

## KIDSCREEN -52: PARENT'S PERCEPTION OF THEIR CHILDREN'S QUALITY OF LIFE

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**ABSTRACT-** The KIDSCREEN 52 is a European cross-cultural and standardized instrument that assesses ten health related quality of life (HRQoL) dimensions in children, adolescents and their parents. It is often claimed that children self reports are not totally accurate, calling for a confirmation from parents or caregivers. The present study focuses only on the Kidscreen-52, parents' version (a parallel version addressed specifically to parents perceptions of their son's HRQoL). 2255 parents of children and adolescents with a mean age of 13.2, attending the 5<sup>th</sup> grade and 7<sup>th</sup> grade were inquired. The fit indexes indicate good fit to the data. Specifically, the final solution of the RMSEA was lower than .03, the upper limit of 90% confidence interval was lower than .05, and CFI was higher than .95. Results indicate that the current 52 items structure is invariant across gender and age group. The parent's version of the Kidscreen-52 questionnaire constitutes a valid instrument to estimate parent's perception of quality of life in their children.

*Keywords-* Assessment, Children and Adolescents, Health-Related Quality of Life, Parent's views, *proxy* version

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## KIDSCREEN-52: A PERCEÇÃO DOS PAIS SOBRE A QUALIDADE DE VIDA DOS FILHOS

**RESUMO-** O Kidscreen-52 é um instrumento europeu inter-cultural e padronizado que avalia 10 dimensões da qualidade de vida relacionada com a saúde (QVRS) em crianças, adolescentes e seus pais. Afirma-se frequentemente que os auto-relatos de crianças não são totalmente precisos, sendo necessária uma confirmação por parte dos pais ou responsáveis. O presente estudo refere-se ao Kidscreen-52, versão para pais (uma versão paralela dirigida especificamente aos pais quanto à perceção de QVRS dos seus filhos). Participaram 2.255 pais de crianças e adolescentes com idade média de 13,2 anos, frequentando o 5º e o 7º anos de escolaridade. Os índices de ajustamento indicam bom ajustamento dos dados. Especificamente, na solução final o RMSEA foi menor do que 0,03, o limite superior do intervalo de confiança de 90% foi inferior a 0,05, e CPI foi maior do que 0,95. Os resultados indicam que a atual estrutura de 52 itens é invariante em relação ao gênero e à idade. A versão para pais do questionário Kidscreen-52 constitui um

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instrumento válido para estimar a perceção dos pais acerca da qualidade de vida relacionada com a saúde dos seus filhos, crianças e adolescentes.

*Palavras-chave*- Avaliação, crianças e adolescentes, Qualidade de Vida relacionada com a Saúde, perspetiva dos pais, versão *proxy*

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There are several factors that influence the perception of health-related quality of life (HRQoL) of children and adolescents. The factors found can be organized into two broad categories: personal characteristics and social characteristics. Studies on the subjective well-being of children and adolescents are recent and focus on the relationship between demographic variables (e.g. age, gender and socioeconomic status), intrapersonal characteristics (e.g. self-concept, extraversion, *locus* of internal control) and welfare (Gaspar, 2010; Gaspar, et al, 2010 a) b); Ravens-Sieberer, et al, 2001).

An ecological perspective including children or adolescents, parents and family, peers, school and community allow a greater understanding of the development and psychosocial well-being of both children and adolescents (Matos & Social Adventure team, 2012; Nelson, Laurendeau & Chamberland, 2001). The social network and the perceived social support are extremely important for children's and adolescents' development. The structure and functions of social support are related to specific aspects of their welfare, particularly regarding self-concept, adjustment, and social skills as protective factors against stressful life events (Boosman, Meulen, Geert & Jackson, 2002).

Ideally, the instruments to evaluate HRQoL for children/adolescents could use both children/adolescents views and their parents', allowing a more precise multi-informant evaluation and a more thorough comparison between parents and children/ adolescents perceptions (Eiser & Morse, 2002; Varni, Limbers & Burwinkle, 2007).

