Anuario de Psicología
The UB Journal of Psychology | 53/1
Universitat de Barcelona

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Anuario de Psicología
N.º 53/1 | 2023 | págs. 9-21

Enviado: 3 de marzo de 2022
Aceptado: 22 de noviembre de 2022

DOI: 10.1344/ANPSIC2023.53/1.2

ISSN: 0066-5126 |

The quality of parental responsiveness: A preliminary validation of a new observational measure

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Abstract

The quality of parental responsiveness is one of the most influential dimensions in child attachment and is, therefore, the target of many family interventions. The purpose of this pilot study was to provide a preliminary validation of the Parental Responsiveness Quality (PRQ). This new observational measure tries to solve some of the limitations of the most commonly used previous instruments. The analyses were performed on a sample of 50 parent-child dyads. The internal structure was evaluated through an exploratory analysis (cluster analysis), which yielded five clusters. Four of them provided good reliability rates. Interjudge reliability was higher than .90, and the relationship with other variables, such as adult attachment style and parental stress, provides preliminary support for the measure's criterion validity. The PRQ measure promises to be a valuable tool in the evaluation of the quality of parental responsiveness among families with children between 1 and 6 years of age.

Keywords

Responsiveness, parental, evaluation, observational.

La qualitat de la responsivitat parental. Validació preliminar d'una nova mesura observacional

Resum

La qualitat de la responsivitat parental és una de les variables més relacionades amb el vincle d'afecció en els nens i, per això, és objecte de millora en moltes intervencions familiars. L'objectiu d'aquesta recerca és dirigir la validació d'una nova mesura observacional de la qualitat de la responsivitat parental (QRP) que pretén solucionar algunes de les limitacions dels instruments previs més utilitzats. Les anàlisis es van dur a terme amb una mostra de cinquanta parelles pare-fill. L'estructura interna es va avaluar a través d'una anàlisi exploratòria (anàlisi de conglomerats) i presentar cinc conglomerats. Quatre d'aquests conglomerats ofereixen bons índexs de fiabilitat. La fiabilitat interjudicial és superior a 0,90 i la relació amb altres variables com l'estil d'afecció adult i l'estrès parental confirmen la validesa del criteri de manera preliminar. L'instrument QRP promet ser una eina útil en l'avaluació de la qualitat de la responsivitat parental per a famílies amb nens d'entre un i sis anys.

Paraules clau

Responsivitat, parental, avaluació, observacional.

La calidad de la responsividad parental. Validación de una nueva medida obsetvacional

Resumen

La calidad de la responsividad parental es una de las variables más relacionadas con el vínculo de apego en los niños y, por ello, objeto de mejora en muchas intervenciones familiares. El objetivo de esta investigación es dirigir la validación de una nueva medida observacional de la calidad de la responsividad parental (CRP) que pretende solventar algunas de las limitaciones de los instrumentos previos más utilizados. Los análisis se realizaron con una muestra de cincuenta díadas padre-hijo. La estructura interna se evaluó a través de un análisis exploratorio (análisis de conglomerados) y arrojó cinco conglomerados. Cuatro de ellos ofrecen buenos índices de fiabilidad. La fiabilidad interjueces es superior a 0,90 y la relación con otras variables como el estilo de apego adulto y el estrés parental apoyan de forma preliminar su validez de criterio. El instrumento CRP promete ser una herramienta útil en la evaluación de la calidad de la responsividad parental para familias con niños entre uno y seis años.

Palabras clave

Responsividad, parental, evaluación, observacional.

INTRODUCTION

Parental sensitivity, defined as the ability to accurately perceive and interpret the infants' attachment signals, and to respond to them promptly and adequately (Ainsworth et al., 1987), is one of the most influential variables on the quality of child attachment (Behrens et al., 2016; Kim et al., 2021; van IJzendoorn, 1995) and on the child's development (Thompson, 2016). Ainsworth (1969) was the first to describe, broadly and in detail, the components of parental responses to children's needs in the Maternal Care Scales (MCS). This measure, made up of four dimensions (sensitivity, cooperation, availability, and acceptance), has been one of the most widely used instruments to evaluate the sensitivity dimension of parental care responses (Mesman & Emen, 2013).

In the last few decades, some other components of parental care have been identified as important in shaping child attachment styles. Among these components are parental narrative function (Siegel, 2001), attunement (Beebe et al., 2010), interactive repair (Beebe & Lachman, 2014; Siegel, 2001), and frightened/frightening behaviors (Bronfman et al.,1999; Hesse & Main; 2006).

Narrative function is a key element in fostering secure attachments, according to Siegel (2001), among others (see Thompson, 2015). Open affective communication in the daily interaction with parents provides the child with a greater understanding of emotions and mental states. The child's understanding of his own mental states and those of others are relevant to the construction of his inner world, and closely linked to the quality of attachment (Fonagy & Target, 2007; Ontai & Thomson, 2002).

Affect attunement and interactive repair have also been studied as critical components of a quality parental response. Affect attunement is defined as the parent's ability to match the child affective states in their contour, intensity and timing (Beebe et al., 2010).

