressful feelings. Zebrack et al. concluded from their large cohort of long-term CBTS that the risk for experiencing distress (depression, anxiety) is associated with diminished social functioning and physical and psychosocial limitations [21]. In our total sample, 91% appeared to have physical problems (based on parent report), and it is reasonable to assume that these children face limitations that interfere with their interactions with peers [21, 36]. Additionally, neurocognitive deficits (e.g., slow processing speed), as described in 70% of our survivors (based on parent report), might also negatively affect the quality of social functioning and adjustment to peers [4, 37, 38]. In agreement with Schulte and Barrera (2010), we encourage future researchers to examine the possible relation between physical problems, neurocognitive impairment and social functioning and to identify modes to strengthen social functioning [4]. Further research is needed to improve the understanding of the quality of peer interactions and the perception of being isolated and feeling rejected by peers among CBTS. Additional understanding in this area could contribute to the development of more specific interventions to overcome these feelings.

The total and the SA group, but not the SO group, had significantly lower mean HRQOL scores than the Dutch norm. However, the percentage of CBTS at risk for impaired HRQOL was in both patient groups considerably higher than in the Dutch norm population. The finding of impaired HRQOL in CBTS treated with surgery only is corresponding with some other studies were low HRQOL was found in the SO group [13, 16, 21]. Their perceived impaired HRQOL for physical well-being, negative feelings and social functioning could reflect the existence of a variety of...
late effects that survivors of low grade tumors have to deal with [12, 22, 23]. The perceived impaired HRQOL could also result from the fact that follow-up care is not always well adapted for survivors treated with surgery only. Survivors might struggle with their invisible and unrecognized late effects and feeling different compared to peers, with impaired peer contact and negative moods as a consequence. Future research should study these hypotheses.

In the meantime, pediatric oncology professionals, parents and schools should be aware of the risk of negative moods, social isolation and bullying among all brain tumor survivors. From our recent study [22], we found that although the need for aftercare was met for physical impairments, aftercare for psychosocial impairments was inadequate. Therefore we suggest monitoring psychosocial functioning during all follow-up care visits after successful medical treatment. The use of patient reported outcomes (PROs) in daily clinical practice can be helpful to routinely monitor HRQOL [40]. The use of PROs in clinical practice will increase awareness for and communication about psychosocial functioning and possible aftercare needs, and as such could prevent delays in referral for aftercare services. Liptak et al. (2012) recently concluded that self-reported outcomes in adolescent CBTS are a valuable tool to provide information about important areas of functioning which helps identifying which survivors are in need of psychological services [41]. Parent proxy reports could add valuable information about the CBTS functioning [42], but also about parenting difficulties and parent’s needs for aftercare services [22]. School results should also be closely monitored during follow-up in order to detect learning difficulties in time. In addition it is recommended to regularly screen neurocognitive and psychosocial functioning (including HRQOL) in CBTS during the years after medical treatment [2, 43]. Screening will help identifying those survivors at risk for late effects and follow-up needs, even in the absence of overt problems [43]. Such a screening tool should be comprised of some neurocognitive instruments and questionnaires about executive functioning (e.g. with the Behavior Rating Inventory of Executive Functioning), HRQOL and daily functioning.

Parents and health care providers should also encourage social development by stimulating survivors to make friends and to participate in peer groups, sport clubs and other activities to create opportunities in which peer contact could be “practiced”. Early interventions and preventive psycho-educational programs can improve different aspects of HRQOL. In the case of social isolation, specialized social skill training, as described by Barrera et al. [44], and learning how to cope with the late effects, as described by Last et al. [45], are highly recommended. We suggest that the school of the CBTS should play an important role in creating a safe and stimulating environment for these vulnerable patients.

It is promising that our results show satisfaction with the school environment and this
might reflect that the school tailors with the survivors’ abilities and may indicate that
the adjusted special educational services for these survivors are appropriate.

Our results stress the importance of monitoring not only patients treated with surgery
and adjuvant therapy but also patients treated with surgery only, because more than
a third of the SO group reported impaired HRQOL for physical well-being, social
functioning, and/or negative moods. This is consistent with the variety of late effects
that the SO group faces. Ris et al. [23] recommended routine follow-up care for
those who might otherwise struggle with the invisible and unrecognized long-term
sequelae that may negatively affect peer interactions as well as depressive moods.

When interpreting the results of this study, limitations and strengths should be taken
into account.