Theunissen et al., (1998) defended that it is possible to evaluate the HRQoL through the perception of both the child and his parents, claiming that in both cases valid information is reported, although parents showed a better performance in most areas. Several investigations show that the agreement between parents and children is very good when it comes to observable measures, ie, it is expected a greater agreement between parents and children in the evaluation of the health status than in perception of health related quality of life. The social and psychological aspects of HRQoL are less observable than the physical aspects of HRQoL. Most children have a more pessimistic view about their physical functioning than their parents, the same occurring with the dimensions related to cognitive functioning and with positive and negative emotions (the psychological aspects of HRQoL).

Age differences were found in parent-child agreement in term of emotions. Regarding the perception of positive, in the items related to welfare and emotional aspects, there is less agreement among the older children and parents than among the younger ones emotions (Chang & Yeh, 2005; Gaspar, et al, 2010, Jovicic, Locker & Guyatt, 2004). These results may reflect the fact that older children spend more time away from parents, have less parental supervision and share less of their living experiences with their parents and more with peers (Matos & Sampaio, 2009).

Results highlight that parents are better able to assess the physical aspects of HRQoL of their children than the social and emotional aspects. On the other hand, the differences between ratings of parents and children may depend on the instrument used and especially on the domain of HRQoL that is being evaluated (Eiser & Morse, 2001).

The KIDSCREEN-52 is an instrument that assesses 10 dimensions of health-related quality of life (HRQoL). It was developed as a result of studies by the European KIDSCREEN Group, University of Berlin (The KIDSCREEN Group Europe, 2006; Ravens-Sieberer et al, 2001). During the Portuguese validation process, a model was developed to examine the perceptions of children and their parents on these dimensions (Gaspar & Matos, 2008).

The aim of the present study was 1) to examine the psychometric properties of the Portuguese parent's version of KIDSCREEN-52 instrument; 2) to analyse similitude and differences of parental perceptions regarding their children's gender and age; 3) to analyse children/adolescents' perceptions compared with their parent's.

## METHODS

### *Participants*

Sampling methods were derived from the international study "Health Behaviour in School-Aged Children" (HBSC/WHO). The HBSC/WHO study's sample was enlarged, and two extra random classes (5<sup>th</sup> grade and 7<sup>th</sup> grade) were selected in each of the national randomly selected schools. Schools were stratified by National Educational Regions (5 in the whole country) following HBSC/WHO. (For further details about sampling procedures, see Currie, Samdal, Boyce, & Smith, 2001; Matos et al, 2003, 2012). The present study is a cross sectional national study, representative of Portuguese public schools, and provides a random national representative sample of 5<sup>th</sup> and 7<sup>th</sup> grade pupils.

KIDSCREEN-52 questionnaires were applied in a classroom setting. Questionnaires were anonymous and answered in a voluntary basis. The research project was submitted and approved by several national organizations (Ministry of Education, National Data Protection Commission and Ethics Commission) and parents' informed consent was requested.

The study involved 95 schools and 162 classes.

The sample consisted of 3195 children and adolescents from 5<sup>th</sup> grade (48.8%) and 7<sup>th</sup> grade, mean age 11.8;  $SD = 1.46$ ; ranging from 10 to 16 (41,1% between 10 and 11 years old and 58.9% being 12 years old or older); 49,2 % boys were inquired. The European KIDSCREEN Group used two age groups (8-11 years old and 12-18 years old). In this paper the school grade was used as a proxy for age due to the grade sampling method. Students attending the 5<sup>th</sup> grade had a mean age of 10.7;  $SD = 0.95$  and pupils attending 7<sup>th</sup> grade had a mean age of 12.9;  $SD=1.02$ . A majority of students come from a low or very low socio-economic status (62.2%) and 3.3% do not have Portuguese nationality, being immigrants from the African countries or from Brazil.

Data from each child were attributed a code so as to be anonymously paired with data from their parents that were attributed the same code (2256 matched sets of data were generated). The present study focused on 2256 parents' matched answers.

The present study includes 2256 family members, 77.3% of which are mothers ( $n=1740$ ), 53.8% parents of girls ( $n= 1210$ ) and 48.4% are parents of the younger children aged 10 to 11 years old ( $n=1081$ ).

