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Emotional Dependence Scale (EDS-S): Development and Validation of a Short Measure in Spanish-speaking Adults Aged 18–50 Years

Escala de Dependencia Emocional (EDS-S): desarrollo y validación de una medida breve en adultos hispanohablantes de 18 a 50 años

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Abstract. *Objective.* To develop and validate the Short Emotional Dependence Scale (EDS-S) in Spanish-speaking adults aged 18–50 years. *Method.* A total of 1159 Peruvian adults aged 18–50 years participated. Internal structure was examined under the graded response model of item response theory, relations with other variables through a structural model, and measurement invariance across sex. *Results.* A bifactor model with three specific factors (need for affection, low autonomy, fear of abandonment) showed adequate fit ($M2 = 30.186$, $df = 18$, $p = .036$; $RMSEA = .024$; $CFI = .999$). Hierarchical omega was acceptable ($\omega_H = .81$). The structural model yielded $\chi^2(141) = 1087.27$; $CFI = .961$; $RMSEA = .076$, and scalar invariance across sex was supported. The EDS-S is a brief, valid, and reliable measure.

Keywords. Emotional dependence, Validity, Reliability, Item response theory, short measure, Spanish-speaking young adults

Resumen. *Objetivo.* Desarrollar y validar la Escala Breve de Dependencia Emocional (EDS-S) en adultos hispanohablantes de 18 a 50 años. *Método.* Participaron 1159 adultos peruanos de 18 a 50 años. Se analizó la estructura interna con el modelo de respuesta graduada de la teoría de respuesta al ítem, la relación con otras variables mediante un modelo estructural y la invarianza de medición según el sexo. *Resultados.* Un modelo bifactor con tres factores específicos (necesidad de afecto, baja autonomía, miedo al abandono) mostró ajuste adecuado ($M2 = 30.186$; $gl = 18$; $p = .036$; $RMSEA = .024$; $CFI = .999$). El omega jerárquico fue aceptable ($\omega_H = .81$). El modelo estructural arrojó $\chi^2(141) = 1,087.27$; $CFI = .961$; $RMSEA = .076$, y se observó invarianza escalar por sexo. La EDS-S es una medida breve, válida y confiable.

Palabras clave. Dependencia emocional, Validez, Fiabilidad, Teoría de respuesta al ítem, medida breve, adultos jóvenes hispanohablantes



Introduction

Emotional dependence has been characterized as an extreme affective need that takes shape within interpersonal relationships and stems from early affective shortcomings, with particular relevance during the separation-individuation phase of childhood (Castelló, 2005; Scantamburlo et al., 2013). In this sense, the phenomenon traces back to a pattern of unmet primary needs that seek satisfaction through pathological attachment (De la Villa-Moral et al., 2018; Izquierdo-Martínez & Gómez-Acosta, 2013) and lines up with insecure attachment styles (Reynaud et al., 2010). With respect to its consequences, individuals presenting emotional dependence have been shown to display higher vulnerability to mental health disorders, with downstream effects on self-esteem, decision-making, and the quality of their interpersonal bonds (Olave et al., 2021; Vowels et al., 2022). On the other hand, the fact that these effects are so widespread shows that broad approaches are needed and the creation of true and correct instruments for measuring them.

These days, models have converged around three interconnected processes. From a psychoanalytic point of view, Castelló (2005) and De la Villa-Moral and Sirvent-Ruiz (2008) describe emotional dependence as a relational syndrome rooted in unmet primary affective needs, in which the partner functions as a substitute object that regulates one's sense of self-worth. This view is reinforced by attachment theory, which posits that emotional dependence reflects insecure (anxious-preoccupied) adult attachment patterns. Research has shown that attachment anxiety is associated with poorer mental health outcomes in adults (Vowels et al., 2022). But cognitive-behavioral methods add a third dimension: fixed ideas about not being loved and abandonment lead to dichotomous thinking, jealousy, and resignation (Lemos & Londoño, 2006; Urbiola et al., 2017). Taken together, these traditions converge on a shared reading: emotional dependence is sustained by an excessive need for the other

person, a loss of personal autonomy, and a fear of abandonment, which were subsequently synthesized in the EDS-S.