Repair is the ability to reestablish attunement with the child after interactive ruptures (Siegel, 2001). Rupture-and-repair cycles help children acquire a sense of interpersonal agency and trust in the ability to overcome interactive difficulties. They also promote the development of effective communication within child-parent dyads (Beebe & Lachman, 2014).

Finally, *frightened-frightening behaviors* (e.g., threatening responses, scared behavior, role confusion, contradictory responses, sexualized behavior towards the child, disorganized behavior, dissociation and/or aggression) are related to attachment insecurity and, more specifically, to the disorganization of attachment (Hesse & Main, 2006; Lyons-Ruth & Jacobvitz, 2016). Madigan et al. (2006) conducted a meta-analysis where they found that children whose parents displayed these types of responses were 3.7 times more likely to show disorganized attachment than other infants.

After Ainsworths' Maternal Care Scales (1969), other measures have focused on the assessment of different components of the parental response (e.g., Emotional Availability Scales – EAS, Biringen, 2008; Parent-Child Early Relational Assessment –PCERA, Clark, 1985; CARE-Index, Crittenden, 2006; Parent Child Interaction-Nursing Child Assessment Feeding Scale – PCI-NCAFS; Oxford & Findlay, 2012; Maternal Behaviours Q-Sort, Pederson & Moran, 1995; Parenting Interactions with Children: Checklist of Observations Linked to Outcomes – PICCOLO, Roggman et al., 2013). However, these measures are not free of limitations concerning their scope, focus, and age scope/age of application (Bohr et al., 2018; Halty & Berástegui, 2021b; Mesman & Emen, 2013).

Concerning scope, some measures assess a limited set of components pertaining to parental care, (e.g., Child-Adult Relationship Experimental Index (CARE-Index), Crittenden, 2006). Others, despite showing a wider assessment scope, (e.g., Home Observation for Measurement of the Environment (HOME), Bradley & Caldwell, 1984), fail to include some of the aforementioned ingredients of parenting, which have been signaled as relevant by the literature. Moreover, the labels that are used to group different components of the parental response vary widely (e.g., "maternal responsiveness", Kochanska & Kim, 2013; "sensitive responsiveness", Tharner et al., 2012; "maternal responsivity", Wade et al., 2015; "maternal behaviour", Pederson et al., 1990; "caregiving system", George & Solomon, 2008), and, occasionally, the same label (e.g., sensitivity) is used with different meanings according to different authors or measurement tools. Sometimes, sensitivity is understood as a dimension of parenting; other times, it is used as a wider construct that encompasses various dimensions of the parental response (e.g., Maternal Behavior Q-sort (MBQ-S), Pederson & Moran, 1995), something that has been considered a significant limitation in the study of parenting for several years (Van de Boom, 1997; Verhage et al., 2022). In sum, there is no clear consensus within the literature on how to name the set of variables or dimensions of parental care that are significant for the development of attachment in the child.

Concerning the focus of assessment, although the literature differentiates caregivers' sensitivity towards both attachment and exploration needs, validated measures tend to approach parental sensitivity globally (Mesman & Emen, 2013). None of the reviewed instruments, including Ainsworth's MCS (1969), differentiate between parental responses towards attachment and parental responses toward exploration cues from the child. This impedes the thorough assessment of the impact of psychological interventions upon parents' sensitivity towards attachment and exploration (something that defines the essential objective of intervention models such as the Circle of Security project (Powell et al., 2013).

Finally, concerning the age scope, most observational measures are designed for dyads with children under 36 months of age (Halty & Berástegui, 2021a, Mesman & Emen, 2013), something that limits its applicability in the assessment and intervention with preschoolers and their parents. Specific patterns of attachment system activation among older children, as well as emerging interactions related to discipline and limit setting, are important dimensions of parent-child relationships beyond the earliest years (Siegel & Bryson, 2016). These may not be adequately covered by the aforementioned measures.

The purpose of this pilot study was to provide a preliminary validation of the Parental Responsiveness Quality (PRQ), an observational measure designed to assess the set of behaviors that a reference caregiver shows towards a specific child and have been highlighted in the literature as significant for the formation of child attachment patterns. This measure groups these variables under the label of *Quality of parental responsiveness*. We use the term "responsiveness with the intention of providing a word that is close to "(parental) response", while preventing the overemphasizing of "sensitivity" over other characteristics of parenting that, as mentioned above, are also important. It must be noted that this term has already been used to define aspects related to frequency and latency of response, as well as a synonym, at times, of Ainsworth's (1969) sensitivity. Therefore, we decided to articulate the construct with the term "quality", in order to address the suitability or appropriateness of parental response.

Our instrument tries to overcome the aforementioned limitations affecting other measures, by including components that the scientific literature deems relevant to attachment development, such as narrative function, attunement and repair, and frightened-frightening behaviors, differentiating parental responses towards attachment and exploration needs and, finally, assessing dyads with children from 1 to 6 years old. Design and content validation processes have been described in a previous publication (Halty, 2014).

