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The Lum emotional availability of parents scale among Portuguese adolescents: a psychometric evaluation

Tânia Brandão[a] and Sofia Simão[b]

[a]William James Center for Research, ISPA-Instituto Universitário, Lisbon, Portugal; [b]School of Psychology, ISPA-Instituto Universitário, Lisbon, Portugal

ABSTRACT

Emotional availability of parents plays a crucial role in the psychological well-being and development of adolescents. However, previous studies have primarily focused on assessing maternal emotional availability. The Lum Emotional Availability of Parents (LEAP) scale was developed, considering both mothers' and fathers' emotional availability. This study aimed to examine the psychometric properties of the LEAP scale among Portuguese adolescents ($N = 202$). The results confirmed the unifactorial structure of the LEAP scale. Convergent construct validity was supported. Specifically, adolescents' perceptions of higher emotional availability from parents were related to better health-related quality of life. The LEAP scale also demonstrated small but positive associations with emotion regulation, with higher emotional availability being linked to lower use of expressive suppression and greater use of cognitive reappraisal. In conclusion, the findings suggest that the LEAP scale is a valid instrument for assessing adolescents' perceptions of both mothers' and fathers' emotional availability.

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KEYWORDS Parental emotional availability; confirmatory factor analysis; adolescents; construct validity

Introduction

The emotional availability of parents (EAP) is a fundamental aspect of parent-child relationships that significantly influences the psychological well-being and development of adolescents (Buehler, 2020). It refers to the parent's capacity to attune to and respond appropriately to their child's emotional cues, fostering a secure and nurturing environment for

CONTACT Tânia Brandão tbrandao@ispa.pt William James Center for Research, Ispa-Instituto Universitário, R. Jardim do Tabaco 34, Lisbon 1149-041, Portugal

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emotional expression/connection (Lum & Phares, 2005). EAP can encompass several dimensions (parental responsiveness, sensitivity), which collectively contribute to the quality of the parent-child bond (Biringen & Easterbrooks, 2012).

When parents are emotionally available, they create a secure/nurturing environment that allows their children to safely explore and regulate emotions (Sanders et al., 2015). Additionally, EAP (as measured by the Lum Emotional Availability of Parents (LEAP)) has been consistently linked to positive outcomes (children's social skills, self-esteem, and mental health) (e.g., Babore et al., 2014; Lum & Phares, 2005; Sanders et al., 2015). Furthermore, research has indicated that the quality of the parent-adolescent relationship plays a crucial role in the health-related quality of life (HRQoL) of adolescents.

To effectively measure and assess EAP, researchers have developed scales such as the LEAP scale (Lum & Phares, 2005). It targets adolescents and examine their perceptions about both mothers' and fathers' emotional availability, separately. In previous studies in U.S.A. and Italy, a consistent one-factor structure was found, indicating a unidimensional construct (Babore et al., 2014; Lum & Phares, 2005).

In this study, we aimed (1) to examine the factor structure of the LEAP using a confirmatory factor analysis (CFA); (2) to inspect its reliability using Cronbach's Alpha coefficient and McDonald Omega coefficient; (3) to explore its measurement invariance across sex; (4) and to explore its convergent construct validity with emotion regulation (ER) and HRQoL. When parents are emotionally available, they create a secure and nurturing environment that allows their children to safely regulate emotions (Sanders et al., 2015). Factors such as parental support for autonomy and displays of parental affection are considered important contributors to adolescents' well-being/health (Gaspar et al., 2012; Jimenez-Iglesias et al., 2015).

Method

Participants

The final sample of the study included 202 adolescents, with an average age of 13.44 years (SD = 1.01; Min = 12; Max = 17), and 52.5% of them identified as female. When it comes to their educational level, 31.5% were in 7^{th} grade, 33.5% were in 8^{th} grade, and 35% were in 9^{th} grade.

In terms of their family context, 57.4% of the adolescents had parents who were married or cohabiting (M length = 17 years; SD = 4.66). On the other hand, 41.6% of the participants had parents who were divorced or separated. On average, the adolescents had 1.35 siblings (SD = 1.08). The mothers' average age was 44.30 years (SD = 5.44), and the fathers had an average age of 47.18 years (SD = 6.17).

Measures

Emotional availability of parents

To assess the EAP, we used the Lum Emotional Availability of Parenting (LEAP) scale (Lum & Phares, 2005). This unidimensional scale consists of 15 items that were evaluated on a 6-point Likert scale, ranging from 1 (*never*) to 6 (*always*). The LEAP scale was designed to encompass both adolescents' perceptions about mothers' and fathers' emotional availability.

