

A Reliable and Valid Parent Self-Report Tool to Assess Children's Global Health Needs

Short title: Children's global health needs assessment tool

Journal of Pediatric Nursing

Childhood growth involves biological, behavioral and environmental influences that make infant growth a critical and sensitive period. The sociopolitical contexts in which children live and the health services available to them interact with their biology and behavior, determining their health (Mistry et al., 2012; Moore, McDonald, Carlon, & O'Rourke, 2015; Stein, 2005).

Raising children to have healthy habits from an early age is the most effective preventive action to improve health condition throughout individuals' lives (Center on the Developing Child, 2010, 2016; Shonkoff, Boyce, & McEwen, 2009). Conducting regular check-ups of children's health to inform and guide decisions and actions related to their health can help integrate healthy lifestyles at an early age that will persist throughout their lives (Forrest & Riley, 2004; Halfon, Forrest, Lerner, & Faustman, 2017). Health decision-making and the adoption and maintenance of healthy lifestyles are influenced by a large number of interacting factors (Downie, Tannahill, Fyfe, & Tannahill, 1990; Schwartz, 2018). The social environment, including the role of children's parents and caregivers, has been identified as a significant one (Center on the Developing Child, 2016; Hayman, 2010; Roden, 2004).

Proper identification of the health needs of target populations is key for designing health promotion interventions, assessing their impacts and increasing their effectiveness (Gilbert, Sawyer, & McNeil, 2015). It is possible to find tools and programs in the scientific literature to assess the health needs of children or their caregivers related to specific behaviors or health problems (Marquer et al., 2012; Navarra et al., 2016; Piškur, Beurskens, Jongmans, Ketelaar, &

Smeets, 2015; Zimmermann et al., 2015); however, to our knowledge, the literature lacks global, comprehensive assessments of children's health. Other authors that have highlighted the importance of such global assessments have worked to design tools to visualize the information collected by pediatricians regarding the personal and environmental factors of each child within the health system (Weijers, Feron, & Bastiaenen, 2018). A tool is necessary, though, that can be used in any context in which health professionals are working with children and their families to obtain information about children's needs and promote their health.

This study aimed to develop and validate a parent self-report questionnaire to explore global health needs in children (2- to 6- years-old), the *Necesidades de Salud de la Población Infantil* (NPI; in English, the *Child's Global Health Needs Questionnaire*).

Methods

The study methodology included questionnaire development and validation.

Development Stage

The development of the tool started with a conceptualization phase and was followed by the design and pilot testing of the questionnaire.

Conceptualization. The questionnaire conceptualization and construct (dimension) definition were carried out considering the following: 1) the aim of the tool; 2) a bibliographic review on the topic using the CINAHL, PubMed, Psycinfo and SciELO databases, combining the search terms "health needs assessment" and "children", and institutional web pages (e.g., World Health Organization); 3) a qualitative study with 11 focus groups (n=75) and content analysis; and 4) the research team's experience.

Questionnaire design. The questionnaire was designed to include nominal scale items to collect sociodemographic information and Likert scales to assess each dimension. The sequence

to item presentation was determined considering the construct criteria, order and specificity. Questionnaire editing was performed considering the length, format and accessibility criteria.

Pilot. To assess the acceptability and content validity of the questionnaire, the first draft (160 items: 26 sociodemographic and 134 health-related behavior questions) was reviewed independently by **seven** key experts (purposive sample: two nurses working in pediatric clinical practice, two PhD nurses working in academic research with children, a teacher working with school children (under 6 years old), and a child educator working with pre-school children). A copy of the first draft of the questionnaire was sent to the experts via email, and they participated in follow-up interviews in person or by phone. Furthermore, cognitive group interviews were conducted with a convenience sample of fathers and mothers (purposive sample, n=12), aiming to collect qualitative information. Then, a second draft of the questionnaire (155 items: 26 sociodemographic and 129 health-related behavior questions) was distributed to a convenience sample of 65 parents, and a descriptive analysis was performed exploring the frequency distributions and ceiling and roof effects (>70% of the answers grouped under the extreme options) and reliability, with Cronbach's alpha for the internal consistency. In all instances, the participants were informed about the study by one of the researchers and were provided with written information as well. Written consent of their participation was collected from those involved at the initial stages. The consent to participate of the 65 parents answering the initial draft of the questionnaire was assumed when they returned the completed questionnaire.

Psychometric Validation Stage. After the pilot study, a psychometric validation of the first version of the questionnaire (119 items: 23 sociodemographic and 96 health-related behavior questions) was carried out.

Two recommendations were taken into consideration to estimate the sample size in this stage: that **five** to 10 people need to be included for each item in the questionnaire and that 500 participants are necessary to obtain a “very good” sample to conduct factor analysis (Sánchez-Villegas, del Burgo, & Martínez-González, 2014). Thus, the adequate sample size for this study was estimated at 500 people. However, the questionnaire was distributed to 2,000 parents considering that factor analysis requires a large sample size (Norman & Streiner, 2014) and that an adequate sample size is determined by “the strength of the measured variables’ relationships with the factors, factor over determination, and number of measured variables” (Watkins, 2018). Randomized cluster sampling was carried out within schools that had students between 2 and 6 years of age in Spain to achieve sample heterogeneity, which is essential for factor analysis testing (Reise, Waller, & Comrey, 2000). **Thus, a list was created with 1230 classrooms of children of the above-mentioned age, that attended all the 327 existent education settings (nurseries, pre-schools and schools) in the region. In total, 100 classrooms were randomly selected from this list using STATA statistical software (Stata Corp, College Station, Texas, USA).** The research team invited head teachers to collaborate in the dissemination and collection of the questionnaires in their schools, providing one questionnaire per child to be filled by one of his/her parents.

The Doornik-Hansen test for normality analysis was carried out on the data collected, and a descriptive analysis was performed to explore each item’s acceptability and to identify the ceiling and roof effects. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were carried out to explore the construct validity of the questionnaire (Bandalos & Inney, 2018; Batista-Foguet, Coenders, & Alonso, 2004). Sampling adequacy was studied using Kaiser-Meyer-Olkin (KMO) and the suitability of the data for factor analysis was done using Bartlett’s

test of sphericity. KMO cut of point of 0.6 or above shows that the sample size is acceptable and above 0.8 is meritorious (Hair et al 2010).

The structural equation modeling (SEM), and the maximum likelihood method was used for estimation in the confirmatory analysis. The normed fit index (NFI), root mean square error of approximation (RMSEA), chi square test and comparative fit index (CFI) were used to test the goodness-of-fit. Commonly used values of reference criteria for good model fit were used. Namely, NFI and CFI range from 0 to 1.0 with values 0.95 or greater indicating a close fit and 0.90 an acceptable fit (Hu & Bentler 1999), with some authors considering a good fit value already 0.80 (Chinda et al., 2012). Values for RMSEA close to 0.05 indicate a good fit, 0.08 an adequate fit and values 0.10 or greater a poor fit of the data to the model (Hu & Bentler 1999). The reliability of the final version of the questionnaire was explored through Cronbach's alpha for internal consistency and all the quantitative analyses were performed using STATA software.

This study was evaluated by the local ethics research committee. Written information about the study was provided to participants, and their consent to participate was assumed when they returned the completed questionnaire.