For the evaluation of convergent validity, two of the variables most frequently related to the quality of the parental responsiveness in the literature were selected: parents' attachment style, and parenting stress (see, for example, van IJzendoorn & Bakermans-Kranenburg, 2019). Regarding adult attachment, the autonomous (or secure) adult state of mind towards attachment is associated with better parental care capabilities than the insecure or disorganized adult styles of attachment (George & Solomon, 2008; van IJzendoorn & Bakermans-Kranenburg, 2019). On the other hand, parenting-related stress can negatively affect the quality of parental responsiveness, even among parents whose mental state regarding attachment is autonomous (or secure) (Mills-Koonce et al., 2011; van IJzendoorn & Bakermans-Kranenburg, 2019). We expected to find significant relationships be-

tween the new measure and these two variables within the context of convergent validity.

METHOD

Participants

Fifty Spanish parent-child dyads participated in this study. 74% of parents were female and their average age was 36.6 years (SD = 4.93). Children's average age was 34.2 months (SD = 15.19). There were two principal inclusion criteria; the participating parent had to be one of the primary caregivers of the child, and children had to be between 1 and 6 years of age. Intellectual or developmental disability in children was an exclusion criterion.

The socio-economic status of these families mainly was middle-income (45.8%), and their educational level was undergraduate primarily (70%). Most of the parents worked (76%), and 96% had a partner at the time of the study. Only 8% of the participants received support from social organizations that had previously detected relational problems among these parent-child dyads.

Instruments

- The Parental Responsiveness Quality (PRQ) measures the quality of parental responsiveness among caregivers with children aged 12 to 71 months. It consists of 41 items (20 direct, 21 reverse), 9 of which assess aspects of parental response related to risk (e.g., behavioural aggression), and five response options (see Table 1 and Table 2). All items were used to assess each of four recorded episodes of a protocolized parent-child interaction procedure (see below for details). Scorings for each item across the four episodes are summed into a total score per item. Higher scorings reflect better quality of the parental responsiveness (i.e., more attunement, more sensitivity towards attachment-exploration needs, less frightened-frightening responses, etc.). The instrument has adequate content validity (Halty, 2014). Reliability and validity scores for this sample are reported in the Results section. The main author and a professional certified in using the measure scored the present sample.
- The Spanish short Version CaMir-R (Balluerka et al., 2011) of the Cards-Individual Models of Relationship (CaMir) (Pierrehumbert el al., 1996). It measures the representations of adult attachment according to 32 items, with response options ranging from 1 to 5. The instrument is composed of seven dimensions: *safety* (e.g., "Siento confianza en mis seres queridos"/"I feel trust in my loved ones"; α = .95); *parental interference* (e.g., "Desearía que mis hijos fueran más autónomos de lo que yo lo he sido"/"I wish my children were more autonomous than I have been"; α = .83); *value of parental authority* (e.g., "Es importante que el niño aprenda a obedecer"/"It is important that the child learns to obey"; α = .83); *childhood trauma* (e.g., "Cuando era niño(a) había peleas insoportables en casa"/"When I was a child, there were unbearable fights at home"; α = .84); *family concern* (e.g., "Cuando me alejo de mis seres queridos no me siento bien conmigo mismo"/"When I am away from my loved ones I do not feel good about myself"; α = .68); *value of parental permissiveness* (e.g., "Cuando era niño(a) tenían una actitud de dejarme hacer"/"When I was a child, they let me be"; α = .66), and *self-sufficiency and resentment against parents* (e.g., "Detesto el sentimiento de depender de los demás"/"I hate the feeling of depending on others", α = .52).
- The Parental Stress Index Short Form (PSI-SF, Abidin, 1995, Spanish version by Díaz-Herrero et al., 2010) evaluates parenting-related stress through 36 statements which parents must rate on a 5-point Likert scale. It consists of three subscales, comprised of 12 items each: *Parental Distress* (e.g., "Me siento atrapado por mis responsabilidades como padre/madre"/"I feel trapped by my responsibilities as a parent."; α = .85); *Parent-Child Dysfunctional Interaction* (e.g., "Mi hijo me sonríe mucho menos de lo que yo esperaba"/"My son smiles at me much less than I expected"; α = .82), and *Difficult Child* (e.g., "Mi hijo me exige más de lo que exigen la mayoría de los niños"/"My son demands more from me than most children do"; α = .82).

Table 1. Frequency values for direct, inverse, and risk items.

Type of item	Response options			
	Never	Sometimes	Many times	Always
Direct	–2	–1	1	2
Reverse	1	–1	–2	–3
Risk	1	–1	–3	–6

Note: Direct items score negative when the behavior does not appear or appears on few occasions, and score positive when there is enough presence of the behavior. Reverse and Risk items score positively only when they don't appear and negatively when there is even a low presence of them. Risk items duplicate their value by its condition.

