

The Peer Aggressive and Reactive Behaviors Questionnaire (PARB-Q): evidence of validity in the Brazilian context

Questionário de Comportamentos Agressivos e Reativos entre Pares (Q-CARP): evidências de validade para o contexto brasileiro

Juliane Callegaro Borsa,¹ Denise Ruschel Bandeira²

Abstract

Objective: To evaluate the psychometric properties of the Brazilian version of the Peer Aggressive and Reactive Behaviors Questionnaire (PARB-Q), a self-report instrument comprising two independent scales that assess aggressive behavior and reactions to peer aggression.

Method: A total of 727 elementary schoolchildren aged 8-13 years (52% boys) were included. Exploratory and confirmatory factor analyses were used to evaluate the factor structure.

Results: The Brazilian version of the PARB-Q was consistent with the original version. The results of the exploratory factor analyses (EFA) indicated a one-factor solution for the first scale (Peer Aggression Scale) and a three-factor solution (Reactive Aggression, Seeking Teacher Support, and Internalizing Reaction) for the Reaction to Peer Aggression Scale. The confirmatory analyses for both scales yielded good fit indices.

Conclusion: The results of the statistical analyses suggested adequate psychometric properties and satisfactory validity and reliability of the Brazilian version of the PARB-Q, making it a useful tool for assessing aggressive behavior as well as children's reactions to aggression by their peers.

Keywords: Assessment, aggression, child, validation, questionnaire.

Resumo

Objetivo: Avaliar as propriedades psicométricas do Questionário de Comportamentos Agressivos e Reativos entre Pares (Q-CARP), versão brasileira, instrumento de autorrelato composto por duas escalas independentes que avaliam os comportamentos agressivos e as reações das crianças frente à agressão dos seus pares.

Método: Participaram do estudo 727 crianças com idade entre 8 e 13 anos, estudantes do ensino fundamental (52% meninos). Análises fatoriais exploratórias e confirmatórias foram realizadas com o objetivo de avaliar a estrutura fatorial do instrumento.

Resultados: O Q-CARP foi consistente com a versão original. Os resultados das análises fatoriais exploratórias indicaram solução de um fator para a primeira escala (Escala de Comportamentos Agressivos) e de três fatores (Reação Agressiva, Busca de Apoio e Reação Internalizada) para a Escala de Reação à Agressão. As análises fatoriais confirmatórias revelaram bons índices para ambas as escalas.

Conclusão: Os resultados das análises estatísticas sugeriram adequadas propriedades psicométricas e satisfatórios índices de validade e fidedignidade para a versão brasileira do Q-CARP, configurando-se como uma ferramenta útil para avaliar os comportamentos agressivos de crianças e, também, suas reações frente à agressão de seus pares.

Descritores: Avaliação, comportamentos agressivos, criança, validação, questionário.

¹ PhD. Professor, Department of Psychology and Graduate Program in Clinical Psychology, Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio), Rio de Janeiro, RJ, Brazil. ² Professor, Institute of Psychology, and Head, Graduate Program in Psychology, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil.

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Introduction

Peer interaction is an important component of child and adolescent development. In the context of social relations, manifestations of aggressive behavior are common and frequently lead to complaints in schools and psychological care clinics.¹ Because of its high prevalence and negative impact on the development process, aggressive behavior has been the focus of research in various scientific fields.²

Aggressive behavior includes all forms of physical or verbal behavior intended to harm or cause damage to one person or a group of people.³⁻⁵ In childhood, aggressive behavior is associated with various other problems, such as learning difficulties and poor adjustment to the school setting. In addition, the presence of aggressive behavior in childhood may be a predictive factor for future problems, such as maladaptive behaviors, school dropout, rule-breaking behavior, difficulty in peer relationships, depression, and anxiety.⁶ One important area of research on aggressive behavior has focused on understanding its origins and manifestations. Aggressive behavior can manifest itself directly (i.e., behaviors oriented directly towards the victim) or indirectly (i.e., behaviors that target the victim but are not explicitly directed at the victim).⁷

With regard to its origin, aggressive behavior may be reactive or proactive. Proactive or instrumental aggressive behavior is characterized by deliberate aggression in search of an instrumental objective or to achieve an intended goal.⁵ In other words, proactive aggressive behaviors are motivated by the desire to persevere with a goal. The phenomenon has been explained by the social learning theory,⁸ which postulates that individuals tend to behave similarly to socially desirable or successful models.⁹ In general, proactive aggressive behaviors are related to a higher sense of self-efficacy, i.e., the more the children perceive their behavior as successful, the higher is their tendency to behave aggressively. Thus, proactive aggressive behavior is generally associated with the expectation of positive outcomes.^{10,11}