Results

Questionnaire Development Stage

In the conceptualization process, seven conceptual dimensions were identified: 1) lifestyles - diet (LS-DI); 2) lifestyles - physical activity (LS-PA); 3) lifestyles - socioemotional behavior (LS-SB); 4) parental self-efficacy (PSE); 5) interpersonal influences - professionals (II-PROF); 6) interpersonal influences- others (II-OTHER); and 7) situational influences (SI). The dimensions were operationalized in variables, and an initial pool of items was created (See Table online 1). A first draft with 160 items was created in a word document with 17 pages, printed on

double-sided paper and distributed. The items were written and sorted, beginning with sociodemographic information (18 items), followed by general health perception (eight items) and 134 items grouped by the seven dimensions. Within each dimension, the items were grouped depending on whether they referred to children or their parents.

The review of the first draft performed by experts and parents led to a 155-item questionnaire with 26 sociodemographic questions and 129 health-related behavior items (see Table online 1 for the classification of the items within each dimension). The second draft of the questionnaire had two formats: a hard-copy questionnaire was developed in book format with double-sided printing (eight pages, four sheets in total, including instructions); and an online version was created using the Survey Monkey platform (<http://www.surveymonkey.com>).

In total, 65 second-draft questionnaires were distributed, and 56 were completed (response rate = 86%). Appropriate internal consistency was found for all the dimensions, with Cronbach's alphas >0.7 . As a result of this stage, 17 items were reworded, 36 were deleted, and the order of some of the items was modified.

Thus, the final version of the questionnaire included 119 items, of which 19 were sociodemographic, four concerned general health status perceptions, and 96 included health-related behavior items grouped under the seven identified dimensions: 1) LS-DI (24 items); 2) LS-PA (13 items); 3) LS-SB (28 items); 4) PSE (10 items); 5) SI (five items); 6) II-PROF (10 items); 7) II-OTHER (six items) (appendix 1 online).

Psychometric Validation Stage

Nine schools declined to participate in the study, and 1,820 questionnaires were distributed in total. The response rate was 52% (n=973), and 32 questionnaires were excluded because more than one item was not responded.

The questionnaire was completed mainly by 765 (81.4%) mothers, 740 (78.6%) of Spanish origin, and 333 (35.8%) with vocational training level and 344 (37%) university education. A total of 614 (65.5%) of the participants were actively working, mostly less than 20 hours per week, and 675 (72%) of the participants' partners worked 20-40 hours or more per week. Practically all the participants resided with their children, and 867 (92.1%) resided with their partners; 729 (78.1%) declared enjoying doing activities with their children at least two hours per day. Nearly half of the participants' family units 517(55.1%) were formed by four people. The sex distribution of the participants' children was practically equal, with an average age of 5 years old (SD=0.9) and 50 (5.3%) reporting some chronic disease (Table 1). The Doornik-Hansen test showed an absence of normality in the data collected. In total, 41 of the items showed ceiling or roof effects, mainly in the LS-SB and PSE dimensions (Table online 2).

[Table 1 near here]

The sample size for the factor analysis was 96 items. The Kaiser-Meyer-Olkin (KMO) was 0.8180, considered adequate for the factor analysis, and the Bartlett's test of sphericity also demonstrated a satisfactory suitability of the data to factor analysis ($p < 0.001$). Only the factors that were greater than 0.25 were visualized and the number of factors from which the eigenvalue of the dimension converges were seven. Seven factors were chosen based on the theoretical dimensions that the questionnaire had. This structure described 68.10% of the model variance (see Table 2).

[Table 2 near here]

The model of seven factors were structure as it is described in Table 3 and Table online 3. The first factor, named 'Professional advice' explains 23.2% of the model variance, included the 10 items created to find out about information given by health professionals and educators. The

second factor explains 13.7% of the model variance and was named 'Children's socioemotional aspects' included 18 items, that were all the items that had been created to identify this theoretical construct. The third factor named 'Parental self-efficacy' explains 7.9% of the model variance, included 15 items, all the initial items that measured parental self-efficacy and another **five** that initially were included in parental socio-emotional behavior. The fourth factor explains 6.8% of the model variance and was named 'Lifestyles' included 21 items about diet and physical activity, 11 referring to children's and 10 to parents' behaviors. The fifth factor named 'Situational influences' explains 6.2% of the model variance, included all the **five** items identified under this construct. The sixth factor 'Promotion of healthy lifestyles and influence of significant persons' included 22 items (explains 5.3% of the model variance), **seven** of them explore physical activity, **nine** diet and **six** the influences of other people such as friends, schoolmates, parents and others. The seventh factor identified correspond with 'Parents' socioemotional aspects' which explains **five percent** of the model variance and includes **five** items.

[Table 3 near here]

After the EFA, the CFA was carried out showing good adjustment to the model (RMSEA = 0.048), which indicated that the theoretical structure of seven factors for this model was adequate. The values of NFI and CFI were 0.741 and 0.779 respectively. The factors identified showed a logical theoretical interpretation and a good internal consistency (see Cronbach's alpha of the scale and each dimension in **Table 4**) and reliability, which did not improve if any item was removed. Consequently, the factors were not modified.

[Table 4 near here]

The final version of the NPI questionnaire therefore contains all the 119 items initially included in the questionnaire collecting information about sociodemographic data (19 items), general health status (**four** items) and the following factors: Lifestyles (21 items), Promotion of healthy lifestyles and influence of significant persons (22 items), Children's socioemotional aspects (18 items), Parents' socioemotional aspects (**five** items) Parental self-efficacy (15 items), Situational influences (**five** items) and Professional advice (10 items).

Discussion

This paper discusses the development and validation of a parent self-report tool to explore 2- to 6-year-old children's health needs through 119 items distributed in **seven** factors. The NPI questionnaire assesses children's global health needs considering lifestyles, children's and parents' socioemotional aspects, promotion of healthy lifestyles and influence of significant persons, parental self-efficacy, situational influences, and professional advice. The scientific literature thus far has presented only validated questionnaires to assess health needs in populations with specific diseases or to assess only certain needs, e.g., diet and physical activity (Bingham et al., 2016; Boles, Scharf, Filigno, Saelens, & Stark, 2013; Wagner, Kastner, Petermann, & Bos, 2011), social and emotional issues or mental health (Flink et al., 2013; Hafekost et al., 2016). To our knowledge, this tool is the first to comprehensively assess children's health needs.

The questionnaire can be very useful for addressing health needs by simultaneously considering lifestyles such as diet, physical activity and socioemotional behavior of parents and children. Behavioral connectivity has been described as a way of identifying core health behaviors that have an impact on general healthy lifestyle behaviors (Nudelman, Kalish, & Shiloh, 2019). The scientific literature also shows how parental self-efficacy allows the

integration of healthy habits in children's everyday life, resulting in psychosocial impacts and contributing to improving their health (Bandura, 2004; Jones & Prinz, 2005; Walsh, Hesketh, Hnatiuk, & Campbell, 2019). A factor identified with the EFA was the relevance of advice provided by health and education professionals. This advice is particularly relevant because health and education professionals can potentially improve the lifestyles and socioemotional behavior of children and parents. Moreover, health promoting behavior might be also influenced by advice provided by other persons, showing that gathering information about friends' and schoolmates' and meaningful persons' lifestyles can be very useful to understand children's current behaviors. Consequently, analyzing behaviors would benefit the assessment of social contexts such as schools or community groups.

