

PSYCHOMETRIC PROPERTIES OF THE SPANISH VALIDATION OF THE CHILDREN'S EMPATHIC ATTITUDES QUESTIONNAIRE (CEAQ)

LUZ S. VILTE
JENNIFER E. MORENO
RUTH CASTILLO-GUALDA
ÓSCAR LECUONA
CARLOS GARCÍA-RUBIO
RAQUEL RODRÍGUEZ-CARVAJAL
AUTONOMOUS UNIVERSITY OF MADRID

The prevalence of antisocial behavior in school settings is still discouraging. Students that often engage in aggressive acts may lack in the ability to appreciate the emotional consequences of their behaviors and share others' emotions. The Children's Empathic Attitudes Questionnaire (CEAQ) is one of the questionnaires used to assess empathy in children and early adolescents. This study is aimed to validate the Spanish version of CEAQ. The sample comprised 297 children (50% males), aged from 7 to 12 years ($M = 9.53$, $SD = 1.2$), from Madrid. Confirmatory factor analysis indicated an excellent fit for a unidimensional model, $\chi^2(89) = 110.702$, $p = .059$; $CFI = .972$; $RMSEA = .029$, 95% CI [.000, .045]. Multigroup invariance analysis showed no significant gender-related differences in all levels. Results also referred an acceptable reliability ($\omega = .824$, $r = .610$). These results provide psychometric support for the use of the Spanish version of CEAQ as a valid and reliable instrument to assess empathy in children and youth population, especially for school-based interventions.

Key words: Empathy; Children; Early-adolescents; Spanish validation; Confirmatory factor analysis.

Correspondence concerning this article should be addressed to Raquel Rodríguez-Carvajal, Biological and Health Psychology Department, Faculty of Psychology, Autonomous University of Madrid, Iván Paulov Street 6, 28049 Madrid, Spain. Email: raquel.rodriguez@uam.es

Empathy plays a key role in psychosocial adjustment with significant involvement in a wide variety of social behaviors and optimal psychological development, especially in youth (López-Pérez, Ambrona, & Márquez-González, 2014). Empathy has been traditionally defined as "reactions of one individual to the observed experiences of another" (Davis, 1983, p. 113). It has been conceptualized as a construct with both cognitive and affective components (Davis, 1980). The cognitive component is defined as the ability to recognize other's feelings (Hogan, 1969) and the capacity to represent another's mental state (Blair, 2005). The affective component is defined as the ability to feel and share other's unpleasant feelings (Ang & Goh, 2010). Nowadays, a multi-dimensional approach of empathy that integrates both cognitive and affective elements is widely accepted (Davis, 1980, 1983; Kerem, Fishman, & Josselson, 2001; Vaish, Carpenter, & Tomasello, 2009). In fact, it seems as if the expression of this empathic response changes along life. Empathic

behavior, defined as the action to demonstrate this shared experience (Feshbach, 1978), is primarily affective in childhood, whereas, when the cognitive system matures, the empathic behavior changes and involves all the empathic response spectrum (Hoffman, 1977). Furthermore, prior research has already documented that this empathic behavior is influenced by feelings of sympathy, anxiety, or worry, as well as by the adoption of others' perceptions. Therefore, empathy is assumed as a group of interactive and collaborative processes where both cognitive and affective components account for the empathic response and behaviors (Hoffman, 2000; Preston & de Waal, 2002).

Much evidence supports the link between empathy and prosocial behavior. The connection that high-skilled people demonstrate in order to alleviate other's negative emotions, either for selfish or altruistic reasons (Jolliffe & Farrington, 2006; Warden & MacKinnon, 2003), has relevant implications in the experience of positive emotions (Eisenberg, Eggum, & Di Giunta, 2010), and therefore in the prevention of mental disorders, such as depression (Gleason, Jensen-Campbell, & Ickes, 2009) or even autism or psychopathy (Blair, 2005; Richell et al., 2003). By contrast, the lack of empathic skills has been related with antisocial behaviors (Ellis, 1982), such as aggressive behavior (Berger, Batanova, & Cance, 2015), bullying (Jolliffe & Farrington, 2006), and sexual aggression (Dietzel, 2009). Lower levels of empathy hinder the understanding of the other's emotional state, so those that have lower levels of empathy may fail in addressing others' emotional needs and, in consequence, end up displaying a broad range of maladaptive behaviors in response to the challenging situation (Jolliffe & Farrington, 2006). Additionally, the prevalence of aggressive manifestations, especially during adolescence, has increased dramatically in the recent past (Campbell, 2005). Bullying and some of its forms, like cyberbullying defined as the deliberate use of Internet to cause harm intentionally and repeatedly (Kowalski & Limber, 2007), have exponentially risen in Europe, Australia, and North America (Modecki, Minchin, Harbaugh, Guerra, & Runions, 2014). This technological aggression has been related to a multitude of negative consequences, including depression, school absenteeism, and even suicide (Ang & Goh, 2010). Many studies in this field reveal the high prevalence of this problem, suggesting that 24.6% of adolescents in the Spanish sample have suffered cyberbullying through mobile phones and 29% through Internet, behaviors that in addition increase with age for both aggressors and observers (Buelga, Cava, & Musitu, 2010; Garaigordobil, 2015).