Procedure

For participant recruitment, information about this research was disseminated through collaborating institutions, social media, and online parenting blogs/resources and platforms. In order to ensure the participation of vulnerable population, contact was made with Social Services.

Evaluations were conducted in a Psychosocial Intervention Unit belonging to a university in the city of Madrid (Spain). They were conducted in a one-way mirrored room, with toys for different ages. The interactive protocol is adapted from the Strange Situation Procedure (Ainsworth et al., 1978). In order to activate distress

among children older than 18 months, two elements were added to Ainsworth's protocol, namely: an unanticipated, loud siren noise sounded from an undisclosed location into the room where children and caregivers were interacting, and an adult-guided task (picking up the toys) was asked from participating dyads. All parents were able to manage their children's stress in these situations appropriately. If this had not been the case, researchers would have entered the room to stop the procedure and provide support.

Thus, the complete protocol consisted of 15 minutes of recorded parent-child interaction, structured around five moments or "tasks": free interaction (3min); stressor (siren) (3 min.); child alone (3 min); reunion (3 min), and pick-up (3 min). The main author scored the present sample, and 10% of it was also analyzed by the third author to calculate interjudge reliability.

Participants filled self-reports at home and mailed them to the university in a postage-paid envelope. As compensation for their participation in the project, parents were invited to a free parenting workshop.

The assessment procedure was approved by an Ethics Committee belonging to the authors' university. The research complied with the international ethical standards of the American Psychological Association (APA, 2017), as well as the ethical principles of the Declaration of Helsinki (World Medical Association, 2017). In accordance with these ethical principles, all participants were informed about the research process, confidentiality was ensured, data protection information sheets were delivered, and informed consent forms were signed.

Data analysis

A hierarchical cluster analysis was performed to provide evidence of the validity of the internal structure, by applying Ward's method. The factorial analysis was not performed due to the low subject-item ratio (Abad et al., 2011). Interjudge reliability was analyzed in 10% of the videos chosen at random. The intraclass correlation coefficient of each of the dimensions resulting from the internal structure analysis was also evaluated. The reliability of each of the dimensions and the global reliability were explored through Cronbach's alpha. Finally, correlations between the Quality of Parental Responsiveness instrument and other variables were analyzed to determine the criterion validity.

RESULTS

Internal structure

An analysis of frequencies was performed to determine item dispersion. Two items presented the value "never" in all cases and were eliminated from all subsequent analyses (26 = *Dissociated or numb* and 37 = *Role reversal*). Internal structure analysis was conducted through hierarchical analysis by applying Ward's method to the average value of the scores obtained at each moment of evaluation per item. Results suggested that the most coherent interpretation of the measure's internal structure consisted of five clusters (Figure 1). Table 2 shows the relationship between the item number, its label and the title of their cluster.

The first cluster is entitled *Acceptance and respect* and includes 14 reverse items, reflecting active rejection (aggression and hostility), passive rejection (absence), the imposition of the adult's rhythm upon the child's activity, and lack of respect for the child's needs.

Cluster 2, *Physical and psychological availability*, consists of eight items involving the caregiver's availability or accessibility.

Cluster 3, *Sensitivity to attachment needs,* includes items that reflect the parent's ability to respond towards the child's attachment needs in a sensitive manner. Item 25, *Distracted*, also belongs to this cluster, although it could be understood as not belonging directly to this category, it is reasonable to think that it is very much related (inversely) to the quality of the parental response towards attachment.

Figure 1. Dendrogram of the 39 items analyzed with Ward's method illustrating the grouping of the items in the 5 different clusters.