The internal theoretical structure of the initial questionnaire was slightly modified, maintaining **seven** factors but modifying slightly the way of grouping the items. RMSEA showed a good fit of the model. NFI and CFI values, though, were marginal and this could be due to the number of items that the questionnaire has, as error in the variances were low. However, all these constructs are theoretically coherent and present good internal consistency and reliability.

The data did not have a normal distribution, this happen often in the questionnaires with Likert scales. This **does not** affect the validation of the instrument; **nonetheless**, it will have to be considered when using the tool for data collection in future studies, as the analysis will have to be done using non-parametric tests.

The lack of tools to assess the child's global health needs did not allow us to assess the criterion-related validity (convergent and discriminant validity) against a 'gold standard' (Nunnally & Bernstein, 1994). Nevertheless, having a reference framework defined by parents

and having content and appearance validation of the questionnaire conducted by experts and parents is one of the strengths in the design of this initial tool.

Although the psychometric validation showed that the NPI questionnaire is valid and reliable, additional validations in different populations could contribute to its improvement (Carretero-Dios & Meléndez, 2005). The fact that nearly 25% of the sample was a non-Spanish population and the results of the analysis suggest good cultural adaptability. Additionally, the use of separate dimensions of the questionnaire to assess specific issues, the development of shortened versions, as mentioned before, and reference values for specific populations could be explored.

Practice implications

The tool developed could help to design strategies and interventions adapted to the needs identified in assessment (Mistry et al., 2012), and measurements repeated over time could be useful for the assessment of the effect of these interventions. The NPI questionnaire can be used by several types of health professionals (e.g., pediatrics, nurses, psychologists) in different areas (e.g., primary care, school health) for both individual children (e.g., healthy child programs) and population groups (e.g., schools, neighborhoods). Although it is essential to gather parents' views about their children's health, using the NPI alone might have the limitation of registering only parents' perceived needs. However, it is important that researcher and health professionals identify parents' perceptions in order to design relevant interventions for health promotion that reach the populations they are aiming at. In case of detecting differences in between professionals' and parents' perceptions, it might be necessary to implement other kind of measures that complete the information obtained with the NPI and to question what lays behind

these differences. Last but not least, tools need to be designed to allow children's expression of their own perceptions and needs and avoid relying in data provided by their parents alone.

Limitations

The sample size achieved for the psychometric validation of the NPI questionnaire fulfills the most demanding criteria (Comrey & Lee, 2013). Although random sampling was performed, parents with difficulties reading or understanding Spanish could be underrepresented in the sample. Parents with low education level might have not returned the questionnaire, if they had problems filling it up, leaving out populations of parents this tool will be most interested in gathering data from. In the sample, 10% of the respondent had primary education, but in the cases in which literacy might be a limitation, a different way of delivering the questionnaire might be necessary. Health professionals or trained community mediators could collect the information from the parents replacing self-reporting with an interview with the parents. Nevertheless, future studies should aim to shorten the questionnaire and carry out health literacy adaptations to make it easier to understand and be completed by as many parents as possible. In addition, parents might have tended to respond considering the most socially correct behaviors, meaning that some social desirability bias could be present in our study, especially considering that there were a large number of items showing ceiling and roof effect.

Despite the randomized selection process, the anonymized responses and the high response rate (McColl et al., 2001), the participants might have had more positive attitudes towards healthy lifestyle promotion than those who decided not to participate due to a fear of being judged by others because of their worse lifestyles. Furthermore, **nine** schools declined to participate because they considered the questionnaire too long to be distributed or because there

was not a Basque version (the co-official language in the region), which could imply some selection bias.

Conclusions

The NPI questionnaire is a valid and reliable tool that allows for the assessment of the global health needs of 2- to 6-year-old children from parents' perspectives. The NPI questionnaire collects data and provides information about lifestyles, socioemotional behavior of children and parents, health promotion behaviors and influences of significant persons, parental self-efficacy, situational influences and influences and advice from health and educational professionals. Its use can help identify and prioritize areas requiring the implementation of health promotion actions aiming to improve the health of children and their families, as well as assess related interventions.

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Data Availability

All of the information required about the study protocol and data collected will be made available by request to researchers who provide a methodologically sound proposal. Only analysis to achieve the aims in the approved proposal will be permitted. Proposals should be directed to crisrina.lozano@unirioja.es. To gain access, data requestors will need to sign a data access agreement form.

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Table 1*Sociodemographic Characteristics of the Sample (N = 941)*

Variable	Respondents		
	n	%	
Respondent (n=940)	Mother	765	81.4
	Father	172	18.3
	Other	3	0.3
Origin (n=938)	Spain	740	78.9
	Ecuador	29	3.1
	Portugal	13	1.4
	Bulgaria	17	1.8
	Morocco	51	5.4
	Romania	16	1.7
	Colombia	12	1.3
	Other	60	6.4
	Educational level (n=929)	Primary	89
Secondary		163	17.6
Vocational training		333	35.8
University		299	32.2
Master's or PhD		45	4.8
Income level* (n=916)	Low	352	38.5
	Moderate	277	30.2
	High	287	31.3

Number of people living at home (n=938)	2	21	2.2
	3	168	17.9
	4	517	55.1
	5	157	16.8
	6	47	5.0
	7 or more	28	3.0
Who the people are living in the home?	Child (n=936)	936	99.5
	Spouse/partner (n=940)	867	92.1
	Other relatives (n=940)	91	9.7
	Other people (n=940)	12	1.3
Currently working (respondent) (n=937)	Yes	614	65.5
	No	323	34.5
Number of working hours per week (n=940)	Less than 20	404	43.0
	From 20 to 40	423	45
	More than 40	113	12.0
Currently working (spouse/partner) (n=939)	Yes	712	75.8
	No	227	24.2
Number of working hours per week (n=939)	Less than 20	264	28.1
	From 20 to 40	371	39.5
	More than 40	304	32.4
How many hours do you enjoy the company of your child(ren) in rewarding activities? (n=933)	Not every week	6	0.6
	Only on weekends	34	3.6
	Less than 1 hour per day	17	1.9

	From 1 to 2 hours per day	147	15.8
	More than 2 hours per day	729	78.1
Indicate how many children you have (n=941)	1	204	21.7
	2	551	58.6
	3	145	15.4
	4 or more	41	4.3
Child's gender (n=935)	Boy	480	51.3
	Girl	455	48.7
Chronic diseases? (n=936)	Yes	50	5.3
	No	886	94.7

* Average income was estimated to be around 22,899 euros gross per year, according to the 2011

Salary Structure Survey that kept fairly stable the following years.

Table 2.

Exploratory factor analysis total variance explained with 7 factors.

Component	Eigenvalue	Difference	% Variance	Cumulative %
Factor1	8.178	3.327	0.232	0.232
Factor2	4.851	2.056	0.137	0.369
Factor3	2.795	0.398	0.079	0.448
Factor4	2.397	0.196	0.068	0.516
Factor5	2.201	0.347	0.062	0.579
Factor6	1.854	0.092	0.053	0.631
Factor7	1.761	0.261	0.050	0.681

Table 3

Results from the Exploratory Factor Analysis of the NPI Questionnaire. Rotated component matrix.