#### *Instrument*

KIDSCREEN-52 was developed within the European project “Screening and Promotion for Health-Related Quality of Life in Children and Adolescents – A European Public Health Perspective” (European Commission). During 3 years (2001-2004) 13 countries were coordinated by the German team (Ravens-Sieberer et al, 2001) who developed and evaluated this instrument, presenting a version for children and a version for parents, which can be used with children from 8 to 18 years old, and their parents. It is a self-reported questionnaire of 52 items, which requires about 15 minutes being to be filled and report to the “last week“. The KIDSCREEN-52 is organized in 10 dimensions: Physical Well-being (5 items), Psychological Well-being (6 items), Moods and Emotions (7 items), Self Perception (5 items), Autonomy (5 items), Parent Relation and Home Life Context (6 items), Financial Resources (3 items), Social Support and Peers (6 items), School Environment (6 items) and Social Acceptance and Bullying (3 items). Items are rated by means of a Likert type scale (1 to 5)

In order to score the KIDSCREEN-52 instrument, it is necessary to recode in the opposite sense (to inverse) 14 items, to make all items formulated positively (which means a higher score reflecting a higher HRQoL). The score range for KIDSCREEN-52 dimensions is 0-100.

The original scale was developed in English.

The original process to confirm and test the KIDSCREEN-52 included a) analyses to determine how well the structure of the instrument fit the data; b) a confirmatory factor analysis (CFA) as well as multitrait analyses (MAP) were conducted to explore if the inter-item correlation could be reasonably explained by a specific 10-dimensional questionnaire structure. For each scale, the internal consistency reliability (Cronbach’s alpha) and the test-retest reliability was calculated. The results of MAP analyses as well as the CFA confirmed the structure of the multi-scale KIDSCREEN instrument. The goodness of the fit of the model was tested using Root Mean Square Error of Approximation (RMSEA = 0.05 and Comparative Fit Index (CFI =0.98). The Cronbach’s alpha values were between 0.89 and 0.79 (The KIDSCREEN Group Europe, 2006). According to international guidelines, the Portuguese translation of the KIDSCREEN questionnaire included a forward-backward-forward translation procedure with harmonisation processes. The psychometric properties of the instrument were examined in terms of the frequency, internal consistency, reliability, discriminant validity, correlation analyses, exploratory factor analyses and confirmatory factor analyses (Gaspar & Matos, 2008)

#### *Statistical procedures*

A confirmatory factor analysis (CFA), conducted with EQS 6.1, was run with the 2256 participants to confirm the 10 factor structure of the KIDSCREEN-52 parent’s version. Factorial invariance across child gender and grade (5<sup>th</sup>, 7<sup>th</sup>) was analysed. In addition to chi-square, alternative fit indexes such as the comparative fit index (CFI), non-normed fit index (NNFI), root mean square error of approximation (RMSEA) and standardized root mean squared residual (SRMR) are also presented.

The procedures used to determine factorial invariance included: (1) verification of configural invariance, in which the equivalence of the specified structure of factor loading is tested for each paired-group (unconstrained model), (2) verification of metric invariance, in which the model is also tested in combination for each paired-group, but free or estimated factor loadings are restricted to test the equivalence of the two samples (constrained model). Simulation studies show that the difference in CFI between the model with and without restrictions is among the most adequate measures to assume factorial invariance (Cheung & Rensvold, 2000). Therefore, a difference equal or lower than .01 in CFI represents a good indicator of factorial invariance.

## RESULTS

### *Confirmatory Factor Analysis*

A confirmatory factor analysis (CFA) was conducted on 2256 participants. The goodness-of-fit estimates reported correspond to the robust solution (except for SRMR). In addition, the Satorra-Bentler Chi-square (Hu & Bentler, 1999) and fit indexes that control non-normality results were used. The fit indices held in the analysis for the model were indicative of a poor-fitting model (Satorra-Bentler  $\chi^2 = 4684.28$  (1229),  $p < .001$ ;  $\chi^2/df = 3.8$ ; CFI = .89; NNFI = .88; RMSEA = .04; SRMR = .04. Nevertheless, the LM test showed that if some parameters, in this case error covariances, were freely estimated, the  $\chi^2$  would drop significantly. These parameters were the error covariances between the following items (that reported to the “past week”): “Been in a good mood/ Felt cheerful”; “Been able to talk about everything with friends/“Been able to rely on your friends”; “Got on well at school/Been able to pay attention”; “Been physically active/Been able to run well”. Since the content of the items is associated and the result of the first analysis shows a significant drop in  $\chi^2$  value, these parameters were freed up in the model one by one. The results of these respecifications in the model are shown in Table 1.