Reactive (or impulsive) aggressive behavior, in turn, refers to impulsive, defensive answers towards a provocation.⁵ These behaviors are generally linked to feelings of guilt and frustration, and are well explained by models based on the frustration-aggression approach.¹² According to this theoretical perspective, individuals are prone to behave aggressively when feeling frustrated regarding an obstacle that prevents or hinders his/her from reaching a goal.⁹ Children with reactive aggressive behavior tend to perceive a higher degree of hostility in the actions from their peers, even in ambiguous situations where the prior provocative or aggressive behavior is not clear.^{10,11}

Both forms of aggressive behavior (proactive and reactive) may occur through physical aggression, e.g., beating, kicking, and pushing, or verbal aggression, e.g., offending, shouting, and gossiping.⁵ Aggressive behavior classifications have been widely discussed. Notwithstanding, whereas some authors suggest that the distinction between proactive and reactive aggressive behaviors is important for a better understanding of the motivation behind each behavior,^{5,13} others advocate that both subtypes, even if theoretically distinct, are strongly related in practice.^{1,14} Thus, it seems to be as important to understand how such behaviors occur, e.g., in what context and in what types of interactions, as it is to understand the origin of aggressive behavior.

Aggressive behavior can manifest differently according to child sex and age.¹⁵ The literature indicates that boys tend to display direct aggressive behaviors (verbal or physical) more often than girls.^{7,15,16} Conversely, indirect or relational aggressive behaviors (e.g., harming colleagues or gossiping) are more common among girls.^{7,15,16} The reasons behind this gender differences are unclear and involve biological, interpersonal, and social factors.^{3,17} Furthermore, aggressive behavior patterns tend to change in the course of development. In general, direct aggression and physical aggression tend to decrease in frequency and intensity over the years, among both boys and girls, whereas indirect aggression and verbal aggression, such as manipulation, defamation, and exclusion from social groups, tend to increase.^{3,18}

With regard to their reactions to aggressive behavior, boys and girls may use different strategies.¹⁹ Recent studies have suggested that searching for support, avoiding the aggressor, and retaliation are strategies commonly used by children when they are victims of aggression from their peers.^{15,20} Studies also show that girls tend to seek more support than boys and are more prone to respond to victimization by seeking isolation.^{19,21} Conversely, boys tend to react more aggressively than girls, often reinforcing the context of the aggression.^{19,22,23} With regard to age, older children rely less on adults when they are victims of aggression.²³ Younger children, in turn, tend to respond to aggression by blaming themselves, crying, or seeking isolation.²¹

In general, children believe that the most effective strategies for handling victimization situations are ignoring the provocation or telling someone else about the aggression.¹⁹ Avoidance, physical or verbal aggressive responses, and isolation are commonly associated with greater victimization.^{23,24} The search for social support is an effective strategy that predicts less victimization among girls²⁴; conversely, in boys, it is associated with a higher likelihood of recurrent victimization.²⁵ According

to the literature, reacting aggressively, internalizing the situation, and seeking teacher support are the most common reactive strategies among schoolchildren, regardless of the types of aggressive provocation (e.g., physical, verbal, or attack on property).²⁶

When discussing the different ways to assess aggressive behavior in children, three significant aspects should be considered. The first aspect is the theoretical approach adopted to measure the construct. The multiple definitions proposed for aggressive behavior are reflected in the different instruments available, which use different approaches and theoretical definitions.²⁷ Some of the instruments available for use with children are based on theoretical models of frustration-aggression¹² and social learning,⁸ which explain, respectively, reactive and proactive aggressive behaviors. Examples of such instruments are the Teacher-Report Scale,⁵ the Revised Teacher Rating Scale of Reactive Aggression and Proactive Aggression,²⁸ the Children's Scale of Hostility and Aggression: Reactive/Proactive,²⁷ and the Parent-Rating Scale Reactive and Proactive Aggression.²⁹

The second aspect is the methodology used to design the instrument. In spite of the diversity of scales found in the literature, only a few were developed empirically (i.e., emerging from the observation of phenomena in real settings), especially in Brazil.³⁰ Empirically-based evaluations provide effective and reliable information about behavioral problems in children.³¹ This "bottom-up" approach builds on real data and reflects the patterns of behavioral problems found in large samples of children. An example of a well-established empirically-based instrument is the Child Behavior Checklist (CBCL),³² which evaluates children and adolescents' internalizing and externalizing behavior problems.

Finally, the third aspect to consider is the informant or respondent for whom the instrument was intended. The majority of the instruments designed to assess children's behaviors are to be completed by parents and teachers. For example, the Teacher-Report Scale⁵ and the Revised Teacher Rating Scale of Reactive Aggression and Proactive Aggression²⁸ are focused on teachers' responses. The Parent-Rating Scale Reactive and Proactive Aggression²⁹ and the Children's Scale of Hostility and Aggression: Reactive/Proactive²⁷ rely on parents' answers.