Item	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	Communalities
24				0.3417				0.8488
25				-0.1061				0.9730
26				-0.2804				0.8431
27						0.1361		0.9266
28						0.2909		0.8847
29						0.1699		0.8556
30						0.3096		0.8493
31						-0.2039		0.7926
32						0.1035		0.7508
33						-0.1319		0.9325
34				-0.1233				0.8890
35				-0.1374				0.9654
36				-0.1050				0.8717
37				0.4416				0.7648
38				0.4196				0.8039
39				0.5067				0.7300
40				-0.3815				0.8202
41				-0.1989				0.8891
42						0.2958		0.8110
43						0.2615		0.7786
44						-0.4002		0.8153
45						-0.2982		0.8352
46						0.1972		0.9012
47						0.1873		0.9341
48						0.2907		0.8970
49						0.3144		0.8496
50						-0.2165		0.8971
51		0.4913						0.7350
52		0.4835						0.7036
53		0.4519						0.7593

54		0.5088						0.6820
55		0.3301						0.8063
56		0.4247						0.7819
57		0.4806						0.7445
58		0.3836						0.7673
59		0.4681						0.7233
60		-0.1508						0.8135
61		0.5028						0.6915
62		0.4520						0.7377
63		-0.1373						0.8270
64		0.5425						0.6164
65		0.6322						0.5721
66		0.6351						0.5562
67		0.3761						0.7431
68		0.2302						0.8706
69				0.2568				0.9123
70				-0.1083				0.9782
71				-0.1335				0.9115
72				-0.3103				0.7933
73				-0.2804				0.8934
74				-0.2557				0.8357
75				0.4793				0.7391
76				0.4354				0.7970
77				0.5533				0.6776
78				-0.4329				0.7714
79							-0.1404	0.9308
80							-0.2753	0.8850
81							-0.3554	0.8377
82							-0.1005	0.9006
83							-0.1394	0.7793
84			-0.2028					0.8650
85			-0.1698					0.8663
86			-0.1568					0.9475
87			0.2724					0.7912
88			0.2550					0.7811

89			0.5915					0.6082
90			0.5633					0.6190
91			0.6000					0.6161
92			0.5239					0.6203
93			0.4402					0.5952
94			0.5994					0.5721
95			0.2599					0.7150
96			0.3585					0.7259
97			0.5246					0.6264
98			0.5770					0.6215
99					0.7189			0.4684
100					0.6963			0.5107
101					0.6496			0.5639
102					0.5722			0.6387
103					0.4942			0.7236
104						0.3691		0.7775
105						0.4144		0.7217
106						0.3960		0.7953
107						0.2886		0.8066
108	0.7290							0.4616
109	0.7154							0.4835
110	0.7626							0.4036
111	0.6718							0.5153
112	0.6474							0.5582
113	0.7439							0.4435
114	0.7044							0.4968
115	0.6467							0.5352
116	0.5982							0.5798
117	0.7103							0.4876
118						0.2865		0.7294
119						0.2127		0.8067

Extraction method: Principal Component Analysis.

Rotation method: Varimax with Kaiser Normalization

Table 4.*Cronbach's alpha for dimensions and total questionnaire*

Component	Dimension's name	CROMBACH ALPHA
1	Professional advice	0.9004
2	Socioemotional behaviors	0.8174
3	Parental self-efficacy	0.7398
4	Lifestyle	0.7084
5	Situational influences	0.7858
6	Promotion of healthy lifestyles and influence of significant persons	0.7045
7	Parents' socioemotional aspects	0.6973
Total questionnaire		0.8434

Online Material**Table online 1***Conceptualization of the Questionnaire Necesidades de Salud de Población Infantil (NPI)*

Theoretical level	Operational level	
Dimensions	Variables	Initial versions of items*
Lifestyles - Diet (LS-DI).	- Maintenance of a complete, balanced and varied diet.	Child:
Set of behaviors that allows for achievement and maintenance of optimal functioning of the organism, conservation or restoration of health, reduction of the risk of diseases and promotion of optimal growth and development.	- Perception of parents regarding food-related behaviors.	- Eats 5 servings of fruit and vegetables.
	- Behaviors of parents who favor vicarious learning (role models).	- Eats breakfast.
	- Promotion of actions for good healthy eating.	- Consumes a combination of dairy products (milk, yogurt or cheese), fruits and cereals (bread, biscuits or cereal).
		- Drinks packaged juices, soft drinks or sweetened drinks.
		- Eats sweets, processed baked goods, etc.
		- Eats precooked or fast food.
		- Eats five meals (breakfast, morning snack, lunch, afternoon snack and dinner) a day without snacking between meals.
		- Consumes a varied diet that combines dairy products (e.g., milk,

yogurt or cheese), carbohydrates (e.g., bread, cereals, rice or pasta), protein-rich foods (e.g., meats, poultry, fish, legumes, or eggs), vegetables and fruits.

- Eats foods with a high protein content (e.g., meats, fish and eggs).

Parent:

- Eats 5 servings of fruit and vegetables.
- Eats breakfast.
- Consumes a combination of dairy (milk, yogurt or cheese), fruits and cereals (bread, biscuits or cereals) for breakfast.
- Drinks packaged juices, soft drinks or sweetened drinks.
- Eats sweets, processed baked goods, etc.
- Eats precooked or fast food.
- Eats five meals (breakfast, morning snack, lunch, afternoon snack and dinner) a day without snacking between meals.
- Consumes a varied diet that combines dairy (e.g., milk, yogurt or cheese), carbohydrates (e.g., bread, cereals, rice or pasta), protein-

rich foods (e.g., meats, poultry, fish, legumes, or eggs), vegetables and fruits.

- Eats a healthy diet in front of the child to lead by example.
- Eats fruit and vegetables in front of the child to lead with example.
- Eats breakfast with the child, eating a combination of dairy (milk, yogurt or cheese), fruits and cereals (bread, biscuits or cereal) to lead by example.
- Eats sweets, processed baked goods, packaged juices, soft drinks, sweetened drinks, etc. with the child.
- Eats precooked food or fast food with the child.
- Controls the child's diet to prevent the child from becoming overweight.
- Talks with the child about which foods are healthier.
- Hides food so the child cannot access it.
- Uses certain foods as a reward or punishment for the child.
- Tends to offer prepared food because of his/her work schedule.

-
- Limits the child's access to fast food restaurants.
 - All family members have lunch and dinner together.
 - If he/she did not limit the amount of food to which the child has access, the child would eat more than he/she needs.
 - Worries about the child's diet when he/she is not with the child.
 - Needs to force the child to finish the food on his/her plate; otherwise, he/she would eat less than what he/she needs.
 - Pushes the child to eat food that he/she does not like

Lifestyles - Physical activity - Participation in activities

(LS-PA).

Set of behaviors in which frequency, duration and corporal movements produced intensity.

by the skeletal muscles are - Parents' perceptions of carried out, which requires behaviors related to energy expenditure. physical activity.