Table 1  
Fit indexes of the initial model and the model with the introduction of parameters (error covariances)

	$\chi^2$ (d.f.) <sup>1</sup>	CFI <sup>2</sup>	NNFI <sup>2</sup>	RMSEA (90% C.I.) <sup>2</sup>	SRMR
Initial Model	4684.28*** (1229)	.89	.88	.04 (.04-.04)	.04
Step 1	4367.40*** (1228)	.90	.89	.04 (.04-.04)	.05
Step 2	4139.18***( 1227)	.91	.90	.04(.04-.04)	.04
Step 3	3958.01*** (1226)	.91	.90	.04 (.04-.04)	.04

Step 4	3806.78*** (1225)	.92	.91	.04 (.03-.04)	.04
<ul style="list-style-type: none"> <li>- 1 – Satorra-Bentler; 2 – <i>Robust</i>; *<math>p &lt; .05</math>; **<math>p &lt; .01</math>; ***<math>p &lt; .001</math>.</li> <li>- Step 1 – Introduction of the error covariances between the items “Been in a good mood/ Felt cheerful” (<math>r=.44</math>)</li> <li>- Step 2 – Introduction of the error covariances between the items “Been able to talk about everything with friends/“Been able to rely on your friends”(=<math>r=.48</math>)</li> <li>- Step 3 – Introduction of the error covariances between the items ““Got on well at school/Been able to pay attention”” (<math>r=.39</math>)</li> <li>- Step 4 – Introduction of the error covariances between the items “Been physically active/Been able to run well” (<math>r=.41</math>)</li> </ul>					

As it is possible to see, the  $\chi^2$  value had a significant drop in each of the steps related to the introduction of error covariances in the model (free estimation). In the last step the  $\chi^2$  value [Satorra-Bentler  $\chi^2 = 3806.78$  (1225),  $p < .001$ ;  $\chi^2/df=3, 1$ ], although significant, which is often observed with large sample sizes (Cheung & Resenvold, 2002), is lower than in first analysis. Also the CFI and the other fit indexes had shown an improvement in each step (Final step: CFI=.92; NNFI=.91; RMSEA=.04; SRMR=.04).

The *Wald* tests confirmed that all parameters included in the initial model are significant and, therefore, were maintained. Table 2 presents the factor loadings of the final model. As it is possible to see all factor loadings are higher than .50, with the exception of one item of Self-Perception factor (“worried about the way he/she looks”) that has a loading lower than .20. Table 3 presents the correlations between the 10 factors.

Table 2

Factor loadings ( $\lambda$ ), error ( $E$ ) and explained variance ( $R^2$ ) for all 52 Kidscreen items.

Factor	Items	$\lambda$	$E$	$R^2$
Physical Well-being	Health	.53	.85	.28
	Felt fit and well	.78	.63	.61
	Physically active	.69	.72	.48
	Able to run well	.68	.73	.47
	Felt full of energy	.75	.66	.56
Psychological Well-being	Life been enjoyable	.79	.61	.63
	Felt pleased that is alive	.60	.80	.36
	Felt satisfied with life	.75	.66	.56
	Been in a good mood	.61	.80	.37
	Felt cheerful	.71	.71	.50
	Had fun	.66	.75	.43
Moods and Emotions	Felt that do everything badly	.53	.85	.28
	Felt sad	.69	.72	.48