In Brazil, the scarcity of instruments to evaluate child aggressive behavior is notorious, as pointed out in a recent literature review.³⁰ The Aggressiveness Scale for Children and Young People (ASCYP)³³ and the Scale of Teachers' Perception of Child Aggressive Behavior in School³⁴ are among the few questionnaires validated in the Brazilian context. The former is a dichotomous scale that has the limitation of not distinguishing between

proactive and reactive aggressive behaviors. The second, teacher-rated, is too extensive (41 items) and also fails to discriminate between proactive and reactive aggressive behaviors. Furthermore, only content validity has been assessed for the latter scale.³⁴

Outside observers may provide limited or incomplete information about the behavior of children, especially because they rely on comparisons (with other children) to make their judgments. In addition, research methods that do not directly involve children's reports have been criticized for being studies on but not with children.³⁵ In this sense, the use of self-report instruments designed for children is a relatively new practice that has been showing significant advantages, especially in the assessment of behavioral and emotional problems.³⁶ The intrinsic motivation for an aggressive behavior, for example, may be clearer to the child than to outside observers.¹³ Despite the advantages, self-report questionnaires also have limitations: they may induce response biases, especially when addressing undesirable social behaviors³⁷; also, very young or newly literate children may have difficulties understanding some expressions present in the scale items and instructions.²²

Taking into consideration the lack of studies on child aggressive behavior in the Brazilian context and the consequent scarcity of instruments designed to assess this construct, this study aimed to assess the psychometric properties of the Brazilian version of the Peer Aggressive and Reactive Behaviors Questionnaire (PARB-Q) in a sample of Brazilian schoolchildren. The translation and adaptation process is also described.

Method

Procedures of translation and adaptation

The translation and adaptation process of the original PARB-Q²⁶ to Brazilian Portuguese included several steps.³⁸ Initially, the questionnaire was translated from Italian to Portuguese by two independent translators who were instructed to emphasize the meaning rather than literal expressions in their translations. With these initial versions, the authors generated a synthesis of the instrument, which was evaluated by three children to check whether the items were clear and the terms understandable. After minor grammatical revisions, the adapted version was back-translated to Italian by a third independent translator. The original and the back-translated versions were evaluated by the authors and by the author of the Italian version of PARB-Q. Once the versions were considered to be both grammatically and semantically equivalent, the instrument was regarded as ready for use in the study (Appendix 1).

Participants

A total of 741 children were invited to participate in the study. Of these, 14 (1.9%) did not complete the questionnaire and were excluded. The final sample therefore consisted of 727 Brazilian children (52% boys) aged between 8 and 13 years (mean \pm standard deviation = 9.8 ± 1.1 years), attending from the 2nd to the 5th grade of public and private elementary schools in the metropolitan area of Porto Alegre, RS, Brazil.

Instruments

Sociodemographic questionnaire

This instrument, intended for parents or caregivers, included closed-ended questions aimed at obtaining information that could complement the data obtained with the other scales.

Peer Aggressive and Reactive Behaviors Questionnaire (PARB-Q)²⁶

The PARB-Q is a brief self-report instrument consisting of two separate scales, the 8-item Peer Aggression Scale (PA) and the 12-item Reaction to Peer Aggression Scale (RPA), which aim to investigate direct aggressive behavior and reactions to peer aggression among schoolchildren, respectively.

Item creation for the original instrument²⁶ was based on the results of a focus group study conducted with primary school teachers. Teachers were asked to discuss the main aggressive behaviors observed at school as well as the students' reactions to aggression. Of the various potential strategies adopted by children in response to aggression by their peers, the ones most commonly observed by teachers at school and also reported in the literature³⁹ were selected.

The PA scale evaluates direct aggressive behavior towards peers and consists of five items measuring physical aggression and verbal aggression, plus three control items not considered in the final score. Items cover different forms of deliberate physical and verbal aggressive behavior, not necessarily occurring after a provocation. As previously mentioned, these behaviors are explained by the social learning theory,⁸ which proposes that aggressive behavior may be socially learned and maintained due to a variety of social reinforcement phenomena, e.g., social ascension and recognition, group domain, material gratifications, etc.⁸

The RPA scale consists of 12 items aimed at investigating three types of reactions to peer aggression commonly observed in children. The first reaction, Reactive Aggression (RA), includes aggressive responses directed at the aggressor or at objects belonging to them. Aggressive reactions or reactive aggression behaviors

are characterized by impulsive, defensive responses towards a provocation.⁵ The second behavior, Seeking Teacher Support (STS), refers to children telling the teacher what has happened to obtain help. The last type of response, Internalizing Reaction (IR), occurs when the child shows a passive, internalized response to peer aggression. The items assessing STS and IR describe behaviors commonly reported in the literature as coping strategies in the context of peer victimization.^{15,21}