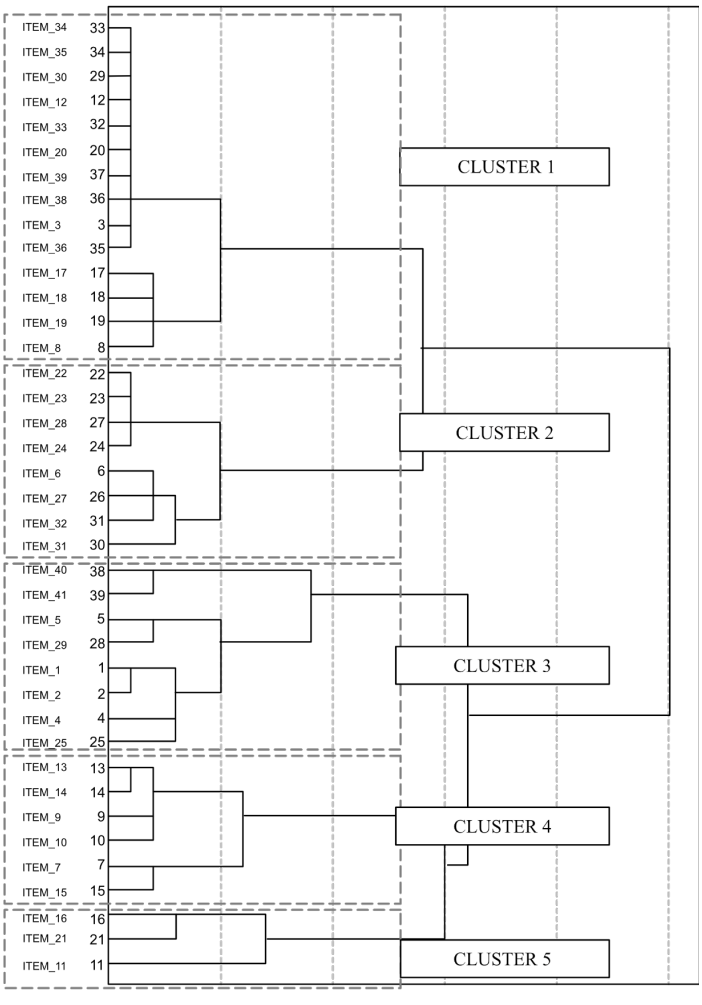

Table 2. Number and type of items, label and membership clusters.

Item	Item label	Cluster
34[a]	Behavioral aggression	1: Acc. & Resp.
35[a]	Inconsistent physical or verbal aggression	
30[b]	Caregiver offers affection, care, pampering when the child is in the exploration phase in such a way that it interrupts or hinders the child's activity	
12[a]	Assigns inappropriate words to the child's condition	
33[a]	Verbal aggression	
20[a]	Mechanical/robotic responses	
39[a]	The caregiver is fearful	
38[a]	Stimulates role distortions "an adult with adult" relationship with the child	
3[b]	Responds to attachment needs with excessive intensity	
36[a]	Making fun of the child's results, discredits him or her	
19[b]	Refuses to support the exploration	
17[b]	Physically invades the child's space	
18[b]	Resolves the activities that the child tries to perform without the child having expressed the need to be helped	
8[a]	Responds with excessive intensity to the need for exploration	
22	Physically available	2: Phy. & Psy. Avail.
23	Physically receptive (open body)	
28	Comfortable in proximity	
24	Follow-up behaviors	
6	Correctly responds to the child's need for exploration	
27	Accompanies the child's mood with congruent facial expressions	
32	Tender and affectionate verbal expression	
31	Comfortable with child venturing on his or her own/autonomy	
40	Says goodbye properly	3: Sens. to attach.
41	Meets properly	
5	Threshold too high facing the attachment need	
29[b]	Caregiver offers activities, games, etc. (stimulates exploration) when the child shows a need for affection, love, pampering, consolation, etc. (attachment)	
1	Correctly responds to the child's attachment need	
2	Responds with sufficient intensity to the attachment need	
4	Repairs (corrects) the need for attachment	
25[b]	Distracted	
13	Verbally accompanies the child's exploration process	4: Sens. to expl.
14	Scaffolding	
9	Makes reparations (corrects) facing the exploration need	
10[b]	Threshold too high facing the exploration need	
7	Responds with sufficient intensity facing the exploration need	
15	Stimulates (invites)	
16[b]	Interrupts the game	5: Coop. & narr.
21[b]	The game is a task	
11	Assigns adequate words to the child's mood	

Note: [a]= Risk and reverse item, [b]= Reverse item, Acc. & Resp. = Acceptance and respect, Phy. & Psy. Avail. = Physical and psychological availability, Sens. to attach. = Sensitivity to attachment needs, Sens. to expl. = Sensitivity to exploration needs, Coop. & narr. = Cooperation and narrative.

Cluster 4, *Sensitivity to exploration needs*, comprises six items that reflect the parent's ability to respond towards the child's exploration needs in a sensitive and proactive manner.

Finally, Cluster 5, *Cooperation and narrative*, consists of three items that comprise parental support of the child's play activity and narrative function.

Reliability

The *Acceptance and respect* cluster obtained a Cronbach alpha of .78. Although the reliability is good, Table 3 shows that the item-total correlation of items 20, 38 and 39 is less than .10, which indicates a very low contribution to the cluster's total score.

The reliability obtained for the clusters *Physical and psychological availability* (α = .93), *Sensitivity to attachment need* (α = .93) and *Sensitivity to exploration need* (α = .92) are very high and all the items show an adequate behavior (see Table 3).

The last cluster, *Cooperation and narrative*, obtained the lowest reliability of all, (α = .41). A possible interpretation of this result is considered within the Discussion section.

Table 3. Item-total correlation for each cluster and for the global measure of the Parental Responsiveness Quality (PRQ).

Cluster label	Item	Item-cluster correlation	Item-total correlation
Acceptance and respect	3	.268	.038
	8	.615	.486
	12	.266	.308
	17	.865	.644
	18	.738	.522
	19	.536	.603
	20	.043	.247
	30	.627	.663
	33	.600	.614
	34	.683	.614
	35	.683	.232
	36	.119	.320
	38	–.027	.496
	39	–.057	.630
Physical and psychological availability	6	.827	.871
	22	.809	.863
	23	.842	.881
	24	.806	.854
	27	.898	.774
Physical and psychological availability	28	.800	.496
	31	.568	.799
	32	.720	.709
Sensitivity to attachment needs	1	.905	.841
	2	.883	.787
	4	.875	.796
	5	.850	.769
	25	.723	.867
	29	.573	.554
	40	.563	.396
	41	.743	.863
Sensitivity to exploration needs	7	.694	.362
	9	.696	.780
	10	.800	.823
	13	.843	.725
	14	.894	.756
	15	.768	.526
Cooperation and narrative	11	.070	.220
	16	.460	.689
	21	.282	.396

Table 4. Descriptors of the Parental Responsiveness Quality (PRQ) instrument and its dimensions.