In summary, empathy has important implications for both intrapersonal and interpersonal perspectives (Patterson, DeBaryshe, & Ramsey, 1989; Patterson & Yoerger, 2002; Snyder, Schrepferman, Bullard, McEachern, & Patterson, 2012). The above-mentioned literature emphasizes the need to accurately assess empathy, preferably in early stages, with reliable instruments; this is mainly due to the significant association that empathic competences can have in the enhancement of psychological adjustment and prevention of aggressive behaviors across the lifespan. Furthermore, the development of accurate measures enables the assessment of the intervention impact, which is aimed to promote empathic skills to prevent conflictive behaviors or enhance socioemotional competences.

EMPATHY MEASURES

Several types of instruments have been created and used to assess empathy, such as neuro-imaging techniques or direct observation of behaviors in laboratory (Sánchez-Pérez, Fuentes, Jolliffe, & González-Salinas, 2014). Among these, self-reports could be very useful because they are cost-

effective and time-saving, in comparison with previous-mentioned approaches (Stone et al., 2009). Although limitations are recognized, self-report measures are especially valuable for research purposes. Concerning this kind of measure and taking into account the theoretical models explained above (cognitive, affective, and integrative perspective), different questionnaires have been developed considering each one of them. These questionnaires are lumped into: a) those that measure the cognitive component, such as Hogan Empathy Scale (Hogan, 1969); b) those measures used to assess the affective component, such as Questionnaire Measure of Emotional Empathy (Mehrabian & Epstein, 1972); and c) those self-reported techniques that assess both components, such as, Interpersonal Reactivity Index (IRI; Davis, 1980, 1983; Spanish adaptation by Carrasco, Delgado, Barbero, Holgado, & del Barrio, 2011); Index of Empathy for Children and Adolescents (IECA; Bryant, 1982; Spanish adaptation by del Barrio, Aluja, & Garcia, 2004); Empathy Quotient (EQ; Baron-Cohen & Wheelwright, 2004); Basic Empathy Scale (BES; Jolliffe & Farrington, 2006; Spanish adaptation by Sánchez-Pérez et al., 2014); and Cognitive and Affective Empathy Test (TECA; López-Pérez, Fernández-Pinto, & Abad, 2008; adaptation to children and adolescents, TECA-NA, López-Pérez et al., 2014). All of these self-report measures display good psychometric properties in both the original version and Spanish adaptation.

Nevertheless, the relevant role of attitudes in empathic behavior has underscored the need for developing instruments aimed to evaluate empathic attitudes. Attitudes are mental structures that involve cognitive, affective, and conative components (Ajzen & Fishbein, 2005) and have demonstrated to be reliable predictors of different behavioral outcomes (Glasman & Albarracín, 2006; Wallace, Paulson, Lord, & Bond, 2005). Moreover, attitudes are stable but modifiable (Funk, Fox, Chan, & Curtiss, 2008), which make them sensitive to the expected impact from interventions. Therefore, empathic attitudes could be conceptualized as part of the cognitive component of the empathic response (Funk et al., 2008), involving the identification of the other's experiences and point of view.

Given the documented lack of specific measures to assess empathic attitudes, Funk et al. (2008) developed the Children's Empathic Attitudes Questionnaire (CEAQ), which aims to specifically evaluate these dispositions. This self-report measure is a short instrument comprised of 15 items, with three response categories, that has shown good psychometric properties: unidimensional factor, gender differences (girls have higher scores) with the internal consistency reliability being $\alpha = .77$. Some of the strengths are that this measure was initially created for children and adolescents; therefore it is not a product of adaptation or modification from an original measure. Secondly, it evaluates a crucial predictor of empathic behavior inferred by self-reported responses. Finally, it is a modifiable structure so it may be sensitive to the possible variations after interventions, with significant applications in educational, clinical, and social contexts. In summary, the CEAQ shows good psychometric properties, a design based on attitude measurement and easy administration. These characteristics make worthwhile the contribution of the validation of this instrument in the Spanish context, for both research and practical applications.