All PARB-Q items are answered using a 4-point Likert scale. However, questions and answers are presented differently in the two scales. In the PA scale, respondents are asked, e.g., "Usually, how many times does it happen that you ...?," and responses vary from 1 ("it never happens to me") to 4 ("it happens to me every day"). In the RPA scale, respondents are asked, e.g., "Usually, when a classmate ... [action described], do you ...?," and responses vary from 1 ("I never do so") to 4 ("I do so all the time").²⁶

The original version of the PARB-Q has been validated in the Italian context and has demonstrated adequate psychometric properties.²⁶ The goodness-of-fit indices obtained in the confirmatory factor analyses supported the predicted models. Internal consistency was good for both scales and all factors, with Cronbach's alpha values ranging between 0.75 and 0.86.

Aggressiveness Scale for Children and Young People (ASCYP)³³

This self-report instrument consists of 16 statements to which children have to answer yes or no. The scale measures three concepts: aggressiveness in family situations, aggressiveness in school situations, and general aggressiveness (sum of the other two subscales). In the original study, Cronbach's alpha values were 0.76, 0.77, and 0.80 for aggressiveness in the family, at school, and in general, respectively.³⁶ In this study, respective values were 0.60, 0.64, and 0.71.

Child Behavior Checklist (CBCL 6/18 years of age)³²

This survey, comprised of 138 items, asks parents or caregivers to answer questions on behavioral problems observed in their children. Of the items, 20 assess the child's social competence and 118 are related to behavioral problems (scales: Anxiety/Depression, Withdrawal/Depression, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior). For the present study, the clinical and non-clinical classifications were used in the following CBCL scales: Social Problems, Aggressive Behavior, and Rule-Breaking Behavior. A scale based on the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM), namely Conduct Disorders, was also

used to classify children as clinical or non-clinical. Children classified as borderline were included in the clinical category. For each item on the instrument, the responder should indicate how true each of the problems described is (not true, somewhat true, or often true). On each scale, the child can be classified as non-clinical, borderline, or clinical, in accordance with the results of a normative sample assessed in the United States.³²

The CBCL still does not have normalization data available for the Brazilian context. Therefore, for the present study, a Brazilian translation of the latest version of the instrument³² was used (Silvares EFM, Rocha MMR; Equipe Projeto Enurese. Inventário dos Comportamentos de Crianças e Adolescentes de 6 a 18 anos – Versão brasileira do Child Behavior Checklist. 2007, not published). A recent study⁴⁰ compared the results obtained in Brazil with findings from an American normative sample. Fathers of 1,228 Brazilian schoolchildren aged 6 to 11 years and fathers of 246 children referred to mental health services evaluated behavior problems using the CBCL/6-18.⁴⁰ Confirmatory factor analysis revealed adequate goodness-of-fit indices and internal reliability in the comparison with the North American data, corroborating findings reported for other cultural contexts.⁴¹

Procedures

Data were collected in public and private Brazilian elementary schools. The instruments were administered collectively in the classroom, and the instructions for completing the questionnaires were read aloud. The parents were informed about the study and signed a consent form.

The study was approved by the Ethics Committee of the Institute of Psychology of Universidade Federal do Rio Grande do Sul (UFRGS), southern Brazil (protocol

no. 25000.089325/2006-58). The study was conducted in accordance with Resolution no. 196/96 of the Brazilian Ministry of Health.⁴²

Data analysis

To analyze the structure of the PARB-Q, the sample was randomly divided into two halves. Two exploratory factor analyses (EFA) were performed with the first half ($n = 363$): one for the PA scale and another for the RPA scale. For both analyses, the principal axis factoring (PAF) method with oblique rotation (promax) was used. These methods were chosen because of their accuracy in identifying latent constructs behind the variables and because we hypothesized that there would be correlations between the factors.⁴³ The adequacy of the sampling strategy was evaluated using the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity. For both scales, the number of factors extracted in the EFA was confirmed with parallel analyses.⁴⁴ The internal consistency of each scale was assessed using Cronbach's alpha and McDonald's omega values.

With the second half of the sample ($n = 364$), confirmatory factor analyses (CFA) were performed to evaluate goodness-of-fit indices of the exploratory models for both scales (PA and RPA). CFAs were carried out using the maximum likelihood method. Chi-square (χ^2) statistics, chi-square/degrees of freedom ratio (χ^2/df), and standardized root mean square residuals (SRMR) were used as absolute fit indices. The parsimony fit index was the root mean square error of approximation (RMSEA). Finally, the comparative fit index (CFI) and the Tucker-Lewis index (TLI) were used as comparative fit indices.