Emotion regulation

The Emotion Regulation Questionnaire for Children and Adolescents (ERQ – CA) (Gullone & Taffe, 2012; Portuguese validation:; Teixeira et al., 2015) is an adaptation of the ERQ developed by Gross et al., (2003). It has 10 items designed to assess cognitive reappraisal (CR; 6 items) and expressive suppression (ES; 4 items). Participants rate each item on Likert-type scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). To enhance comprehension and facilitate completion by children/adolescents, Gullone and Taffe (2012) revised the wording of the items and reduced the response scale to five points. The 2-factor structure of the ERQ presented a good fit to the data (χ^2 (33) = 62.06; $p < .01$; CFI = .95; TLI = .93; SRMR = .06; RMSEA = .07, 90% CI (.041, .093), pclose = .130). Both scales presented good reliability (α = .79, Ω = .82 for ES and α = .78, Ω = .79 for CR).

Health-related quality of life

The assessment of HRQoL was conducted using the KIDSCREEN-27 questionnaire (Ravens-Sieberer et al., 2014; Portuguese validation:; Gaspar & Matos, 2008). This questionnaire consists of 27 items that cover five domains: physical well-being, psychological well-being,

autonomy and relationship with parents, social support and peer group, and school environment. In this study, the Cronbach's alpha was .79 for the total score. The 5-factor structure of the HRQoL presented an adequate fit to the data (χ^2 (309) = 572.20; $p < .001$; CFI = .90; TLI = .90; SRMR = .07; RMSEA = .07, 90% CI (.057, .073), pclose = .002). All subscales presented adequate reliability (α varied between .77 and .91, Ω varied between .68 fand .91). For the total score α = 92 and Ω = 90

Procedure

This study was approved by the Ethics Committee of ISPA and was approved by the School Executive Staff where the data was collected.

The study's purpose and specific details were communicated to parents through informational materials distributed to the children. Only participants who obtained a signed consent form from their parents were eligible to take part in the study. Additionally, participants themselves provided informed assent. The data for this study were collected using a paper-and-pencil format in a group setting (individually) during classroom sessions. The data for this study were collected from an urban area, specifically from a single public school. Within this school, we gathered data from 12 distinct classes, spanning across three different grades: 7th, 8th, and 9$^{th.}$

The Portuguese translation and adaptation of the LEAP scale followed the guidelines provided by the International Test Commission (Gudmundsson, 2009). The process involved two steps: independent parallel translation by the first and second authors and consensus reached. A pre-testing of the consensus version was performed with 5 adolescents and no linguistic or instructional adaptation was needed.

Data analysis

Analyses were conducted using SPSS software (v.28) and JASP software (v.0.18.1.0). Detailed information regarding data analysis is presented on supplemental file.

Table 1. Descriptive statistics of LEAP1 and LEAP2.

	LEAP 1					LEAP 2				
	M	SD	SK	K	r_{tt}	M	SD	SK	K	r_{tt}
1. Supports me	5.31	1.05	−1.75	3.09	.79	5.21	1.11	−1.40	1.51	.74
2. Consoles me when I am upset	4.76	1.34	−0.97	0.11	.76	4.54	1.41	−0.82	−0.22	.75
3. Shows she/he cares about me	5.51	0.99	−2.41	6.06	.81	5.38	1.12	−2.17	4.64	.80
4. Shows a genuine interest in me	4.98	1.26	−1.42	1.60	.82	4.80	1.28	−1.04	0.55	.76
5. Remembers things that are important to me	5.13	1.18	−1.45	1.64	.77	4.73	1.37	−0.89	−0.10	.78
6. Is available to talk at any time	4.80	1.32	−0.94	0.05	.78	4.51	1.44	−0.68	−0.51	.79
7. Asks questions in a caring manner	4.80	1.29	−0.91	0.06	.78	4.56	1.32	−0.69	−0.23	.71
8. Spends extra time with me just because she/he wants to	4.68	1.45	−0.89	−0.23	.69	4.53	1.56	−0.81	−0.56	.68
9. Is willing to talk about my troubles	5.04	1.40	−1.41	1.02	.84	4.71	1.50	−0.99	−0.05	.76
10. Pursues talking with me about my interests	4.76	1.41	−1.04	0.19	.74	4.65	1.53	−0.91	−0.36	.77
11. Values my input	4.83	1.37	−1.14	0.37	.80	4.80	1.34	−0.95	0.21	.73
12. Is emotionally available to me	5.04	1.28	−1.40	1.34	.83	4.72	1.45	−1.01	0.00	.83
13. Makes me feel wanted	4.95	1.37	−1.13	0.30	.81	4.98	1.33	−1.27	0.86	.79
14. Praises me	5.13	1.23	−1.59	2.06	.71	4.95	1.28	−1.40	1.54	.65
15. Is understanding	4.80	1.37	−0.99	−0.09	.83	4.63	1.37	−0.84	−0.15	.72
Total score	4.97	1.01	−1.47	2.10	-	4.78	1.02	−1.25	1.58	-