Cluster label	M	SD	Min.	Max.	Range
Acceptance and respect	0.832	0.247	–0.33	1.00	–4.71 /1.00
Physical and psychological availability	1.462	0.699	–1.17	2.00	–2.00 / 2.00
Sensitivity to attachment needs	0.866	0.878	–2.25	1.67	–2.38 / 1.63
Sensitivity to exploration needs	0.717	0.915	–1.44	1.83	–2.17 / 1.83
Cooperation and narrative	–0.496	0.610	–1.89	.53	–2.67 / 1.34
Total	**0.846**	**0.498**	**–1.14**	**1.39**	**–2.78 / 1.56**

Note: Min. = Minimum total score obtained by a participant, Max. = Maximum total score obtained by a participant, Range = minimum and maximum scores for cluster.

The overall reliability of the measure was very high (α = .96), where item 3 would be the only one not working properly (see Table 3).

Finally, Table 4 shows the descriptive data of each of the PRQ dimensions.

Interjudge reliability

The reliability of the observation was assessed with 10% of the total sample of videos, chosen at random, through the intraclass correlation coefficient between the evaluations of two of the judges. All values were higher than .90, making interjudge reliability very high. When scores diverged between judges, both researchers discussed their scoring and reached an agreement.

Criterion-related validity

The PRQ measure shows significant relationships with both instruments, CaMir-R and PSI-SF (see Table 5). Concerning CaMir-R, security in adult attachment is related to better quality of parental responsiveness, while family concern, self-sufficiency and resentment or value of parental authority, are related to worse global quality of parental responsiveness, and most of the PRQ dimensions. All relationships are of moderate magnitude.

All the dimensions of the PRQ are significantly related to parental stress, as measured by the PSI-SF, so that the greater the stress, the lower the quality of the parental response in all its dimensions.

Table 5. Pearson correlations between Parental Responsiveness Quality (PRQ) and the CaMir-R and Parental Stress Index-Short Form (PSI-SF) instruments.

		PRQ					
Measures		**Total**	**Acc. & Resp.**	**Phy. & Psy. Avail.**	**Sens. to attach.**	**Sens. to expl.**	**Coop. & dub.**
CaMir-R							
Safety	r	.309*	.352*	.319*	.179	.317*	–.018
	p	0,029	0,012	0,024	0,213	0,025	0,899
Family Concern	r	–.396**	–.206	–.436**	–.286*	–.391**	–.181
	p	0,004	0,151	0,002	0,044	0,005	0,209
P. Interference	r	–.085	–.085	–.153	–.041	–.069	.104
	p	0,558	0,558	0,288	0,775	0,634	0,470
V. of P. Authority	r	–.294*	–.227	–.326*	–.370**	.046	–.421**
	p	0,038	0,114	0,021	0,008	0,752	0,002
P. Permissiveness	r	–.183	–.037	–.123	–.183	–.279*	.053
	p	0,205	0,800	0,395	0,204	0,050	0,717
S.-suff. & Resent.	r	–.389**	–.281*	–.389**	–.283*	–.407**	–.015
	p	0,005	0,048	0,005	0,046	0,003	0,920
Childhood Trauma	r	–.177	–.182	–.208	–.196	–.084	.094
	p	0,218	0,205	0,148	0,172	0,560	0,516
PSI_SF							
Total	r	–.398**	–.374**	–.378**	–.345*	–.370**	.052
	p	0,004	0,007	0,007	0,014	0,008	0,720
Parental Distress	r	–.332*	–.218	–.338*	–.246	–.397**	.066
	p	0,019	0,129	0,016	0,086	0,004	0,647
Dysf. Interaction	r	–.413**	–.371**	–.379**	–.462**	–.232	–.088
	p	0,003	0,008	0,007	0,001	0,105	0,543
Difficult Child	r	–.271	–.366**	–.240	–.214	–.256	.102
	p	0,057	0,009	0,093	0,135	0,073	0,483

Note: Acc. & Resp. = Acceptance and respect; Phy. & Psy. Avail. = Physical and psychological availability; Sens. to attach. = Sensitivity to attachment need; Sens. to expl. = Sensitivity to exploration need; Coop. & dub. = Cooperation and narrative; P. =Parental; V. = Value; S.-suff. & Resent.= Self-sufficiency & Resentment; Dysf. =Dysfunctional.
* p < .05; ** p < .01.