χ^2/df values should be smaller than 2 or 3. For the SRMR index, values closer to zero indicated greater adequacy. RMSEA values < 0.06 indicated a good fit; values between 0.06 and 0.08, a reasonable fit; between

Table 1 - Exploratory factor analysis, PARB-Q PA

Item content: How often do you...	PARB-Q PA Factor loading
6. ... shout at a classmate	0.72
3. ... say bad things to a classmate	0.71
1. ... kick or slap a classmate	0.69
5. ... mock or laugh at a classmate	0.67
8. ... push or scratch a classmate	0.57
Eigenvalue	2.82
% explained variance	53.32
M	7.66
SD	2.92
Alpha reliability	0.81
Omega reliability	0.88

M = mean; PARB-Q PA = Peer Aggressive and Reactive Behaviors Questionnaire, Peer Aggression Scale; SD = standard deviation. Extraction method: principal axis factoring (PAF) with promax rotation.

0.08 and 0.10, a poor fit; and values > 0.10 indicated lack of fit. CFI and TLI indices should be close to or higher than 0.90 or 0.95.^{45,46} The comparative fit indices adopted in this study were selected because of their widespread use in the literature and, especially, their strong performance in Monte Carlo simulation studies.⁴⁵

For evidence of criterion validity, point-biserial correlation analyses were conducted between the PA/RPA scales and the ASCYP³³ and the clinical and non-clinical classifications of the children was based on the CBCL scales.³² Finally, multivariate analyses of covariance (MANCOVAs), using age as a covariate, were performed to determine whether there were differences in the PARB-Q scores between boys and girls. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 19 and Analysis of Moment Structures (AMOS) version 19.0.

Results

Peer Aggression Scale (PARB-Q PA)

The EFA performed for PA (Table 1) yielded a one-factor solution that included the five items in the scale

(KMO = 0.83; Bartlett's test of sphericity, χ^2 (10) = 516.45, $p < 0.001$). All the items in the factor showed loadings > 0.57. Cronbach's alpha coefficient was 0.81, and McDonald's omega was 0.88. The factor explained 53.32% of the variance.

A parallel analysis,^{44,47} calculated from 500 random matrices with 95% confidence interval (95%CI), was conducted to clarify the factor structure of the PA scale. The results show that the one-factor structure is appropriate for the data (Figure 1).

A confirmatory factor analysis was also conducted with the second half of the sample ($n = 364$) for the five items in the PA. The one-factor solution produced excellent fit indices ($\chi^2/df = 1.61$; SRMR = 0.019; RMSEA [90%CI] = 0.041 [0.000-0.091]; CFI = 0.99; TLI = 0.99).

Reaction to Peer Aggression Scale (PARB-Q RPA)

For the RPA, another EFA was performed (KMO = 0.81; Bartlett's test of sphericity, χ^2 (66) = 1786.97, $p < 0.001$) using the PAF extraction method with promax rotation. The EFA yielded a three-factor solution (Table 2).

All items, in each respective factor, showed loadings > 0.60. The total variance explained by the three factors was 66.7%. Internal consistency analysis of the RPA

Table 2 - Exploratory factor analysis, PARB-Q RPA

Item content: When a classmate...	RA	STS	IR
	Factor loading		
12. ... pushes and hurts you, do you yell at him/her?	0.80	-0.07	< 0.001
6. ... breaks something of yours, do you yell at him/her?	0.79	0.05	-0.03
10. ... makes fun of you, do you hit him/her?	0.76	-0.10	0.03
2. ... pushes and hurts you, do you hit him/her?	0.72	-0.05	0.01
3. ... breaks something of yours, do you do the same?	0.68	0.05	0.03
1. ... makes fun of you, do you yell at him/her?	0.63	0.07	-0.01
7. ... breaks something of yours, do you tell the teacher?	0.05	0.85	-0.06
9. ... makes fun of you, do you tell the teacher?	-0.01	0.76	0.01
5. ... hurts you, do you tell the teacher?	-0.03	0.74	0.07
8. ... pushes and hurts you, do you cry or pout?	-0.07	-0.03	0.92
4. ... makes fun of you, do you cry or pout?	0.06	-0.04	0.68
11. ... breaks something of yours, do you cry or pout?	0.06	0.10	0.60
Eigenvalue	3.97	2.63	1.40
% explained variance	-*	-*	-*
M	9.90	8.25	5.64
SD	4.30	2.98	2.43
Alpha reliability	0.87	0.83	0.78
Omega reliability	0.92	0.87	0.83

IR = internalizing reaction; M = mean; PARB-Q RPA = Peer Aggressive and Reactive Behaviors Questionnaire, Reaction to Peer Aggression Scale; RA = reactive aggression; SD = standard deviation; STS = seeking teacher support.

Extraction method: principal axis factoring (PAF) with promax rotation.

Items corresponding to each of the three factors are shown in bold.

* Explained variance not shown due to possible overlap derived from factor correlations.