Emotional dependence is consistently linked to serious mental health problems that need to be addressed. According to Estévez et al. (2018), emotional dependence is associated with impulsive behavior and insecure attachment in young people. Having difficulties in regulating emotions has also been identified as a risk factor (Momeñe et al., 2017). Lemos et al. (2019) reported that people who score high on emotional dependence have elevated levels of anxiety, which is similar to what is seen in people with subclinical depression. It is also related to suicidal thoughts in people with violent or unstable romantic histories (Siabato & Salamanca, 2015) and to borderline personality traits like fear of abandonment and identity disturbance (Pradas-Cañete & Perles-Novas, 2012). This data suggests that emotional dependence functions as a transdiagnostic risk factor. This supports the need for short, psychometrically sound instruments suitable for screening contexts.

This pattern resembles other disorders like dependent personality disorder and substance addiction in that it involves submission, partner idealization, having high standards, controlling behaviours, and signs of emotional withdrawal (Scantamburlo et al., 2013). However, emotional dependence is different because it manifests exclusively in romantic relationships, while dependent personality disorder can manifest across domestic and occupational domains (American Psychiatric Association, 2014). People who are emotionally dependent can also be independent in other areas, such as occupational or social contexts (Camarillo et al., 2020).

Beyond these clinical considerations, recent reviews (Bution & Wechsler, 2016; Perrotta, 2021) converge on the recommendation that future instruments should be brief, theoretically grounded, and amenable to modern psychometric techniques such as item response theory (IRT), which provide item-level information that classical indicators cannot capture.

In Spanish-speaking contexts, several instruments have been developed to assess emotional dependence, such as the Emotional Dependence Questionnaire (CDE; [Lemos & Londoño, 2006](#)), the Emotional Dependence in Dating Questionnaire (DEN; [Urbiola et al., 2014](#)), the Emotional Dependence Scale for Couples (SED; [Camarillo et al., 2020](#)), and the Emotional Dependence Inventory (IDE; [Aiquipa, 2012](#)). Even though these instruments are meaningful advances, they present limitations that constrain their utility and validity. The assumption of one-dimensionality in the face of evidence of multidimensionality ([Aiquipa, 2015](#); [Lemos et al., 2019](#)), the use of principal component analyses, which produce non-replicable structures ([Booth & Murray, 2018](#)), and an excessive dependence on coefficients such as Cronbach's alpha without taking into account more reliable reliability indicators ([Cho, 2016](#)) are some of the main flaws. Furthermore, the precision and adaptability of these instruments across populations are limited because many of them were created within the framework of classical test theory (CTT) without adopting more sophisticated techniques like item response theory (IRT) or structural equation modeling (SEM).

In this regard, the present work was undertaken with a view to facing three specific gaps in the literature. In the first place, to put forward a brief instrument (≤ 12 items) fit for large-scale screening and longitudinal designs. In the second place, to ground the construct in an explicit three-facet model derived from a qualitative-quantitative procedure that blends content analysis of foundational sources with quantitative refinement under IRT. In the third place, to deliver psychometric evidence that brings together item-level parameters (discrimination, information functions) with global structural indicators (bifactor indices, invariance) and thereby offer both researchers and clinicians a defensible measure across age groups.

Item response theory provides complementary information to classical test theory rather than a replacement. Whereas classical indicators describe

scale-level performance, IRT models the probability of each response category as a function of the latent trait, enabling the estimation of item information functions, differential item functioning, and trait-level precision. Using both models together, which is what modern psychometrics recommends, yields a more comprehensive picture of the EDS-S without disregarding traditional reliability and validity measures.