- Behavior of parents who

Child:

- Performs more than 2 hours of sedentary activities, such as playing while seated, painting, doing homework, watching television, or using computers.
- Goes to school and moves during leisure time, such as walking or cycling.
- Performs at least 1 hour per day of moderately intense activities, such as playing in the park or with a ball, riding a bike, running,

- favor vicarious learning (role models).
- Actions promoting healthy physical activity.
- skating, dancing, or swimming.
- Performs at least 1 hour per day of very intense activities, such as playing on a football team, playing basketball, participating in athletics or swimming.

Parent:

- Enrolls the child in sports activities with his/her classmates, friends, or siblings.
- Allows the child to choose a physical activity that he/she wants to do.
- Limits the hours that the child spends in front of screens (television, videogames, computer).
- Encourages the child to perform physical activity because then the child is calmer and/or sleeps better.
- Uses the television to entertain the child and have time for domestic chores.
- Uses the television and videogames to make the child quiet and

entertained.

- Encourages the child to use resources in the neighborhood to be active (parks, sports centers, etc.).
- Performs more than 2 hours of sedentary activities in his/her free time, such as reading, watching television, or using the computer.
- Gets around without a car or public transport.
- Performs at least 1 hour a day of moderately intense activities, such as fast walking, aerobics classes, lifting weights, or dancing.
- Performs at least 1 hour per day of very intense physical activity, such as playing on a football team, playing basketball, participating in athletics, or swimming.
- Performs physical activity with the child to lead by example.
- Gets around without a car or public transport when going places with the child.
- Performs more than 2 hours of sedentary activities with the child during free time, such as reading, watching television, or using the

computer

Lifestyles - Socioemotional behavior (LS-SB).

Set of behaviors that allow the child to achieve adequate social-emotional competence.

- Behaviors that reflect a conscience and emotional regulation.
- Behaviors that reflect personal autonomy.
- Behaviors that reflect social and life skills.
- Parents' perceptions of social-emotional functioning.
- Behavior of parents who favor vicarious learning (role model).

Child:

- Relates to his/her peers (other children) with ease.
- Shares things with his/her classmates, friends and/or other siblings.
- Likes to play and spend time with other children.
- Participates in games and group activities.
- Solves problems without fighting.
- Knows when he/she does something well.
- Tells someone if he/she has a fight or becomes angry with his/her classmates, friends and/or other siblings.
- Finishes tasks, activities, games, etc.
- Needs external motivation to finish homework, activities, and games.
- Shows interest and attention when something is explained.
- Finds it difficult to accept rules and limits.
- Becomes angry when he/she loses.
- Shares emotions and feelings with other classmates, friends or other

siblings.

- Recognizes when someone is happy or sad.
- Has tantrums and becomes angry.
- Listens to his/her classmates, friends, and other relatives.
- Cares when his/her classmates, friends, and siblings are sad.
- Is interested in others and offers his/her support and affection.
- Accepts his/her own mistakes.
- Respects other persons' characteristics.

Parent:

- When he/she argues with somebody, he/she usually imposes his/her point of view.
- Does not have difficulties recognizing mistakes.
- Says things as he/she thinks and does not realize the repercussions for others.
- When he/she has too much work, he/she finds it difficult not to become angry at home.

- Usually shouts when he/she is angry.
- Has family gatherings with friends and their children.
- Performs group activities, such as dancing, sports, or painting.
- Finds the right words to express his/her feelings.
- Listens carefully when someone expresses his/her feelings.
- Avoids arguing with his/her partner and other people in front of the child.
- Shows emotions and feelings to the child.
- Being angry makes him/her change the way that he/she relates to the child.
- Solves problems with other people in front of the child without fighting.
- Asks the child how he/she feels to encourage the child to show his/her feelings.
- Talks to the child to prevent him/her from having fights or becoming angry with his/her classmates, friends and siblings

<p>Parental self-efficacy (PSE). - Beliefs or judgments that parents have regarding their abilities to plan, promote and establish healthy lifestyles in their children. This dimension includes affectivity and emotional bonds, communication with children, discipline and parental self-perception.</p>	<p>- Parents' recognition of emotions in their children.</p> <p>- Affectivity shown by parents towards their children.</p> <p>- Perceptions of the quality of the parent-child relationship.</p> <p>- Perceptions of the communication process between the parent and child.</p>	<p>Parent.</p> <p>- Shows affection to the child.</p> <p>- Recognizes when the child is happy or sad.</p> <p>- Has a good relationship with the child.</p> <p>- Explains things to the child with patience.</p> <p>- Believes that the child listens to him/her.</p> <p>- Listens to the child.</p> <p>- Easily sets limits and standards for the child.</p> <p>- Commits to the rules that he/she has set for the child.</p> <p>- Considers him-/herself a good father/mother.</p> <p>- The child feels safe with him/her.</p>
	<p>- Perceptions about limits and established rules.</p> <p>- Parents' perceptions about their roles as parents.</p>	

Interpersonal influences-	- Perceptions of the amount	Parent:
Professional advice (II- PROF)	of advice professionals provide about lifestyles.	- Health professionals provide him/her with sufficient advice regarding the child's physical activity.
Parents' perceptions about the influence that the advice, opinions or actions of professionals have on lifestyles and decision making regarding their children.	- Trust in the advice provided. - Agreement between the advice provided by different professionals.	- Health professionals provide him/her with sufficient advice in relation to the child's diet. - Health professionals provide him/her with sufficient advice regarding social and emotional aspects of the child. - Believes that agreement exists among the advice provided by different health professionals. - Trusts the advice that health professionals provide him/her with. - Teachers and educators provide him/her with sufficient advice regarding the child's physical activity. - Teachers and educators provide him/her with sufficient advice in relation to the child's diet. - Teachers and educators provide him/her with sufficient advice regarding the socioemotional aspects of the child.

- Trusts the advice that teacher and educators provide him/her with.
- Believes that agreement exists among the advice provided by the child's teachers and educators and by health professionals.

Interpersonal influences-**Other influences (II-****OTHER):** Parents'

perceptions about the

influence that the advice,

opinions or actions of other

people have on lifestyles and

decision making regarding

their children.

- Parents' perceptions of the

influence of the lifestyles of

their children's friends and

classmates on those of their

own children.

- Parents' perceptions of the

influence of their own

lifestyles on that of their

children.

- Influence that other people

(family members

(grandparents, siblings,

cousins) and other parents)

Parent:

- Believes that the physical activity that friends and classmates of the child perform influences the child's physical activity.

- Believes that the diets of friends and companions of the child influence the diet of the child.

- Believes that the physical activity that he/she performs influences the physical activity that the child does.

- Believes that his/her diet influence the child's diet.

- Other family members provide him/her with sufficient advice regarding the child's physical activity.

- Other family members provide him/her with sufficient advice in relation to the child's diet.