Parent's perception of their children's QoL

	Felt so bad that didn't want to do anything	.68	.74	.46
	Felt that everything in life goes wrong	.78	.62	.61
	Felt fed up	.75	.66	.57
	Felt lonely	.67	.74	.45
	Felt under pressure	.59	.81	.35
Self-Perception	Been happy with the way he/she is	.74	.68	.54
	Happy with clothes	.61	.79	.37
	Worried about the way he/she looks	.16	.99	.03
	Felt jealous about the way others look	.53	.85	.28
	Like to change something about body	.49	.87	.24
Autonomy	Enough time for him/herself	.65	.76	.42
	Able to do things in free time	.73	.69	.53
	Enough opportunity to be outside	.70	.72	.49
	Enough time to meet friends	.72	.70	.52
	Able to choose what to do in free time	.66	.75	.43
Parents Relations and Home Life	Parents understanding	.70	.71	.50
	Felt loved by parents	.67	.74	.45
	Happy at home	.69	.72	.48
	Parents had enough time	.70	.71	.49
	Parents treat fairly	.45	.89	.21
	Able to talk with parents	.60	.80	.37
Financial Resources	Enough money to do things as friends	.87	.50	.75
	Enough money for expenses	.77	.63	.60
	Enough money to do things with friends	.84	.55	.70
Social Support and Peers	Spent time with friends	.78	.62	.61
	Done things with other girls and boys	.83	.55	.70
	Fun with friends	.84	.54	.71
	Friends helped each other	.65	.76	.42
	Able to talk about everything with friends	.54	.84	.29
	Able to rely on friends	.52	.86	.27
School Environment	Happy at school	.78	.63	.60
	Got on well at school	.57	.82	.32
	Satisfied with teachers	.72	.69	.52
	Able to pay attention	.62	.79	.38
	Enjoyed going to school	.75	.66	.57
	Got well with teachers	.69	.72	.48

Bullying	Afraid of others	.67	.74	.45
	Others made fun	.89	.46	.79
	Others bullied	.82	.57	.68

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Parent's perception of their children's QoL

Table 3  
Correlations between the 10 factors

Factor	1	2	3	4	5	6	7	8	9	10
Physical Well-being	-									
Psychological Well-being	.67	-								
Moods and Emotions	.41	.68	-							
Self-Perception	.47	.70	.67	-						
Autonomy	.49	.58	.45	.57	-					
Parents Relations and Home Life	.39	.70	.62	.71	.58	-				
Financial Resources	.29	.33	.34	.33	.40	.40	-			
Social Support and Peers	.43	.46	.36	.41	.64	.43	.46	-		
School Environment	.35	.56	.50	.55	.40	.55	.31	.37	-	
Bullying	.23	.27	.42	.41	.22	.26	.29	.31	.28	-

1=Physical Well-being; 2=Psychological Well-being; 3=Moods and Emotions; 4=Self-Perception; 5=Autonomy; 6=Parents Relations and Home Life; 7=Financial Resources; 8=Social Support and Peers; 9=School Environment; 10=Bullying

*Factorial Invariance*

To determine the factorial invariance of the 52-item KIDSCREEN parent's version, comparisons across groups were conducted. The variables in study were: (1) gender of the child - male ( $n = 1041$ ) vs. female ( $n = 1214$ ); (2) grade (proxy for age) - 5<sup>th</sup> ( $n = 1241$ ) vs. 7<sup>th</sup> ( $n = 1015$ ).

Results for factorial invariance are summarized in table 4, where adjustment indexes for both unconstrained and constrained models are shown.

Table 4  
Factorial invariance with fit statistics for unconstrained and constrained models.

	CFI <sup>a</sup>	$\chi^2$ (df) <sup>b</sup>	$\chi^2$ /df	RMSEA	(90% CI) <sup>a</sup>
Male - Female					
Unrestricted	.91	5103.97*** (2450)	2.08	.04	(.04-.04)
Restricted	.91	5191.09*** (2492)	2.08	.04	(.04-.04)
5th Grade - 7th Grade					
Unrestricted	.91	5098.49*** (2450)	2.08	.04	(.04-.04)
Restricted	.91	5173.19*** (2492)	2.08	.04	(.04-.04)

a - Robust; b - Satorra-Bentler Chi-Square; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 5  
Invariance testing: factor loadings ( $\lambda$ ) and explained variance ( $R^2$ ) for all 52 Kidscreen items.