AIMS OF THE STUDY

The main purpose of the present study was to adapt and validate the CEAQ in a sample of Spanish children. The first goal was to examine and test the factor structure of the Spanish version of CEAQ. It was hypothesized that there would be only one factor, as in the original study.

The second goal was to test the invariance of the scale over gender. Finally, the third aim was to estimate the reliability of the CEAQ in terms of internal consistency and temporal stability.

METHOD

Participants and Procedure

A total of 297 children (50% males), aged from 7 to 12 years ($M = 9.53$, $SD = 1.2$), participated. Participants were recruited from two schools of the Community of Madrid. In both schools there were meetings with school principals to explain and describe the goals and procedures of the present study. Once they agreed, parents were informed about the purpose, voluntary and confidentiality nature of the research; all of them signed consent forms to participate.

Data was collected anonymously in school classrooms during class time. The administration procedure was conducted by researchers so that they could clear up any doubts and explain the items when it was necessary. CEAQ administration took one day in each school. In one of the two schools, 60 children completed the CEAQ two months after the first administration.

Instrument

The Children's Empathic Attitudes Questionnaire (CEAQ) was used in this study. This measure has 15 items, with three response categories (*No*, *Maybe*, *Yes*). CEAQ assesses child's empathic attitudes toward his/her peers, teachers, other children, animals, or other people such as mother's friend. Each item was written in a comprehensible language for children and adolescents. The CEAQ was translated into Spanish (see the Appendix) by two native English bilingual translators using the back-translation procedure.

Data Analysis

All the models were estimated by using the *lavaan* package (Rosseel, 2012) within the statistical software R (R Development Core Team, 2010). Due to severe violations of univariate and multivariate normality and assumption of categorical data, robust weighted least squares (as WLS Mean-and-Variance Adjusted, or WLSMV) estimation method was chosen (Brown, 2006; Flora & Curran, 2004; Proitsi, 2009). In addition, polychoric correlations were used to compute the analysis. Univariate normality was assessed with the Shapiro-Wilk test ($M_W = .621$, $M_p = 2.48e-25$), the Lilliefors test ($M_D = .43$, $M_p = 2.30e-161$), the Cramer-von Mises test ($M_W = 10.50$, $M_p = 7.37e-10$), the Anderson-Darling test ($M_A = 53.89$, $M_p = 3.7e-24$), the Shapiro-Francia test ($M_W = .61$, $M_p = 1.00e-21$), and the Pearson chi-square test ($M_p = 3015.25$, $M_p = 0$). Multivariate normality was assessed with the Mardia test (multivariate skewness $bp1 = 38.69$, $p = 0$, multivariate kurtosis $bp2 = 280.52$, $p = 0$).

The two-criteria strategy proposal by Bentler (2007; Hu & Bentler, 1999) is followed in this study in order to assess the goodness of fit of the model. Aside from the likelihood ratio test

(LRT), several fit indexes were computed: the root mean square error of approximation (RMSEA; [Steiger, 1990](#)), the comparative fit index (CFI; [Hu & Bentler, 1999](#)), the Tucker-Lewis index (TLI), and the weighted root mean square residual (WRMR), all of which were included in the study. The cutoff criterion for these indices are $\leq .05$ for RMSEA, $\geq .95$ for CFI and TLI, and ≈ 1 for WRMR. The application of this strategy has been highly encouraged by several authors ([Bentler, 2007](#); [Kline, 2005](#); [Matsunaga, 2010](#); [Schmitt, 2011](#)). In addition, modification indices (MIs) were computed to assess possible improvements of the model. Following [Schreiber and Nora's \(2006\)](#) recommendations, MIs were implemented with a previous theoretical explanation, providing some improvement to the model fit.

Afterwards, multigroup invariance analysis was performed to assess model validity across participants' groups (in this case, gender). Due to this, five measurement invariance levels were tested: 1) configural invariance (equal measurement model); 2) weak invariance (adding equal loadings); 3) strong invariance (adding equal thresholds); 4) strict invariance (adding equal residuals); and 5) adding equal means. Model comparison was assessed with the delta chi-square test.