- Other family members provide him/her with sufficient advice in

- have on the parents' decision regarding their children's lifestyles.
- relation to social aspects of the child.
- Feels influenced by other people in the decisions that he/she makes regarding the child.
 - The media influences the decisions that he/she makes regarding the child.
 - Other parents provide him/her with useful advice regarding the child's physical activity.
 - Other parents provide him/her with useful advice in relation to the child's diet.
 - Other parents provide him/her with useful advice in relation to social aspects of the child.
 - Believes that listening to another people's advice makes it more difficult to decide what to do.
 - Does not need to compare him-/herself with other parents.
 - Advice from other people influences his/her decisions
- Situational influences (SI).** - Number of facilities to
- There are sufficient green areas to be physically active.
-

Aspects related to the environment or climatological conditions in which parents and children live and that influence the physical activity of children.	participate in physical activities (parks, squares, sports centers).	<ul style="list-style-type: none"> - There are sufficient areas to play (playgrounds, squares, etc.). - There are sufficient areas to use bicycles. - There are sufficient sports facilities (sports centers, gyms, etc.). - Security of those facilities. - Access fees for sports facilities and activities are affordable. - The green areas that exist are safe for children. - The areas to play are safe for children. - There are places where children can perform physical activity when it is cold, rains or snows
	<ul style="list-style-type: none"> - Accessibility of facilities and activities. - Weather influence on the level of activity. 	

* Content translated into English to facilitate readers' understanding (cultural translation not validated).

Table online 2*Results from the Validation of the NPI Questionnaire (items presented according to the original theoretical design)****N = 941****LIFESTYLE-DIET (LS-DI)****Items related to children**

Item	Never or almost never (%)	1 day per week (%)	2-3 days per week (%)	4-6 days per week (%)	Daily (%)
34. The child eats 5 servings of fruit and vegetables.	5.7	4.4	27.8	36.2	25.8
35. The child eats breakfast**.	2.0	0.6	3.0	2.1	92.2
36. The child consumes a combination of dairy (milk, yogurt or cheese), fruits and cereals (bread, biscuits or cereals).	12.9	2.7	7.7	12.8	64.1
37. The child drinks packaged juices, soft drinks or sweetened drinks.	36.0	19.4	26.4	9.0	9.1
38. The child eats sweets, snacks, processed baked goods, etc.	11.6	41.6	38.8	6.0	2.1

39. The child eats precooked food or fast food**.	40.0	45.7	12.3	0.7	1.3
40. The child consumes a varied diet that combines dairy (e.g., milk, yogurt or cheese), carbohydrates (e.g., bread, cereals, rice or pasta), protein-rich foods (e.g., meats, poultry, fish, legumes or eggs), vegetables and fruits**.	1.1	1.0	5.2	18.2	74.6
41. The child eats foods with a high protein content (e.g., meats, fish and eggs)**.	0.5	1.4	15.1	32.2	50.8

Items related to parents

Item	Never (%)	Seldom (%)	Occasionally (%)	Almost always (%)	Always (%)
42. The parent controls the child's diet to prevent him/her becoming overweight.	16.5	10.6	14.0	26.2	32.6
43. The parent talks with the child about which foods are healthier.	2.9	6.6	26.4	26.4	37.8
44. The parent hides food so the child cannot access it.	54.6	16.6	18.5	3.9	6.4

45. The parent uses certain foods as a reward or punishment for the child.	30.6	25.4	37.9	3.9	2.1
46. The parent limits the child's access to fast food restaurants.	19.6	10.1	14.3	31.7	24.3
47. All family members have lunch and dinner together.	1.1	3.5	22.5	37.6	35.3
48. If the parent did not limit the amount of food to which the child has access, the child would eat more than he/she needs**.	43.8	33.0	15.8	4.9	2.4
49. The parent attempts to control and plan the meals that the child eats when the child is away from home.	19.1	14.9	22.0	25.6	18.4
50. If the parent does not force the child to eat, then the child eats less than he/she should and/or less healthily.	27.0	27.3	26.5	12.9	6.4

Item	Never or almost never (%)	1 day per week (%)	2-3 days per week (%)	4-6 days per week (%)	Daily (%)
72. The parent eats 5 servings of fruit and vegetables.	5.4	4.1	25.2	32.2	33
73. The parent eats breakfast**.	3.7	0.3	2.4	5.4	88.1

74. The parent consumes a combination of dairy products (milk, yogurt or cheese), fruits and cereals (bread, biscuits or cereals) for breakfast.	13.8	2.4	8.9	13.7	61.1
75. The parent drinks packaged juices, soft drinks or sweetened drinks.	44.8	17.6	19.1	7.5	10.8
76. The parent eats sweets, snacks, processed baked goods, etc.	33.8	35.3	23.5	4.8	2.7
77. The parent eats precooked food or fast food.	42.8	42.4	12.0	1.3	1.5
78. The parent consumes a varied diet that combines dairy (e.g., milk, yogurt or cheese), carbohydrates (e.g., bread, cereals, rice or pasta), protein-rich foods (e.g., meats, poultry, fish, legumes, or eggs), vegetables and fruits**.	1.7	1.4	7.4	23.5	66.0

LIFESTYLE-PHYSICAL ACTIVITY (LS-PA)
Items related to children

Item	Never or almost never (%)	1 day per week (%)	2-3 days per week (%)	4-6 days per week (%)	Daily (%)
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24. The child performs more than 2 hours of sedentary activities, such as playing while seated, painting, doing homework, watching television, or using computers.	15.1	11.8	31.2	12.4	29.4
25. The child goes to school and moves during leisure time, such as walking or cycling.	22.1	3.8	14.1	9.2	50.7
26. The child performs at least 1 hour per day of moderately intense activities, such as playing in the park or with a ball, riding a bike, running, skating, dancing, or swimming**.	0.7	1.8	16.6	22.1	58.8
Item	Never (%)	Seldom (%)	Occasionally (%)	Almost always (%)	Always (%)
27. The parent enrolls the child in sports with their classmates, friends or other family members.	14.8	10.3	32.4	23.0	19.6
28. The parent allows the child to choose the physical activity that he/she wants to do**.	2.9	4.3	22.0	35.6	35.3
29. The parent limits the hours that the child spends in	1.8	3.9	22.5	37.4	34.3

front of screens (television, videogames, computer)**.

30. The parent encourages the child to perform physical activity because then the child is calmer and/or sleeps better.

8.8	7.3	25.5	32.8	25.5
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31. The parent uses the television to entertain the child and to have time for other activities.

10.2	25.4	53.3	7.8	3.3
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32. The parent encourages the child to use resources in the neighborhood to be active (parks, sports centers...)**.

2.6	4.4	19.4	38.5	35.2
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33. If it is cold, it rains or it snows, the child performs more sedentary activities.

2.7	8.2	44.3	35.3	9.6
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Items related to parents

Item	Never or almost never (%)	1 day per week (%)	2-3 days per week (%)	4-6 days per week (%)	Daily (%)
69. The parent performs more than 2 hours of sedentary activities in his/her free time, such as reading, watching television, or using the computer.	13.5	14.3	25.9	19.0	27.2

70. The parent avoids the use of the car or public transport 29.6 9.8 18.1 10.4 32.1

to get around.

71. The parent performs at least 1 hour a day of moderately 32.3 12.8 27.4 13.8 13.7

intense activities, such as fast walking, aerobics classes,

lifting weights, or dancing.