M = mean; SD = standard-deviation; SK = skewness; K = Kurtosis; r_{tt} = item-total scale-score-corrected correlation coefficient.

Results

Descriptive statistics

Table 1 presents descriptive statistics for each item and the total score of the two forms of the LEAP (LEAP1 – adolescents' perceptions of mother availability and LEAP2 adolescents' perceptions of father availability).

Construct validation

CFA. The LEAP1 presented an acceptable fit to the data (χ^2 (90) = 207.09; $p < .001$; CFI = .94; TLI = .93; SRMR = .04; RMSEA = .09, 90% CI (.070, .100), pclose < .001). Standardized factor loadings ranged between .65 and .84. Suggested by modification items, a residual covariance between item 13 ('*Makes me feel wanted*') and 14 ('*Praises me (Example: Tells me good things about myself*') was set due to its familiarity and order of presentation, resulting in an improvement of model fit (χ^2 (89) = 187.97; $p < .001$; CFI = .95; TLI = .94; SRMR = .04; RMSEA = .08, 90% CI (.063, .094), pclose < .001).

The LEAP2 did not present an acceptable fit to the data (χ^2 (90) = 266.93; $p < .001$; CFI = .89; TLI = .93; SRMR = .05; RMSEA

Table 2. Measurement invariance across sex for LEAP1 and LEAP2.

	X2	Df	CFI	RMSEA	ΔX2	ΔDf	ΔCFI	ΔRMSEA
Mother								
Configural	304.11	172	.930	.092	–	–	–	–
Metric	343.80	186	.912	.097	39.69	14	.018[1]	−.005[1]
Scalar	372.15	200	.909	.098	28.35	14	.003[2]	−.001[2]
Father								
Configural	291.23	166	.930	.094	–	–	–	–
Metric	299.81	180	.933	.088	8.58*	14	−.003[1]	.006[1]
Scalar	313.57	194	.934	.085	13.76*	14	−.001[2]	.003[2]

*$p < .05$; **$p < .001$; [1]configural vs metric; [2]metric vs scalar. Δ = change in model fit in relation to the reference model.

= .11, 90% CI (.093, .122), pclose < .001). Standardized factor loadings ranged between .66 and .84. Based on modification indices, we included some residual covariances between items that were semantically similar (e.g., '*Is available to talk at any time*', '*Is willing to talk about my troubles*', '*Is emotionally available to me*') allowing to obtain an acceptable fit to the data (χ^2 (85) = 183.69; $p < .001$; CFI = .95; TLI = .93; SRMR = .05; RMSEA = .08, 90% CI (.066, .099), pclose < .001).

Measurement invariance. For LEAP1, the configural invariance seems to be almost achieved (χ^2 (172) 304.11; CFI = .930; RMSEA = .097) – not fully established due to a CFI of .097. Metric and scalar invariance was not obtained since Δχ2 tests were not significant, fit indices were below the cut-off of acceptability (RMSEA > .09), and the ΔCFI was greater than the critical value (ΔCFI >0.005).

For LEAP2, the configural invariance seems to be supported (χ^2 (166) 291.23; CFI = .930; RMSEA = .094). Metric invariance (χ^2 (180) 299.81; CFI = .933; RMSEA = .088) and scalar invariance (χ^2 (194) 313.57; CFI = .934; RMSEA = .085) was also obtained. Δχ2 tests were significant and the ΔCFI and ΔRMSEA were not greater than the critical values (see Table 2).

Reliability

Both forms of the LEAP demonstrated satisfactory reliability: α = .95, Ω = .95 for the LEAP1; α = .95, Ω = .93 for the LEAP2.

Table 3. Pearson correlations among study variables.