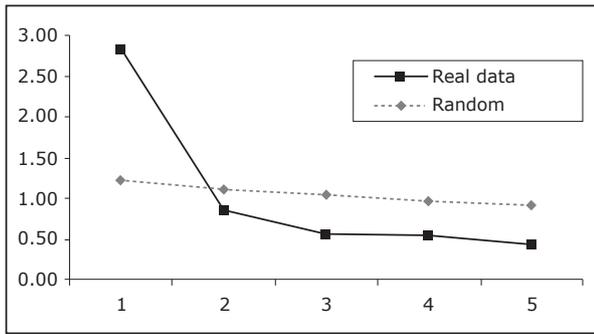


Figure 1 - Monte Carlo parallel analysis, Peer Aggressive and Reactive Behaviors Questionnaire, Peer Aggression Scale

produced the following values: Factor I, RA, alpha = 0.87 and McDonald's omega = 0.92; Factor II, STS, alpha = 0.83 and McDonald's omega = 0.87; and Factor III, IR, alpha = 0.78 and McDonald's omega = 0.83.

As described above for the PA analysis, a parallel analysis^{44,47} calculated from 500 random matrices with 95%CI was conducted to confirm the factor structure of the RPA scale: RA, STS, and IR. The results show that the three-factor structure is appropriate for the dataset (Figure 2).

With regard to correlations among the factors comprising the RPA scale, RA was correlated with IR ($r = 0.26$; $p < 0.01$) and IR was correlated with STS ($r = 0.29$; $p < 0.01$). The RA and STS factors were not correlated with each other. Finally, both the RA and the IR factors were correlated with the PA scale ($r = 0.69$, $p < 0.01$; and $r = 0.21$, $p < 0.01$; respectively), but not the STS factor.

Once again, a confirmatory factor analysis was performed with the second half of the sample ($n = 364$) for the three factors of the RPA scale. The three-factor solution produced excellent fit indices ($\chi^2/df = 2.337$; SRMR = 0.0563; RMSEA [90%CI] = 0.061 [0.047-0.075]; CFI = 0.96; TLI = 0.95).

Convergent validity and criterion validity

For the assessment of convergence, analyses were conducted to assess the correlation between the PA/

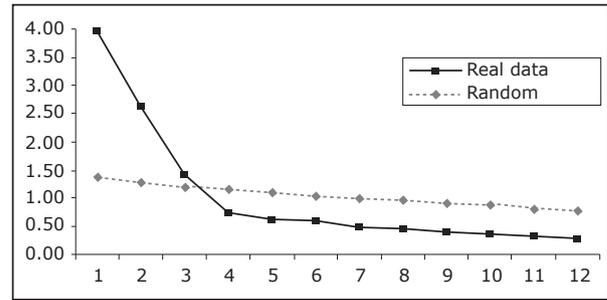


Figure 2 - Monte Carlo parallel analysis, Peer Aggressive and Reactive Behaviors Questionnaire, Reaction to Peer Aggression Scale

RPA scales (and their factors) and the ASCYP.³³ The criterion analysis evaluated the classifications of the children into the clinical and non-clinical groups based on the following CBCL scales³²: Social Problems, Aggressive Behavior, Rule-Breaking Behavior, and Conduct Disorders (Table 3).

The PA scale was positively correlated with the two scales comprising the ASCYP instrument (aggressive behavior in the school environment and in the family environment) and with the total ASCYP score. Similarly, the PA scale was positively correlated with the following CBCL scales: Social Problems, Rule-Breaking Behavior, and Aggressive Behavior. It also had a significant positive correlation with the Conduct Disorders scale.

As for the RPA scale, the RA factor was positively correlated with the ASCYP family score, with the ASCYP school score, and with the total ASCYP score. It was also positively correlated with all four CBCL scales: Social Problems, Rule-Breaking Behavior, Aggressive Behavior, and Conduct Disorders. The STS factor had a significant negative correlation with the Rule-Breaking Behavior and the Conduct Disorders scales of the CBCL. Finally, the IR factor was positively correlated with the ASCYP family score, the ASCYP school score, and the total ASCYP score, and with the Rule-Breaking Behavior and Conduct Disorders scales of the CBCL.

Table 3 - Convergent and criterion validity, Peer Aggressive and Reactive Behaviors Questionnaire, Reaction to Peer Aggression Scale (PA) and Reaction to Peer Aggression Scale (RPA)

	PA	RA	STS	IR
ASCYP Family	0.32*	0.41*	0.02	0.16*
ASCYP School	0.48*	0.52*	-0.06	0.21*
ASCYP Total Scale	0.47*	0.55*	-0.01	0.22*
CBCL Social Problems	0.19*	0.16 [†]	-0.06	0.05
CBCL Rule-Breaking Behavior	0.31*	0.23*	-0.14 [†]	0.16 [†]
CBCL Aggressive Behavior	0.23*	0.15*	-0.12	0.11
CBCL/DSM Conduct Problems	0.35*	0.26*	-0.13 [†]	0.62*

PA = Peer Aggression Scale; RA = reactive aggression; STS = seeking teacher support; IR = internalizing reaction.
* $p < 0.01$; [†] $p < 0.05$.