The EDS-S was developed according to international standards for psychological assessment by the [American Educational Research Association et al. \(2014\)](#) and incorporates SEM models for factorial validity analysis and IRT methodologies for item precision analysis. This methodological approach overcomes the limitations of the CTT and offers a broad instrument to evaluate emotional reliance. Moreover, the EDS-S intends to enhance the current measures by merging multiple theoretical approaches and acknowledging the multidimensionality of the construct, thereby adding to the field of psychological assessment. In this sense, the present study aims to build the Short Emotional Dependence Scale (EDS-S) in Peruvian adults aged 18–50 years, an instrument that involves theoretical and methodological developments to produce a valid, reliable and useful assessment for research and psychological therapy ([Boateng et al., 2018](#)).

In this sense, four research hypotheses are formulated based on the theoretical and empirical evidence reviewed in previous sections. With respect to internal structure, it is hypothesized that (H1) the EDS-S will exhibit a structure compatible with three correlated factors (need for affection, low autonomy, and fear of abandonment) and, complementarily, with a bifactor solution presenting a general factor along with the three specific factors. On the other hand, (H2) the items will display adequate discrimination parameters under the polytomous IRT framework, $a > 1.00$. It is worth mentioning that (H3) the model will display scalar invariance across sex, which would allow meaningful score comparisons between women and men. With respect to external

validity, (H4) the EDS-S scores will be negatively related to subjective well-being (Caycho-Rodríguez et al., 2020) and positively related to fear of loneliness (Ventura-León et al., 2020).

Method

Participants

Initially, 1204 Spanish-speaking adults aged 18–50 years participated. After screening for aberrant response patterns using the Zh index (Drasgow et al., 1985), with a cutoff of ± 2.0 (Felt et al., 2017), 45 participants were eliminated. The analytic sample ($n = 1159$) was distributed as follows: age $M = 24.13$, $SD = 7.25$, range 18–50, with 74.9 % participants aged 18–25, 18.6 % aged 26–40, and 6.5 % older than 40 years. Concerning sex, 56.5 % self-identified as women and 43.5 % as men. With respect to the type of romantic relationship, participants reported being in a steady dating relationship (74.5 %), cohabiting (9.5 %), married (8.9 %), or engaged (7.2 %). Mean relationship length was 2.93 years ($SD = 5.06$). Recruitment was conducted through Facebook and WhatsApp announcements directed at Spanish-speaking adults from Peru. Inclusion criteria required current involvement in a romantic relationship of at least three months and being aged between 18 and 50 years; exclusion criteria included incomplete protocols and aberrant response patterns identified through Zh. The sample size exceeded the minimum requirement calculated using the ‘semPower’ library (Moshagen & Erdfelder, 2016) and a non-probabilistic convenience sampling method was used (Maxwell, 2012).

Instruments

The Sociodemographic form (ficha sociodemográfica) was applied at the start of the protocol to collect background information from each participant. The form covered age, sex, type of romantic relationship, length of the current relationship (in months).

The Short Emotional Dependence Scale (EDS-S) is a scale composed of nine items, with three specific factors and one general factor. The evidence of validity and reliability is the subject of this study (see

Appendix A).

The Brief Scale of Fear of Loneliness (BSFL-5), designed by Ventura-León et al. (2020), is composed of five items with five response alternatives (Never = 0, Rarely = 1, Sometimes = 2, Almost always = 3, Always = 4). The BSFL-5 is a unidimensional measure of an individual’s attitude towards the experience of being alone (worrisome thoughts and feelings of abandonment). Evidence of validity based on internal structure indicates the presence of a single factor (CFI = 1.00, RMSEA = 0.04, TLI = 1.00). Reliability is considered good ($\omega = .88$).

The Five Well-Being Index (WHO-5), designed by the WHO, in the version validated by Caycho-Rodríguez et al. (2020), has four Likert-type response alternatives (Never = 0, Sometimes = 1, Often = 2, Always = 3). WHO-5 is a unidimensional scale that measures subjective quality of life based on vitality (being active, waking up refreshed), positive mood (relaxation, good humor), and general interest. Evidence of validity based on internal structure reflects its one-dimensionality with a correlated error between items 1 and 4. Its reliability is acceptable ($\omega = .76$). Additionally, it is a scale translated into more than 30 languages and used in research projects worldwide, whose five simple and non-invasive questions have good evidence of validity (Topp et al., 2015).