First, the small sample size should be considered, as well as the heterogeneity of the
study population. The power could have been too low to trace differences between
the treatment groups. Moreover, we were not able to study factors associated with
impaired HRQOL in CBTS, for example existing late effects based on parents’
reports. Future research with a larger group of CBTS should consider this because it
is known that functional capacity and the severity of late effects are strongly related
to HRQOL. Secondly, we did not correct the significance level (0.05) for multiple
testing. Priority was given to finding phenomena that exist (avoiding type II errors)
rather than avoiding type I errors. Thirdly, the representativeness of the results should
be taken into account. CBTS with serious cognitive problems were not represented in
the study because participants should be able to complete questionnaires. However,
it appeared that in our study none of the patients had to be excluded because of not
being able to fill in questionnaires.

The use of the KIDSCREEN is a strength of our study. It enabled us to study CBTS
more comprehensively regarding psychological and social functioning. Moreover, the
domains of self-perception, autonomy, and parent relation added more insight into
the functioning of CBTS in daily life, domains which are lacking in most HRQOL
questionnaires. An additional strength of this study is the clinical value of looking
at meaningful cut-off scores. Although the used cut-off point could be considered
arbitrary, the use of scores ≥1 SD below the population mean as a cut-off score for
impaired HRQOL has been proposed and used by others and seems to be important
for identifying children and adolescents who are at risk [27-29].
Conclusions

Although HRQOL in some domains appeared similar to the Dutch norm population, we identified a considerable number of CBTS at risk for impaired physical well-being, negative moods and impaired social functioning, regardless of the therapy applied. Increased awareness for and monitoring of these domains of functioning is recommended in all CBTS.
References


32. Engelen V, Koopman HM, Detmar SB, et al. Health-related quality of life after completion of


Appendix 1: KIDSCREEN questionnaire: scales, definitions and example items [30]

<table>
<thead>
<tr>
<th>Scales</th>
<th>Definition</th>
<th>Example items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical well-being</td>
<td>Revises the level of physical activity, poor health, energy and fitness</td>
<td>In general, how would you say your health is?</td>
</tr>
<tr>
<td>“physical” (5 items)</td>
<td></td>
<td>Have you felt fit and well?</td>
</tr>
<tr>
<td>Psychological well-being</td>
<td>Examines positive emotions and satisfaction with life</td>
<td>Has your life been enjoyable?</td>
</tr>
<tr>
<td>“psychological” (6 items)</td>
<td></td>
<td>Have you felt pleased to be alive?</td>
</tr>
<tr>
<td>Moods and emotions</td>
<td>Covers the experience of depressive moods and emotions and stressful</td>
<td>Have you felt that you do everything badly?</td>
</tr>
<tr>
<td>“moods” (7 items)</td>
<td>feelings</td>
<td>Have you felt sad?</td>
</tr>
<tr>
<td>Self-perception</td>
<td>Examines body appearance and body image</td>
<td>Have you been happy with the way you are?</td>
</tr>
<tr>
<td>“self” (5 items)</td>
<td></td>
<td>Have you been happy with your clothes?</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Includes the opportunities to shape your own social life and leisure</td>
<td>Have you had enough time for yourself?</td>
</tr>
<tr>
<td>“autonomy” (5 items)</td>
<td></td>
<td>Have you been able to do the things that you want to do in your free time?</td>
</tr>
<tr>
<td>Parent relation and home</td>
<td>Examines the child’s relationship with his or her parents and the</td>
<td>Have your parent(s) understood you?</td>
</tr>
<tr>
<td>life “parents” (6 items)</td>
<td>atmosphere at home</td>
<td>Have you felt loved by your parents?</td>
</tr>
<tr>
<td>Financial resources</td>
<td>Covers the perception of their financial resources</td>
<td>Have you had enough money to do the same things as your friends?</td>
</tr>
<tr>
<td>“financial” (3 items)</td>
<td></td>
<td>Have you had enough money for your expenses?</td>
</tr>
<tr>
<td>Peers and social</td>
<td>Examines social relations with friends and peers</td>
<td>Have you spent time with your friends?</td>
</tr>
<tr>
<td>support “peers” (6 items)</td>
<td></td>
<td>Have you done things with other girls and boys?</td>
</tr>
<tr>
<td>School environment</td>
<td>Investigates the perception of one’s cognitive capacity, learning and</td>
<td>Have you been happy at school?</td>
</tr>
<tr>
<td>“school” (6 items)</td>
<td>concentration and feelings about school</td>
<td>Have you got on well at school?</td>
</tr>
<tr>
<td>Social acceptance/bullying</td>
<td>Explores aspects of feeling rejected by peers</td>
<td>Have you been afraid of other girls and boys?</td>
</tr>
<tr>
<td>“bullying” (3 items)</td>
<td></td>
<td>Have other girls and boys made fun of you?</td>
</tr>
</tbody>
</table>