LIFESTYLE–SOCIOEMOTIONAL BEHAVIOR (LS-SB)

Items related to children

Item	Never (%)	Seldom (%)	Occasionally (%)	Almost always (%)	Always (%)
51. The child is easygoing**.	0.1	0.5	8.6	38.9	51.9
52. The child shares things with his/her classmates, friends and/or other family members**.	0.2	0.5	18.5	54.4	26.4
53. The child likes playing and spending time with other children**.	0	0.1	4.5	23.5	71.9
54. The child participates in games and group activities**.	0.2	1.4	11.6	41.7	45.2
55. The child solves problems without fighting.	1.0	3.4	35.3	46.0	14.3

56. The child knows when he/she does things well**.	0.1	0.2	8.8	38.7	52.2
57. The child tells someone if he/she has fights or becomes angry with classmates, friends and/or other family members.	1.6	4.3	22.1	38.5	33.6
58. The child finishes homework, activities, games, etc.**.	0.2	2.6	20.3	49.2	27.7
59. The child shows interest and attention when something is explained**.	0	1.1	14.5	50.3	34.2
60. The child finds it difficult to accept rules and limits.	6.0	21.1	55.3	13.2	4.5
61. The child speaks about emotions and feelings with classmates, friends, and other siblings.	0.2	4.6	20.8	43.3	31.1
62. The child realizes when someone is happy or sad**.	0.1	0.5	9.5	31.1	58.8
63. The child has tantrums and becomes angry.	4.9	27.2	54.8	9.0	4.0
64. The child listens to his classmates, friends or other relatives**.	0	1.3	19.9	58.1	20.7
65. The child cares when the his/her classmates, friends or family members are sad**.	0.5	2.8	18.1	43.0	35.6

66. The child offers his/her support to classmates, friends, or family members when they need it **.	0.1	2.3	21.0	42.4	34.1
67. The child accepts his/her mistakes.	0.5	8.2	53.2	30.0	8.1
68. The child respects other persons' characteristics**.	0.4	0.2	2.8	18.7	77.9

Items related to parents

Item	Never (%)	Seldom (%)	Occasionally (%)	Almost always (%)	Always (%)
79. The parent says things as he/she thinks and does not realize the repercussions for others.	8.8	37.6	39.3	10.2	4.0
80. When the parent has a bad day at work, he/she finds it difficult not to become angry at home.	6.6	25.9	51.5	12.1	3.8
81. Usually the parent shouts when he/she is angry.	4.8	19.8	49.3	19.3	6.8
82. The parent has family gatherings with friends and their children.	1.5	6.6	34.5	38.3	19.1
83. The parent listens carefully when someone expresses his/her feelings**.	0.3	1.2	8.1	33.8	56.6

84. The parent avoids arguing with his/her partner and other people in front of the child**.	1.8	1.8	18.3	44.6	33.5
85. The parent shows emotions and feelings to the child.	1.9	5.2	26.6	40.9	25.4
86. The parent solves problems with other people in front of the child without fighting.	10.8	12.4	21.8	27.9	27.0
87. The parent asks the child how he/she feels, encouraging the child to express his/her feelings**.	1.3	2.6	13.7	34.1	48.4
88. The parent talks to the child to prevent him/her having fights or becoming angry with his/her classmates, friends and other family members**.	0.7	1.2	7.8	28.7	61.6

PARENTAL SELF-EFFICACY (PSE)

Item	Totally disagree (%)	Disagree (%)	Do not know (%)	Agree (%)	Totally agree (%)
89. The parent is able to show affection to the child**.	0.2	0	0.2	9.7	89.9
90. The parent recognizes when the child is happy or sad**.	0	0.2	0.1	12.6	87.0

91. The parent has a good relationship with the child**.	0.1	0.3	0.6	14.9	84.1
92. The parent is able to explain things to the child with patience**.	0	1.0	7.2	49.1	42.7
93. The parent makes him-/herself heard by the child**.	0.2	1.2	12.3	53.9	32.4
94. The parent is able to listen to the child**.	0.1	0.2	2.1	32.0	65.6
95. The parent easily sets limits and standards for the child	.1.8	5.3	20.9	49.8	22.1
96. The parent commits to the rules imposed on the child**	.0.3	1.9	11.7	49.2	36.9
97. The parent considers him-/herself a good father/mother**.	0.2	0	10.0	44.8	45.0
98. The child feels safe with the parent**.	0.3	0	0.4	17.2	82.0

SITUATIONAL INFLUENCES (SI)

Item	Totally disagree (%)	Disagree (%)	Do not know (%)	Agree (%)	Totally agree (%)
99. There are sufficient green areas to be active**.	2.9	6.0	9.6	32.5	49.1
100. There are sufficient areas to use bicycles.	3.8	13.0	15.6	28.4	39.2
101. The green and game areas are safe for children.	1.7	8.6	19.6	39.9	30.3

102. There are sufficient sports facilities (sports centers, gyms, etc.)**.	5.7	12.2	18.0	37.5	74.4
103. Access fees for sports facilities and activities are affordable.	11.9	19.3	31.5	26.2	11.1

INTERPERSONAL INFLUENCES- PROFESSIONAL ADVICE (II-PROF)

Item	Totally disagree (%)	Disagree (%)	Do not know (%)	Agree (%)	Totally agree (%)
108. Health professionals provide the parent with sufficient advice regarding the child's physical activity.	3.7	10.4	31.3	37.3	17.2
109. Health professionals provide the parent with sufficient advice in relation to the child's diet.	1.0	5.7	24.8	44.5	24.0
110. Health professionals provide the parent with sufficient advice in relation to social aspects of the child.	4.7	10.9	33.3	35.1	16.0
111. The parent believes that agreement exists among the advice provided by different health professionals.	1.7	2.9	38.2	43.7	13.6
112. The parent trusts the advice provided by health	0.7	1.7	25.8	49.9	21.8

professionals.

113. Educators and teachers provide the parent with 2.8 6.1 31.3 41.7 18.2

sufficient advice regarding the child's physical activity.

114. Educators and teachers provide the parent with 2.4 5.1 30.3 42.9 19.2

sufficient advice in relation to the child's diet.

115. Educators and teachers provide the parent with 1.7 2.9 20.4 **49.3** **25.7**

sufficient advice in relation to the socioemotional aspects
of the child**.

116. The parent trusts the advice provided by educators 0.9 1.2 15.7 **52.6** **29.6**

and teachers**.

117. The parent believes that agreement exists among the 1.6 2.4 29.3 44.1 22.5

advice provided by educators/teachers and health

professionals.

INTERPERSONAL INFLUENCES- OTHER ADVICE (II-OTHER)

Item	Totally	Disagree	Do not know	Agree	Totally
	disagree (%)	(%)	(%)	(%)	agree (%)

104. The parent believes that the physical activity that the friends and classmates of the child perform influences the child's physical activity.	7.3	11.9	30.8	34.8	15.2
105. The parent believes that the diets of friends and companions of the child influence the diet of the child.	18.2	26.2	30.2	19.1	6.3
106. The parent believes that the physical activity that he/she performs influences the physical activity that the child performs.	9.2	13.6	27.8	33.9	15.4
107. The parent believes that his/her diet influences the child's diet**.	4.8	5.3	13.3	34.6	42.0
118. The parent feels influenced by other people in the decisions that he/she makes regarding the child.	23.3	27.5	30.3	15.3	3.6
119. The parent believes that listening to other people's advice makes it more difficult to decide what to do.	17.2	27.6	35.3	16.0	3.8

* Content translated into English to facilitate readers' understanding (cultural translation not validated)