DISCUSSION

The purpose of this study was to provide a preliminary validation of the Parental Responsiveness Quality (PRQ). This measure was developed to evaluate the quality of parental responsiveness, overcoming limitations of previous instruments (Halty & Berástegui, 2021b, Mesman & Emen, 2013), by incorporating relationship dimensions explored by the recent literature and by discriminating parental responses towards the child's attachment and exploration needs.

The final version of the PRQ consisted of 39 items that showed an internal structure of five dimensions. The first, called *Acceptance and respect* (14 items), is defined as the caregiver's ability to respond respectfully and comprehensively to the child's needs, showing kindness, and maintaining a caregiving role. All its items are formulated inversely with respect to what would be considered an adequate, sensitive parental response. Nine of these items (e.g., "Behavioral aggression") are considered as risk factors for the development of very insecure/traumatic parent-child relationships. Specifically, this dimension comprises all the items that were inspired by the FR (Frightened/Frightening) scale (Hesse & Main, 2006) or the AMBIANCE scales (Lyons-Ruth et al., as cited in Lyons-Ruth & Jacobvitz, 2016). Three of these risk items ("Caregiver is fearful", "Caregiver stimulates role distortions 'an adult with adult relationship' with the child", and "Caregiver makes fun of the child's achievements, discredits him/her") showed low item-total correlations, despite which they were not eliminated from the questionnaire. The infrequent occurrence of these indicators should not make us forget the importance of detecting them in case they appear. Future research will need to use wider and more diverse samples concerning risk and family adversity, in order to better explore these items, their functioning, and whether they should remain within the measure.

The dimension of *Physical and psychological availability* (8 items) is defined as the caregiver's tendency to remain accessible, both with his/her body and with his/her attitudes and responses towards the child. Six of its eight items (e.g., "Caregiver is physically available") are directly extracted from Ainsworth's description of availability dimension (1969), and the other two items (e.g., "Caregiver responds adequately to the child's need for exploration") are closely related to it (Halty & Berástegui, 2021a)).

The dimension of *Sensitivity to attachment needs* (8 items) is defined as the caregiver's ability to provide an adequate and consistent response, in terms of intensity and attunement, to the child's manifestations of distress (e.g., soothing the child, adopting a warm stance when child is in distress, etc.). On the other hand, the dimension of *Sensitivity to exploration needs* (6 items) could be defined as the caregiver's ability to allow, encourage and reinforce the child's exploratory behavior with adequate intensity (e.g., supporting the child's play activity, giving praise, etc.). Sensitivity appears in many of the measures that assess parental responsiveness (e.g., Emotional Availability Scales- EAS, Biringen, 2008; CARE-Index, Crittenden, 2006; Parent Child Interaction-Nursing Child Assessment Feeding Scale – PCI-NCAFS; Oxford & Findlay, 2012; Maternal Behaviours Q-Sort, Pederson & Moran, 1995), although PRQ is the only one that discriminates between sensitivity towards exploration and attachment needs. Within these two dimensions, our measure assesses other aspects of the parental response, such as *attunement* (e.g., "Parent responds with sufficient intensity facing the exploration need"; "Parent responds with sufficient intensity to the attachment need"), which, although present among different instruments such as the MCS (Ainsworth, 1969), the Child-Adult Relationship Experimental Index (CARE-Index) (Crittenden, 2006), or the Emotional Availability Scales (EAS) (Biringen, 2008), has not been previously approached in a discriminated way for both attachment and exploration. Moreover, the PRQ evaluates the caregiver's capacity for interactive *repair,* a phenomenon that, as the recent literature suggests, may be very significant for the development of attachment-related security (Beebe & Lachman, 2014). Interactive repair is not approached as a specific focus of observation within the instruments that we reviewed. As is the case with previously discussed aspects of parenting, the PRQ evaluates interactive repair both in the face of the child's attachment and exploration needs (e.g., "Parent repairs in the face of attachment signals"; "Parent repairs in the face of exploration signals").

Regarding *Cooperation and narrative* (3 items), scores on reliability were low and the interpretation of its content does not provide an easily differentiable dimension. In addition, even participants who show good or very good global quality indices of parental responsiveness have obtained low or negative scores in this dimension. This score may be due in large part to the scores obtained in item 11 ("Caregiver assigns adequate words to the child's mood"), which are, in general, of very low frequency. We would expect to find a different grouping of these three items in future analyses with larger and more diverse samples. At present, its use as an independent scale is discouraged and it should only be considered for the total score of the PRQ.

Therefore, this measure offers a broad assessment of the quality of parental responsiveness. In addition to presenting the dimensions originally proposed by Ainsworth (1969) and incorporating elements such as attunement or interactive repair –separately assessed for each of the child's needs – it also includes frightening parental behaviors (within the *Acceptance and respect* dimension, as mentioned above). These risk elements for the disorganization of attachment are only present in measures that specifically assess this aspect of parental response, such

as Frightened/Frightening (FR) (Hesse & Main, 2006), Disconnected and extremely Insensitive Parenting (DIP) (Out et al., 2009), or Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE) ((Lyons-Ruth et al., as cited in Lyons-Ruth & Jacobvitz, 2016). In this sense, we believe our measure enables both researchers and clinicians to assess the quality of parental responsiveness in both positive and negative terms. We also see the PRQ as a broad measurement in relation to the child's age. Most observational measures are designed for dyads with children under 36 months of age (Halty & Berástegui, 2021b, Mesman & Emen, 2013), while the present measure allows the assessment of dyads with children aged 1 to 6 years.