In order to assess scale reliability, internal consistency and temporal stability are reported. For the first type of reliability, McDonald's omega was calculated ([McDonald, 1999](#)) in contrast with other internal consistency indices, like Cronbach's alpha. Although alpha is very wide-spread in the literature, several contributions critique its performance, especially in cases where tau-equivalence cannot be assumed (e.g., [Zinbarg, Revelle, Yovel, & Li, 2005](#)). For temporal reliability, the test-retest coefficient was obtained with Pearson's correlation.

RESULTS

Confirmatory Factor Analysis

Given previous contributions on the CEAQ implemented Rasch models ([Funk et al., 2008](#)), unidimensionality was hypothesized and initially checked with a parallel analysis with polychoric correlations which also suggested a unidimensional model (Figure 1). This technique compares the scree plot of the data with simulated data with random and noncorrelated responses, and is recommended for assessment of dimensionality in multivariate datasets, especially due to its robustness when using polychoric correlations ([Garrido, Abad, & Ponsoda, 2013](#); [Horn, 1965](#)).

Thus, a first unidimensional model was proposed for the CFA. The model showed good fit indices although not enough for the cutoff criteria, $\chi^2(90) = 142.723, p < .001$; CFI = .933; TLI = .922; RMSEA = .044, 95% CI [.030, .058]; WRMR = .925. Therefore, MIs were explored and an error covariance was allocated between Items 2 ("I'm happy when the teacher says my friend did a good job") and 7 ("I feel happy when my friend gets a good grade"). It could be assumed that error covariance was due to the specific content of the items: specifically, to be happy due to seeing a peer get a reward related to academic purposes. Therefore, this covariance between errors was included. The final model showed excellent fit, $\chi^2(89) = 110.702, p = .059$; CFI = .972; TLI = .967; RMSEA = .029, 95% CI [.000, .045]; WRMR = .795, with even the chi-square test showing good fit results. Path diagram is displayed in Figure 2.

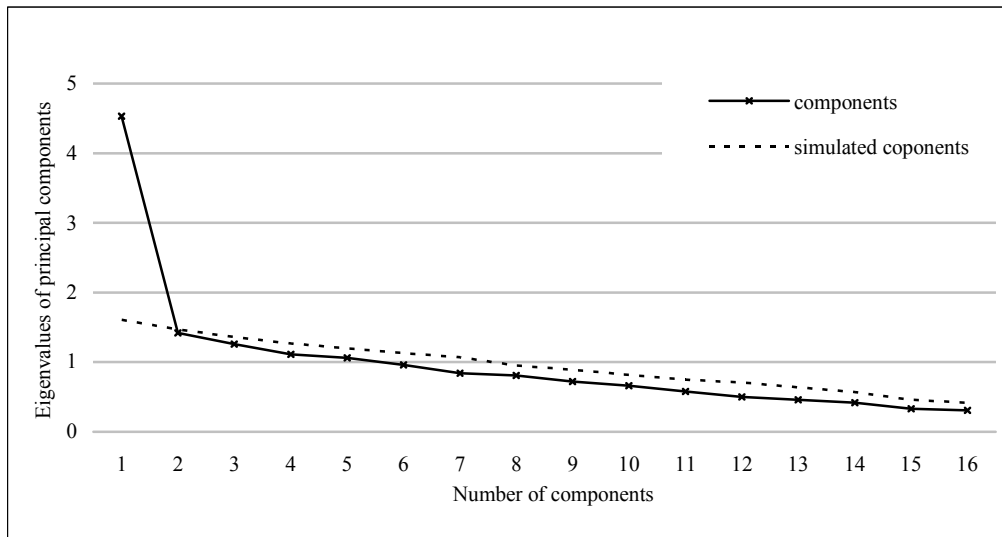


FIGURE 1
 Parallel analysis for the CEAQ items.