Factor	Gender Group	Grade
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Items	Males		Female		5 <sup>th</sup>		7 <sup>th</sup>	
	$\lambda$	$R^2$	$\lambda$	$R^2$	$\lambda$	$R^2$	$\lambda$	$R^2$
Health	.52	.27	.54	.29	.52	.27	.53	.29
Felt fit and well	.80	.65	.76	.58	.75	.56	.81	.66
Physically active	.72	.52	.67	.45	.72	.52	.66	.43
Able to run well	.69	.47	.68	.46	.71	.50	.65	.42
Felt full of energy	.73	.53	.76	.57	.78	.61	.71	.50
Life been enjoyable	.79	.62	.79	.63	.78	.61	.80	.64
Felt pleased that is alive	.66	.43	.55	.31	.59	.35	.60	.35
Felt satisfied with life	.78	.60	.74	.54	.74	.55	.75	.56
Been in a good mood	.62	.39	.59	.35	.59	.35	.63	.39
Felt cheerful	.72	.51	.69	.48	.72	.51	.69	.48
Had fun	.64	.42	.66	.44	.66	.43	.65	.43
Felt that do everything badly	.54	.29	.52	.27	.56	.32	.50	.25
Felt sad	.71	.50	.68	.46	.71	.50	.68	.46
Felt so bad that didn't want to do anything	.68	.47	.67	.45	.66	.43	.69	.48
Felt that everything in life goes wrong	.77	.59	.80	.64	.75		.81	.66
Felt fed up	.75	.56	.75	.57	.74		.76	.58
Felt lonely	.62	.38	.72	.51	.63		.70	.48
Felt under pressure	.59	.35	.60	.36	.56		.63	.39
Been happy with the way he/she is	.69	.47	.76	.58	.70		.77	.59
Happy with clothes	.66	.44	.57	.33	.62		.60	.36
Worried about the way he/she looks	.10	.01	.20	.04	.18		.11	.01
Felt jealous about the way others look	.47	.22	.56	.31	.53		.50	.25
Like to change something about body	.38	.14	.55	.31	.46		.49	.24
Enough time for him/her self	.65	.43	.65	.42	.64		.65	.42
Able to do things in free time	.71	.50	.74	.55	.72		.73	.53
Enough opportunity to be outside	.73	.54	.67	.45	.69		.71	.50
Enough time to meet friends	.74	.55	.70	.49	.72		.72	.52
Able to choose what to do in free time	.65	.42	.66	.44	.63		.69	.47
Parents understanding	.68	.46	.72	.52	.65		.74	.55

Parent's perception of their children's QoL

Felt loved by parents	.63	.40	.70	.48	.58	.74	.55
Happy at home	.71	.50	.68	.47	.64	.71	.51
Parents had enough time	.74	.55	.67	.45	.68	.72	.52
Parents treat fairly	.47	.22	.44	.20	.40	.52	.27
Able to talk with parents	.60	.36	.61	.37	.54	.65	.42
Enough money to do things as friends	.88	.78	.85	.73	.85	.88	.77
Enough money for expenses	.80	.64	.75	.56	.76	.79	.62
Enough money to do things with friends	.82	.67	.85	.73	.82	.86	.74
Spent time with friends	.82	.67	.76	.57	.77	.79	.63
Done things with other girls and boys	.84	.70	.84	.70	.83	.84	.70
Fun with friends	.84	.71	.85	.72	.83	.86	.73
Friends helped each other	.67	.44	.65	.42	.58	.73	.54
Able to talk about everything with friends	.56	.32	.52	.27	.51	.58	.34
Able to rely on friends	.53	.28	.51	.26	.50	.54	.30
Happy at school	.76	.58	.78	.62	.79	.76	.57
Got on well at school	.55	.31	.57	.33	.60	.53	.28
Satisfied with teachers	.75	.57	.69	.48	.72	.70	.49
Able to pay attention	.59	.35	.63	.40	.61	.64	.40
Enjoyed going to school	.75	.56	.75	.57	.74	.74	.55
Got well with teachers	.73	.54	.64	.41	.67	.69	.48
Afraid of others	.67	.45	.67	.45	.67	.66	.44
Others made fun	.86	.74	.91	.83	.88	.89	.80
Others bullied	.85	.72	.80	.64	.85	.79	.62

The factorial structure of the questionnaire was confirmed for the unconstrained models since it presents adequate fit indexes (CFI and RMSEA) in each of the paired groups. Metric invariance is also observed as CFI difference between unconstrained and constrained models is smaller than .01 in all paired groups. Table 5 represents factor loadings and explained variances of each item for all groups. The majority of the items have good factor loadings (above .60). Nevertheless, regarding the different factors across the four groups, it is possible to find items that are better explained than others. Financial resources is the factor with better factor loading across the four different groups.