The results of this study provide sufficient preliminary evidence of the adequate internal structure of the instrument and very good data on its global and dimensional reliability (except for the *Cooperation and narrative* dimension), which makes it possible to differentially evaluate the caregiver's response to the child in terms of attachment and exploration. However, it should be noted that the dimensional structure found may undergo modifications in future confirmatory-type analyses conducted with larger sample sizes.

Regarding the criterion validity, significant relationships were obtained between the PRQ measure and the adult attachment measure CaMir-R. The relationship with its *safety* dimension supports previous research that relate the adult autonomous attachment states of mind towards attachment with adequate forms of parental care (George & Solomon, 2008; Haltigan et al., 2014). The inverse relationship between the PRQ and *family concern* supports the general description of caregivers with preoccupied adult attachment who, according to Haltigan et al. (2014), tend to regulate their affective states through emotional hyperreactivity, something that could hinder their ability to adequately manage the child's needs. The relationship between the quality of parental responsiveness and adult dismissing state of mind towards attachment shown in the literature (George & Solomon, 2008), is also seen in the inverse relationship of PRQ measure with the dimension of *self-sufficiency and resentment against parents*. Dismissing state of mind towards attachment is characterized by the use of deactivation as a preferred regulatory mechanism, something that may drive parents to diminish the importance of caring for the child's attachment experiences (Crowell & Feldman as cited in Haltigan, et al., 2014). Childhood trauma represents characteristics of unresolved adult attachment. No relationship was found between the PRQ and the CaMir-R in this regard, probably due to the homogeneity of the sample and its high levels of health and adaptation. The results also show a statistically significant relationship between PRQ and parental stress (as measured by the PSI), a result that is coherent with previous studies by Feldman, et al. (2004) or Mills-Koonce, et al. (2011), as well as with van IJzendoorn's recent model of factors involved in the intergenerational transmission of attachment (van IJzendoorn & Bakermans-Kanenburg, 2019).

This study has some limitations. First, the sample size is too small to perform confirmatory cluster analysis, so the resulting dimensions of this preliminary study and the items' permanence and placement within each factor should be taken with caution. Second, interjudge reliability was calculated with only 10% of the sample, something that warrants further exploration on reliability in future research works. Third, the low heterogeneity of our sample may have compromised our ability to assess properties of the risk items. The levels of dispersion in responses to these items were very low, because many participants belonged to normative and therefore low attachment-related risk populations. In future research with a larger and more diverse sample, it would be useful to establish scales and risk cut-off points in the assessment of the quality of parental responsiveness. Thus, the PRQ measure could be used as an instrument to detect risky attachment interactions/relationships.

Lastly, evidence-based attachment-centered interventions may benefit from validated measures that explore a wide array of factors related to the quality of parent-child attachment relationships, as we believe the PRQ measure does. In this sense, the ability of this measure to provide a discriminated view of parental responsiveness to the child's attachment and exploration needs may help therapists in designing individualized treatment plans for families. The management of parent groups, the therapeutic conversation within individual therapy, the interactive dynamics discussed in parent-child therapy, or the type of videos used in video-feedback, could be geared toward increasing the caregiver's ability to respond to the child's needs for comfort and protection (in the case of attachment) or self-affirmation and novelty-seeking (in the case of exploration). This is in accord with literature within the field of attachment-centered and parent-infant psychotherapies, where authors advocate for a precise definition of ports of entry, clinical foci, and treatment plans (Dugmore, 2014; Sameroff, 2004; Sossin, 2002; Stern, 1995). Furthermore, the instrument allows for a thorough assessment of the caregiver's specific competencies (or failures) for each of these needs. This means that, by using the PRQ, we can ascertain the caregiver's ability to detect, interpret, respond appropriately (in terms of promptness and intensity) or repair, with both attachment and exploration signals. This may serve as an indirect window into the parents' mentalizing abilities and representational world, which have been defined as central aspects of the parenting process (Camoirano, 2017; Fonagy et al., 2002; Huth-Boks et al., 2014; Slade, 2005; Smaling et al., 2016). Again, this aspect of our measure would constitute a very useful resource for the

planning of tailored interventions. Greater intervention efficiency would be derived from the ability to intervene on "what is lacking".

Also, the presence in the PRQ of items that assess risk within the caregiver-child relationship may help in detecting cases that warrant more intensive intervention, the assessment of protective needs in the child, or referral to individual psychotherapy services for parents, among others.

These are just a few instances of the implications of the PRQ for attachment-centered family intervention. We trust that future research may further illuminate the psychometric properties and practical advantages of this instrument.

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