	LEAP1	LEAP2	z-score (p)**
Health-related quality of life	.579*	.555*	0.35 (.724)
Physical well-being	.326*	.354*	−0.316 (.752)
Psychological Well-being	.513*	.487*	0.346 (.729)
Autonomy and Parental Relations	.583*	.501*	1.160 (.246)
Peers and social support	.274*	.237*	0.395 (.693)
School environment	.305*	.366*	−0.686 (.493)
Cognitive reappraisal	.235*	.102	1.368 (.171)
Expressive suppression	−.377*	−.294*	0.934 (.350)

*$p < .001$; ** to determine whether the two correlation coefficients are significantly different from each other.

Convergent construct validity

The LEAP1 showed positive correlations with all dimensions of HRQoL – but the correlation with peers and social support dimension was smaller than .30. Also, it correlated negatively with ES and positively with CR but, again, for the CRthe value was smaller than .30.

The LEAP2 also correlated positively with all dimensions of HRQoL – but the correlation with peers and social support dimension was smaller than .30. It correlated negatively and significantly (but < .30) with ES and did not correlate with CR (Table 3).

Discussion

This study presents a pioneering examination of the psychometric properties and sex measurement invariance of the LEAP in a sample of Portuguese adolescents. Validating the Lum scale for use in Portuguese is of paramount significance, as it enables researchers and healthcare professionals to accurately assess and monitor perceptions of adolescents regarding parental emotional availability, contributing to more improved adolescents' outcomes in Portuguese-speaking communities. The one-factor structure of the LEAP was confirmed for both forms. The Cronbach's Alpha coefficient and the McDonald Omega coefficient suggested appropriate levels of reliability for both forms. The values obtained in this study are consistent with those reported in previous studies (Babore et al., 2014; Lum & Phares, 2005).

In terms of measurement invariance, in our initial analysis, the LEAP2 appears to be invariant across genders, but the LEAP2 does not. However, since the fit indices are close to the values of acceptability in both cases, we should be cautious about these results until we can gather more evidence in future studies. However, it seems to indicate that the

measurement items may not have the exact same meaning or interpretation for girls and boys. It is possible that gender-related factors influence the responses to the scale items or that there are underlying differences in how girls and boys perceive emotional availability from their mothers. For example, societal norms and cultural expectations may dictate different behaviours regarding emotional expression/communication for girls and boys. Girls may be socialized to be more open/expressive, whereas boys may be encouraged to display emotional restraint/exhibit different emotional behaviours (Fischer & LaFrance, 2015). Caution is needed when drawing conclusions based on the LEAP1, considering the possible influence of gender-related factors on responses.

Additionally, convergent construct validity with ER and HRQoL was partially obtained. The findings revealed that higher levels of EAP from parents among adolescents were associated with lower levels of emotional suppression and greater utilization of cognitive reappraisal. Despite the small correlations found with ER dimensions (and the lack of significant associations between the LEAP2 and cognitive reappraisal), these results align with theoretical expectations and previous research suggesting that a supportive and emotionally available parenting environment promotes healthier ER tendencies in adolescents (Morris et al., 2017). The findings seem to suggest that EAP can be an important factor in shaping adolescents' ER skills. Indeed, when parents are more supportive, empathic, and validate children's emotions, children tend to suppress less their emotions (Gross & Cassidy, 2019).

A significant association between EAP and adolescents' HRQoL was found. Higher levels of EAP were associated with better HRQoL, something supported by previous studies (Gaspar et al., 2012). This suggests that when parents exhibit emotional availability, providing support/understanding, and fostering a positive emotional environment, it positively influences various aspects of adolescents' well-being. However, although associations with the specific dimension of peer and social support were statistically significant, they were relatively small. This suggests the possibility that factors beyond EAP may also be linked to it.

Limitations and future research

The participants were recruited using a convenience sampling method. The sample was small, and the participants were recruited from a single public school. We acknowledge that we did not account for the nested structure of

the data, which may potentially influence study results and precluded the feasibility of conducting multilevel CFA. Also, the absence of test-retest reliability analysis prevents us from examining the consistency of the measured constructs over time.

We only examined association with ER and HRQoL. It would be beneficial for future studies to explore the associations between the LEAP and other relevant intrapersonal/interpersonal outcomes.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Tânia Brandão http://orcid.org/0000-0001-7865-2445

Data availability statement

Data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors used ChatGPT to improve language and readability. After using this tool, the author reviewed and edited the content as needed and take full responsibility for the content of the publication.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Institutional Review Board Statement

All subjects gave their informed consent for inclusion before they participated in the study. All data was obtained in a confidential form and data are not externally accessible. The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the ISPA Ethics Committee.

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