Furthermore, the scale's descriptive analysis and the internal consistency of KIDSCREEN-52 dimensions in Portugal – parents' version - showed a good internal consistency for all scales, except Self-perceptions (Table 6).

Table 6  
Scale descriptive analysis and internal consistency of KIDSCREEN-52 dimensions  
in Portugal – parents’ version

Dimensions	No. items	<i>N</i>	<i>M</i>	<i>M</i> %*	<i>SD</i>	Cronbach- $\alpha$
Physical Well-being	5	2182	19.36 (0-25)	71.82	18.03	.82
Psychological Well-being	6	2115	25.43 (0-30)	<b>80.96</b>	14.68	.85
Moods and Emotions	7	2131	29.75 (0-35)	<b>81.25</b>	15.87	.85
Self-Perception	5	2147	20.49 (0-25)	77.46	16.04	.64
Autonomy	5	2137	20.,84 (0-25)	79.21	17.65	.81
Parents Relations and Home Life	6	2106	26.08 (0-30)	<b>83.66</b>	14.89	.80
Financial Resources	3	2140	11.53 (0-15)	71.10	25.27	.87
Social Support and Peers	6	2061	23.05 (0-30)	7.,05	18.61	.86
School Environment	6	2111	23.58 (0-30)	73.24	16.81	.85
Bullying	3	2117	12.68 (0-15)	<b>80.70</b>	20.59	.83

\* Sum score transformed into values between 0-100.

Parents tended to perceive their daughters as having better quality of life regarding the dimensions of School Environment, Bullying and Financial Resources and they tended to perceive their sons as having better quality of life regarding the dimensions Physical Well Being, Self-Perception, and Autonomy. The effect size analysis highlighted that these differences, although significant, are small (Cohen, 1988) (See Table 7).

Table 7  
HRQoL Parents’ version (n= 2256) Comparisons, by the gender of their children.  
Means and standard deviations, ANOVAs and Effect size

Dimensions	Sons		Daughters		<i>F</i>	Effect size
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Physical Well-being	<b>74.24</b>	17.53	69.78	18.20	33.56***	.24
Psychological Well-being	81.44	14.40	80.54	14.91	( <i>n.s.</i> )	( <i>n.s.</i> )
Moods and Emotions	80.84	16.11	81.59	15.67	( <i>n.s.</i> )	( <i>n.s.</i> )
Self-Perception	<b>79.60</b>	14.95	75.69	16.69	32.83***	.24
Autonomy	<b>79.96</b>	17.30	78.58	17.93	3.21*	.08
Parents Relations and Home Life	84.21	14.35	83.20	15.33	( <i>n.s.</i> )	( <i>n.s.</i> )
Financial Resources	68.93	25.90	<b>72.94</b>	24.59	13.60***	.16
Social Support and Peers	70.36	18.69	71.61	18.53	( <i>n.s.</i> )	( <i>n.s.</i> )
School Environment	70.95	17.62	<b>75.22</b>	15.83	34.32***	.25
Bullying	79.81	20.68	<b>81.46</b>	20.50	3.60*	.08

\*  $p < .01$  \*\*\*  $p \leq .001$

## Parent's perception of their children's QoL

Parents tended to perceive their younger children (5<sup>th</sup> grade) as having better quality of life than the older children on all the dimensions, except in the dimension Social Support and Peers, where there was no statistically significant difference, and regarding Bullying, where parents perceived a better situation in the older (7<sup>th</sup> grade) group. The effect size analysis highlighted that although significant, most of the differences are small or average (the School Environment dimension is better perceived in younger children and it is indeed the higher effect size in all the comparisons) (See Table 8).