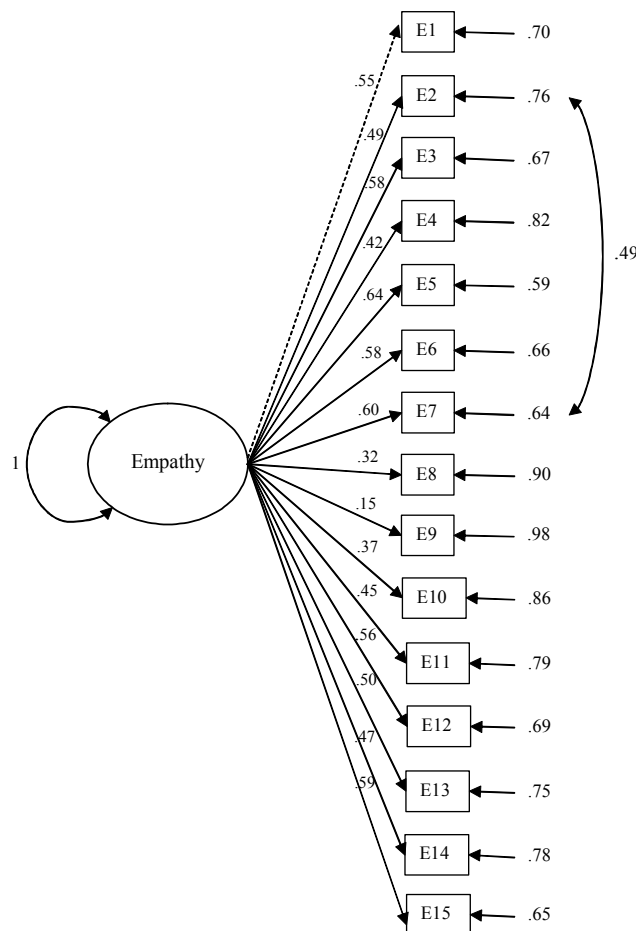


FIGURE 2
 Measurement model for the CEAQ. Empathy = Empathic attitudes in children.

Multigroup Invariance Analysis

Multigroup analyses are shown in Table 1. The CEAQ seems to be invariant across gender in all levels except in equal means ($\Theta_{\text{males}} = -.09$; $\Theta_{\text{females}} = .07$), so identical models could be assumed between boys and girls in loading, thresholds, and even residuals, thus allowing direct score comparisons, among other features, with the exception of second-order latent values.

TABLE 1
 Invariance fit indices for the CEAQ

Invariance level	χ^2 (<i>df</i>)	<i>p</i>	CFI	RMSEA
1 Configural	198.933 (178)	.130	.971	.028
2 Weak (+ equal loadings)	221.080 (192)	.164	.974	.026
3 Strong (+ equal thresholds)	222.528 (206)	.204	.977	.023
4 Strict (+ equal residuals)	232.571 (221)	.283	.984	.019
5 Means (+ equal means)	256.578 (222)	.066	.955	.032
Model comparison	$\Delta\chi^2$ (Δdf)	Δp	ΔCFI	$\Delta RMSEA$
Configural versus Weak	13.643 (14)	.477	.003	.002
Weak versus Strong	10.843 (14)	.698	.003	-.003
Strong versus Strict	10.276 (15)	.802	-.007	-.004
Strict versus Means	9.294**	.002	.029	.013

Note. CEAQ = Children's Empathic Attitudes Questionnaire; CFI = comparative fit index; RMSEA = root mean square error of approximation.

** $p < .01$.

Reliability

McDonald's ω and test-retest indices were calculated. As ω uses factor loadings from dimensional analysis directly, previous CFA weights were used to calculate ω . A value of .824 was obtained, which suggests approximately an 82.4% of empirical variance of the items corresponding to systematic variance of the construct (in this case, empathy in youth). In this sense, it seems the CEAQ is a reliable measure in terms of internal consistency. Regarding test-retest, Pearson's correlation between two measures separated by three months indicated a total of .610, which suggests a medium temporal stability.

DISCUSSION

The present research provides a Spanish validation of CEAQ with optimal psychometric properties, like the original scale (Funk et al., 2008). Our findings demonstrate a unidimensional model regarding loading factors with no difference across gender. Moreover, the Spanish version questionnaire displayed good internal consistency as showed in McDonald's ω ; test-retest index was medium statistically. These results support the usefulness of the CEAQ questionnaire.

First, the evidence of a one-factor model makes a remarkable consideration on the importance of attitudes in empathy as is assessed by CEAQ (Funk et al., 2008). As these authors suggest, empathic attitudes seem to be quantifiable for a better understanding of complex model of empathy, including both affective and cognitive components (Ajzen & Fishbein, 2005). Also, it is a more accurate predictor of behavior, in comparison with individuals' components (Wallace et al., 2005). Secondly, the lack of differences across gender makes possible the administration of this self-report measure in academic environments or at group levels. Also, the length proposed in CEAQ allows children to respond quickly, avoiding the fatigue effect characterized in the application of longer versions.