Table 4 - Mean PARB-Q scores according to sex and age

Variables	Boys (n = 378)	Girls (n = 349)	F	p
	Mean (SD)	Mean (SD)		
PARB-Q PA	8.31 (3.17)	7.22 (2.75)	22.25	< 0.001
PARB-Q RPA				
Reactive Aggression	10.81 (4.60)	8.95 (3.92)	33.47	< 0.001
Seeking Teacher Support	8.14 (3.01)	8.59 (2.85)	3.70	0.05
Internalizing Reaction	5.59 (2.45)	6.03 (2.47)	5.75	0.01

PARB-Q = Peer Aggressive and Reactive Behaviors Questionnaire; PA = Peer Aggression Scale; RPA = Reaction to Peer Aggression Scale; SD = standard deviation.

Differences in group means for PA and RPA

To assess the mean differences between boys and girls, MANCOVA was performed for each of the PARB-Q factors. Age was inserted as a covariate because it was significantly correlated with the factors of the instrument. The MANCOVA produced statistically significant results ($F_{[4,721]} = 13.15$; Wilk's lambda = 0.93; $p < 0.001$) for all variables evaluated. For the PA scale and for the RA factor of the RPA scale, boys' scores were higher than those of girls. Conversely, the girls showed higher scores for the STS and IR factors of the RPA scale (Table 4).

Discussion

The results of the EFA indicated a one-factor solution for the PA scale and a three-factor solution for the RPA scale. All factors demonstrated acceptable internal consistency indices, similar to those reported for the original instrument.²⁶ The results of the EFA were corroborated by a parallel Monte Carlo analysis, which has a strong power to analyze the structure of instruments. The confirmatory analyses run for both scales (PA and RPA) also yielded good fit indices, confirming the adequacy of the measurement and demonstrating that both the PA and the RPA scales are reliable tools for the assessment of children's aggressive and reactive behaviors. In sum, the structure of the Brazilian version of the PARB-Q was similar to the one described for the Italian version.²⁶

The PA scale and the RA factor of the RPA scale were correlated with the ASCYP and CBCL instruments, indicating consistency with the intended purpose of assessing aggressive behaviors and aggressive reactions to such behaviors. Also, both the PA scale and the RA factor of the RPA (related to deliberate aggression and aggressive reactions, respectively) were correlated with each other. They were also correlated with aggressive behavior in the school environment and in the family environment, as measured by the ASCYP scales. Finally, the PA scale and the RA factor of the RPA scale

demonstrated significant positive correlations with the CBCL scales (Table 3), which measure a series of behavioral problems commonly associated with aggressive behavior.⁴⁸

In the Italian validation study,²⁶ there was a low interfactor correlation between STS and IR ($r = 0.22$, $p < 0.001$) and a low albeit significant correlation between RA and IR ($r = 0.13$, $p < 0.001$), while RA and STS were uncorrelated ($r = -0.08$, $p > 0.05$). A strong correlation was also found between PA and RA ($r = 0.72$, $p < 0.001$), while significant but low correlations were found between PA and STS ($r = -0.12$, $p < 0.001$) and between PA and IR ($r = 0.17$, $p < 0.001$).

The findings of this study deserve further investigation, as we did not specifically measure social skills and prosocial behaviors. One may think that children who seek support tend to show effective adaptive behaviors and coping strategies when they are victims of aggression by their peers. Indeed, children who turn to the teacher when victimized tend to use less aggressive responses, minimizing the risk of further victimization. Conversely, children who react impulsively or emotionally tend to experience greater victimization and stress.⁴⁹ Some studies have shown that ignoring the aggression and seeking the effective support of an adult is associated with a decrease in the probability of future aggression, and has been considered a more effective strategy for responding to aggression/victimization from peers when compared to aggressive reactions. Aggressive responses, in turn, are associated with higher levels of victimization.^{23,24} Other studies, however, report that seeking support is an effective strategy for girls, predicting lesser levels of victimization in this group, but is associated with higher levels of victimization in boys.^{24,50}

Finally, there were significant positive correlations between the IR factor and all PARB-Q factors. The IR factor also correlated with the two factors of the ASCYP instrument and with the Rule-Breaking Behavior and Conduct Disorders scales of the CBCL. These associations indicate that children may have different

reactions to aggression from their peers. Children who have internalized responses to aggression (crying and pouting) may also behave aggressively depending on the context in which the interaction occurs. In addition, aggressive behaviors are commonly reported as a result of constant victimization, which causes the child to feel sad and frustrated.⁵¹

The correlations between the two self-report instruments (PARB-Q and ASCYP) were moderate, except for the STS factor. However, the correlations between PARB-Q and the instrument answered by both the child and the parents (CBCL) were predominantly low. This result may be related to differences in the perceptions of the informants regarding the behavior of the child. The literature has shown that agreement between different informants about their impressions on the behavioral problems of a child tends to be low.^{52,53} In spite of these differences, the correlations between the PA scale and the RA factor of the PARB-Q on the one hand, and the CBCL scales on the other, were significant, indicating that the instruments assess similar and theoretically related constructs.