Table 8  
HRQoL Parents' version ( $n= 2256$ ) Comparisons by the children's school grade  
Means and standard deviations, ANOVAs and Effect size

Dimensions	Grade ( 5 <sup>th</sup> grade)		Grade (7 <sup>th</sup> grade)		<i>F</i>	Effect size
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Physical Well-being	<b>73.21</b>	17.75	70.51	18.14	12.31***	.15
Psychological Well-being	<b>82.43</b>	13.79	79.49	15.34	21.32***	.20
Moods and Emotions	<b>83.34</b>	14.02	79.49	16.96	32.09***	.24
Self-Perception	<b>80.25</b>	15.18	74.87	16.35	61.74***	.33
Autonomy	<b>80.01</b>	16.90	78.40	18.33	4.39**	.09
Parents Relations and Home Life	<b>85.74</b>	13.58	81.75	15.72	38.23***	.26
Financial Resources	<b>73.15</b>	24.24	69.11	26.06	13.63***	.16
Social Support and Peers	71.21	17.67	70.83	19.43	( <i>n.s.</i> )	( <i>n.s.</i> )
School Environment	<b>76.91</b>	15.54	69.79	17.16	98.71***	.42
Bullying	78.83	20.92	<b>82.45</b>	20.10	16.40***	.17

\*  $p < .05$  \*\*  $p \leq .01$ . \*\*\*  $p \leq .001$ .

## DISCUSSION

The purpose of this paper was to examine psychometric properties of the KIDSCREEN-52, parent's version, in order to validate this instrument for Portuguese children and adolescents' parents, and analyse parental perceptions related to the child's gender (boy or girl) and their age (school grade).

In the final solution, the RMSEA was lower than .04, the upper limit of 90% confidence interval was also lower than .04, and CFI was higher than .90. All the factor loadings were higher than .50 with the exception of the item "worried about the way it looks" that had a very low loading. Furthermore, results indicate that the current 52-item structure is invariant across gender groups, and grade. The CFI for both models was good (above .90) and changes were bellow .01 (Cheung & Rensvold, 2002). Again, the factor loading of the item "worried about the way it looks" (Self-Perception factor) had a very low loading in all the groups under analysis. This item was maintained in the structure of Kidscreen-52 nevertheless, based on the results, its removal from the scale should be considered. The internal consistency analysis points in the same direction.

Parents seem to have different perceptions of their children's HRQoL according to the gender of their children (sons/daughters). Those differences are, in general, in line with the differences that their children also reported, reflecting cultural gendered differences ( e.g. more positive views of girls' perception of schooling and boys' more optimistic view of life) (Gaspar & Matos, 2008; Matos & Sampaio, 2009; Matos et al, 2012)

In general, parents estimated their daughters to have a better experience of schooling and less involvement in bullying, and their sons as having a better physical health, a better self-perception and higher autonomy. These findings agree with the general literature on gender differences and also with the general gender differences in beliefs, which suggest that both children and their families are prone to perceive gender differences. They also corroborated previous research either in the area of health-related quality of life or in the area of developmental psychology (Caldera & Hart, 2004; Matos et al, 2012).

Finally, parents seem to have different perceptions according to their child's age (school grade), that correspond with their own child's perception, namely highlighting a decrease of HRQoL in almost all HRQoL dimensions, except Bullying. The higher difference effect is the notorious decrease of HRQoL with age, in which School matters are concerned (Gaspar & Matos, 2008; Matos & Sampaio, 2009; Matos et al, 2012, 2012)

The results showed that KIDSCREEN-52 questionnaire (parents version) is a valid, reliable and sensitive instrument to estimate the parents perception of quality of life both for their children and for adolescents in the Portuguese language and in their culture (Gaspar, et al, 2010; Gaspar & Matos, 2008), in the same way as it happened in other countries (Ravens-Sieberer et al., 2001; 2005; The KIDSCREEN Group Europe, 2006).

Data collection through a reliable instrument to assess health-related quality of life allows monitoring of the health of children, one of the key issues in both public health and health psychology (Ribeiro, 1994).

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