** Items showing ceiling or roof effects (> 70% of the answers grouped in extreme options).

Table online 3

*Dimensions and items grouping in EFA**

Factor	Items
Factor 4: Lifestyle (21 items)	24. The child performs more than 2 hours of sedentary activities, such as playing while seated, painting, doing homework, watching television, or using computer.
	25. The child goes to school and moves during leisure time, such as walking or cycling.
	26. The child performs at least 1 hour per day of moderately intense activities, such as playing in the park or with a ball, riding a bike, running, skating, dancing, or swimming.
	34. The child eats 5 servings of fruit and vegetables.
	35. The child eats breakfast.
	36. The child consumes a combination of dairy (milk, yogurt or cheese), fruits and cereals (bread, biscuits or cereals).
	37. The child drinks packaged juices, soft drinks or sweetened drinks.
	38. The child eats sweets, snacks, processed baked goods, etc.
	39. The child eats precooked food or fast food.
	40. The child consumes a varied diet that combines dairy (e.g., milk, yogurt or cheese), carbohydrates (e.g., bread, cereals, rice or pasta), protein-rich foods (e.g., meats, poultry, fish, legumes, or eggs), vegetables and fruits.
	41. The child eats foods with a high protein content (e.g., meats, fish and

	eggs).
	69. The parent performs more than 2 hours of sedentary activities in his/her free time, such as reading, watching television, or using the computer.
	70. The parent avoids the use of the car or public transport to get around.
	71. The parent performs at least 1 hour a day of moderately intense activities, such as fast walking, aerobics classes, lifting weights, or dancing.
	72. The parent eats 5 servings of fruit and vegetables.
	73. The parent eats breakfast.
	74. The parent consumes a combination of dairy products (milk, yogurt or cheese), fruits and cereals (bread, biscuits or cereals) for breakfast.
	75. The parent drinks packaged juices, soft drinks or sweetened drinks.
	76. The parent eats sweets, snacks, processed baked goods, etc.
	77. The parent eats precooked food or fast food.
	78. The parent consumes a varied diet that combines dairy (e.g., milk, yogurt or cheese), carbohydrates (e.g., bread, cereals, rice or pasta), protein-rich foods (e.g., meats, poultry, fish, legumes, or eggs), vegetables and fruits.
Factor 2: Children's socioemotional aspects (18 items)	51. The child is easygoing.
	52. The child shares things with his/her classmates, friends and/or other family members.
	53. The child likes playing and spending time with other children.

	54. The child participates in games and group activities.
	55. The child solves problems without fighting.
	56. The child knows when he/she does things well.
	57. The child tells someone if he/she has fights or becomes angry with classmates, friends and/or other family members.
	58. The child finishes homework, activities, games, etc.
	59. The child shows interest and attention when something is explained.
	60. The child finds it difficult to accept rules and limits.
	61. The child speaks about emotions and feelings with classmates, friends, other siblings.
	62. The child realizes when someone is happy or sad.
	63. The child has tantrums and becomes angry.
	64. The child listens to his/her classmates, friends or other relatives.
	65. The child cares when his/her classmates, friends or family members are sad.
	66. The child offers his/her support to classmates, friends, or family members when they need it.
	67. The child accepts his/her mistakes.
	68. The child respects other persons' characteristics.
Factor 7: Parents' socioemotional aspects (5 items)	79. The parent says things as he/she thinks and does not realize the repercussions for others.
	80. When the parent has a bad day at work, he/she finds it difficult not to become angry at home.

	81. Usually the parent shouts when he/she is angry.
	82. The parent has family gatherings with friends and their children.
	83. The parent listens carefully when someone expresses his/her feelings.
Factor 3: Parental self-efficacy (15 items)	84. The parent avoids arguing with his/her partner and other people in front of the child.
	85. The parent shows emotions and feelings to the child.
	86. The parent solves problems with other people in front of the child without fighting.
	87. The parent asks the child how he/she feels, encouraging the child to express his/her feelings.
	88. The parent talks to the child to avoid the child having fights or becoming angry with his/her classmates, friends and other family members.
	89. The parent is able to show affection to the child.
	90. The parent recognizes when the child is happy or sad.
	91. The parent has a good relationship with the child.
	92. The parent is able to explain things to the child with patience.
	93. The parent makes him-/herself heard by the child.
	94. The parent is able to listen to the child.
	95. The parent easily sets limits and standards for the child.
	96. The parent commits to the rules imposed on the child.
	97. The parent considers him-/herself a good father/mother.
	98. The child feels safe with the parent.

Factor 5: Situational influences (5 items)	99. There are sufficient green areas to be active.
	100. There are sufficient areas to use bicycles.
	101. The green and game areas are safe for children.
	102. There are sufficient sports facilities (sports centers, gyms, etc.).
	103. Access fees for sports facilities and activities are affordable.
Factor 6: Promotion of healthy lifestyles and influence of significant persons (22 items)	27. The parent enrolls the child in sports with his/her classmates, friends or other family members.
	28. The parent allows the child to choose the physical activity he/she wants to do.
	29. The parent limits the hours that the child spends in front of screens (television, videogames, computer).
	30. The parent encourages the child to perform physical activity because then the child is calmer and/or sleeps better.
	31. The parent uses the television to entertain the child and to have time for other activities.
	32. The parent encourages the child to use resources in the neighborhood to be active (parks, sports centers, etc.).
	33. If it is cold, it rains or it snows, the child performs more sedentary activities.
	42. The parent controls the child's diet to prevent him/her from becoming overweight.
	43. The parent talks with the child about which foods are healthier.
44. The parent hides food so the child cannot access it.	

	45. The parent uses certain foods as a reward or punishment for the child.
	46. The parent limits the child's access to fast food restaurants.
	47. All family members have lunch and dinner together.
	48. If the parent did not limit the amount of food to which the child has access, the child would eat more than what he/she needs.
	49. The parent attempts to control and plan the meals that the child eats when the child is away from home.
	50. If the parent does not force the child to eat, then the child eats less than he/she should and/or less healthily.
	104. The parent believes that the physical activity that friends and classmates of the child perform influences the child's physical activity.
	105. The parent believes that the diets of friends and companions of the child influence the diet of the child.
	106. The parent believes that the physical activity that he/she performs influences the physical activity that the child performs.
	107. The parent believes that his/her diet influences the child's diet.
	118. The parent feels influenced by other people in the decisions that he/she makes regarding the child.
	119. The parent believes that listening to other people's advice makes it more difficult to decide what to do.
Factor 1: Professional advice (10 items)	108. Health professionals provide the parent with sufficient advice regarding the child's physical activity.
	109. Health professionals provide the parent with sufficient advice in

	relation to the child's diet.
	110. Health professionals provide the parent with sufficient advice in relation to social aspects of the child.
	111. The parent believes that agreement exists among the advice provided by different health professionals.
	112. The parent trusts the advice provided by health professionals.
	113. Educators and teachers provide the parent with sufficient advice regarding the child's physical activity.
	114. Educators and teachers provide the parent with sufficient advice in relation to the child's diet.
	115. Educators and teachers provide the parent with sufficient advice in relation to the socioemotional aspects of the child.
	116. The parent trusts the advice provided by educators and teachers.
	117. The parent believes that agreement exists among the advice provided by educators/teachers and health professionals.

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