With regard to gender differences, boys showed higher mean values on the PA scale and on the RA factor, whereas girls showed higher mean values on the STS and IR factors. These results are in line with the literature that shows that boys tend to act and react more aggressively than girls.^{3,15} In the Italian study,²⁶ males scored significantly higher than females in both PA and RA scales (PA: Welch's test_(1,435) = 40.88, $p < 0.001$; RA: Welch's test_(1,392) = 44.47, $p < 0.001$). Females scored higher than males on IR ($F_{(1)} = 10.76$, $p = 0.001$), but differences in STS scores were not statistically significant ($F_{(1)} = 3.47$, $p = 0.06$).

Conclusion

The present study aimed to present evidence of validity of the PARB-Q in the Brazilian context. The results of the statistical analyses indicated that the PARB-Q has good psychometric properties and satisfactory validity and reliability, making it a useful tool for assessing aggressive behavior as well as children's reactions to aggression by their peers. Our results corroborate the findings reported for the original scale.²⁶

The PARB-Q is a quick, inexpensive, easy-to-administer instrument. It may be applied either individually or collectively, in a clinical context or at school. In addition, the questionnaire fills an important gap in the Brazilian literature, by assessing both aggressive behavior and reactions to peer aggression among schoolchildren.

In Brazil, studies focusing on children's aggressive behaviors are recent, especially when compared to the high number of international publications in the field – a fact that probably reflects the lack of Brazilian instruments to assess this construct. Thus, there is an urge for studies aiming to design or adapt new instruments to assess child aggressive behavior and to discriminate between proactive and reactive aggressive behavior.

The present study has limitations, some of which have already been discussed. First, our sample was not representative of the Brazilian population, precluding generalization. Further, participants could not be distributed according age, which did not allow a more detailed analysis of the relationship between age and the behaviors assessed by the PARB-Q. Also, the present study did not include measurement tools related to coping or support-seeking behaviors among the victimized children, so as to present further evidence of the convergent validity of the instrument.

Future studies evaluating the association between the PARB-Q and support-seeking scales, as well as between aggressive behavior and internalizing reaction scales, are important to improve our understanding of the multiple strategies used by children who have to deal with aggression from their peers.

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Correspondence:

Juliane Callegaro Borsa
 Rua Marquês de São Vicente, 225, prédio Cardeal Leme, sala 201, Gávea
 22453-900 - Rio de Janeiro, RJ - Brazil
 Tel.: +55 (21) 3527.1185, Fax: +55 (21) 3527.1187
 E-mail: juliborsa@gmail.com

1) **Diz coisas ruins, debocha ou ri de você, você grita ou trata mal seu colega?** Sempre Às vezes Poucas vezes Nunca

2) **Bate ou empurra você, você bate no seu colega?** Sempre Às vezes Poucas vezes Nunca

3) **Pega ou estraga alguma coisa sua, você bate no seu colega ou estraga suas coisas?** Sempre Às vezes Poucas vezes Nunca

4) **Diz coisas ruins, debocha ou ri de você, você chora ou fica emburrado (chateado)?** Sempre Às vezes Poucas vezes Nunca

5) **Bate ou empurra você, você conta para a sua professora?** Sempre Às vezes Poucas vezes Nunca

6) **Pega ou estraga uma coisa sua, você grita ou trata mal o seu colega?** Sempre Às vezes Poucas vezes Nunca

QUANDO UM COLEGA SEU...

7) **Pega ou estraga uma coisa sua, você conta para a sua professora?** Sempre Às vezes Poucas vezes Nunca

8) **Bate ou empurra você, você chora ou fica emburrado (chateado)?** Sempre Às vezes Poucas vezes Nunca

9) **Diz coisas ruins, debocha ou ri de você, você conta para a professora?** Sempre Às vezes Poucas vezes Nunca

10) **Diz coisas ruins, debocha ou ri de você, você bate no seu colega?** Sempre Às vezes Poucas vezes Nunca

11) **Pega ou estraga suas coisas, você chora ou fica emburrado (chateado)?** Sempre Às vezes Poucas vezes Nunca

12) **Bate ou empurra você, você grita ou trata mal o seu colega?** Sempre Às vezes Poucas vezes Nunca

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