In summary, the optimal psychometric properties and time-saving characteristics of this scale provide strong reasons for its use in different contexts (e.g., educational, clinical, and social settings), given the well-documented relation of empathy and psychosocial adjustment, mental health disorders, and conflict behavior prevention (Berger et al., 2015; Gleason et al., 2009; Jolliffe & Farrington, 2006; López-Pérez et al., 2014). Specifically, CEAQ could be valuable to test the effectiveness of intervention programs and school-based initiatives that promote empathy in educational environments (Snyder et al., 2012), as well as to assess the general climate of the class in order to predict possible disruptive behaviors, especially in the Spanish academic context, where much evidence-based research is needed. Additionally, high empathy is related with positive emotions and prevention of psychopathology (Eisenberg et al., 2010; Gleason et al., 2009), which makes CEAQ relevant in a clinical context to assess the effectiveness of therapy and ensure the adherence to the program. Finally, it can be used in violence-risk-populations, where it is well known that the exposure to violence and the lack of empathy increases the risk of developing antisocial behaviors (Funk et al., 2008). This signals that in community and social projects it could be used to measure intervention effects in contexts where it is difficult to collect data and there is a lack of time.

Nevertheless, we acknowledge several limitations. First, our sample only comprised children from the Community of Madrid. Therefore, results should be taken with caution, especially in the generalization to the Spanish sample. To overcome this limitation, samples should be collected from other Spanish Communities, not only from Madrid, in order to establish generalized conclusions. In addition, gathering data not only from different geographical areas, but also from different groups (e.g., social risk, clinical samples) would be important to observe the performance of the measure in these contexts (Funk et al., 2008). Secondly, although empathic attitudes are deeply related with affective component, we must be aware that they are one facet of the complex concept of empathy. Finally, the test-retest index was medium, which may suggest that the maturational period of change in our sample should be taken into consideration. For example, different uncontrolled variables could be involved, such as specific educational programs carried out in classrooms during this period, or the sensitivity of the instrument, which should be evaluated in-depth to detect subtle changes. Our suggestion for future studies is to incorporate measures of prosocial behaviors and ability assessment. We suggest including prosocial task or real conflict situations and checking whether children with higher empathy levels are involved in more empathic behaviors compared with children with lower ones. More research is also needed to increase the knowledge about empathy and the effects of interventions on prosocial indicators of social functioning.

In conclusion, CEAQ has shown to be worthproposing. It provides a new and feasible way of assessing empathy in different contexts. This questionnaire could be used to obtain different indicators of empathy to assure the peer answers used by Berger et al. (2015) as well as to assess the association with highly prevalent aggressive behaviors among adolescents (Buelga et al., 2010). Thus, CEAQ could be relevant in future research in this field with Spanish children.

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APPENDIX

Children's Empathic Attitudes Questionnaire (CEAQ)

1. Cuando soy malo con alguien, normalmente después me siento mal por ello [When I'm mean to someone, I usually feel bad about it later]
 2. Soy feliz cuando el profesor dice que un amigo mío ha hecho un buen trabajo [I'm happy when the teacher says my friend did a good job]
 3. Me disgustaría (me sentiría mal) si viese que alguien hace daño a un animal [I would get upset if I saw someone hurt an animal]
 4. Yo entiendo cómo se sienten los otros niños [I understand how other kids feel]
 5. Me sentiría mal si la amiga de mi madre se enfermase [I would feel bad if my mom's friend got sick]
 6. Me preocupan o molestan (no me gustan) los problemas de los demás [Other people's problems really bother me]
 7. Me siento feliz cuando un amigo mío saca buenas notas [I feel happy when my friend gets a good grade]
 8. Cuando veo a un niño que está enfadado, realmente me molesta (no me siento bien con ello) [When I see a kid who is upset it really bothers me]
 9. Me sentiría mal si el niño que se sienta a mi lado se mete en problemas [I would feel bad if the kid sitting next to me got in trouble]
 10. Me preocupa o molesta (no me gusta) cuando mi profesor no se siente bien [It bothers me when my teacher doesn't feel well]
 11. Lo siento por los niños que no pueden encontrar a nadie con quien pasar el rato [I feel sorry for kids who can't find anyone to hang out with]
 12. Ver a un niño llorando, hace que yo también sienta ganas de llorar [Seeing a kid who is crying makes me feel like crying]
 13. Si dos niños están pegándose, alguien debería separarlos [If two kids are fighting, someone should stop it]
 14. Me molestaría (me sentiría mal) si un amigo mío es castigado [It would bother me if my friend got grounded]
 15. Cuando veo a alguien que es feliz, yo también soy feliz [When I see someone who's happy, I feel happy too]
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