Procedure

The overall construction process of the EDS-S is summarized in Figure 1.

Phase 1: bibliographic review. A systematic search was carried out in Scopus, Web of Science, PsycINFO, and SciELO using the descriptors “emotional dependence”, “affective dependence”, “dependencia emocional” and “dependencia afectiva”. It is worth mentioning that the inclusion criteria were threefold: (a) classical works cited three or more times in previous systematic reviews (Bution & Wechsler, 2016); (b) presence of an explicit operational definition of emotional dependence; and (c) coverage of the 1999–2010 period in order to ensure theoretical diversity. With respect

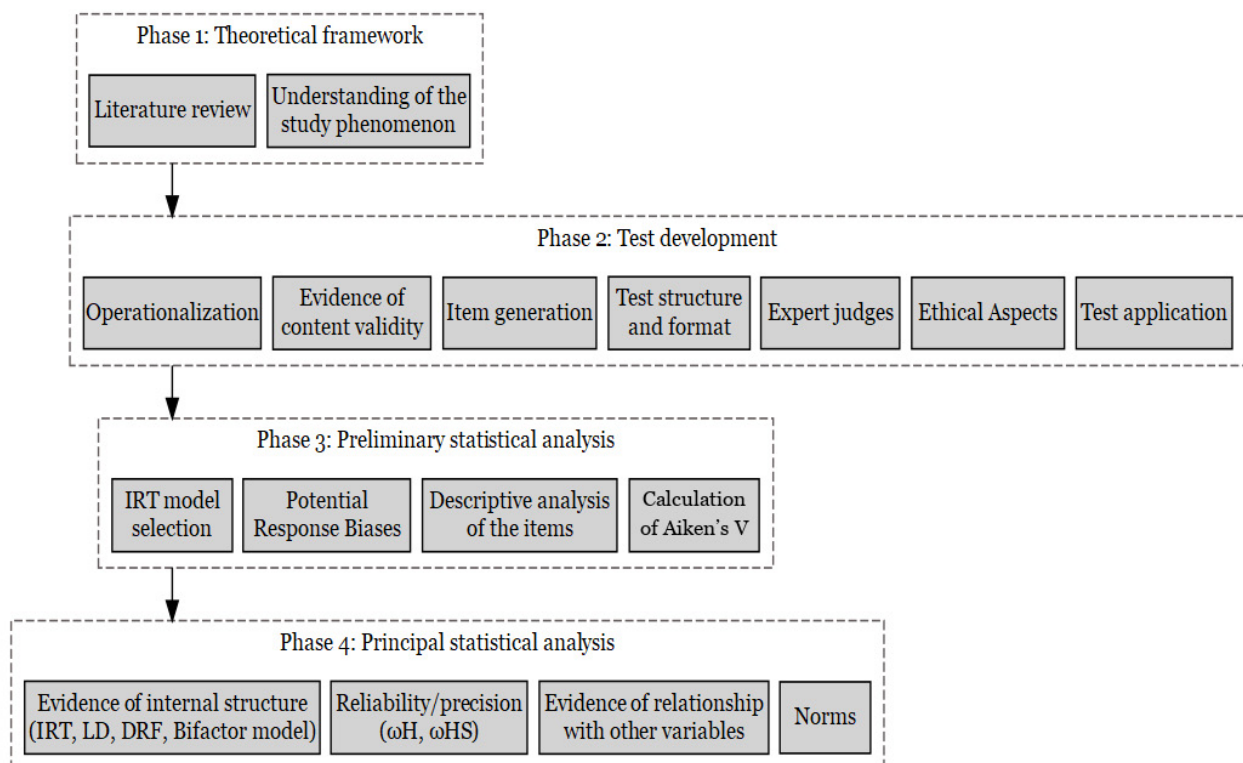
to exclusion criteria, two types of texts were left out: purely theoretical works without operational definitions, and empirical articles lacking their own conceptual framework. In this way, five foundational sources were retained (Castelló, 2005; De la Villa-Moral & Sirvent-Ruiz, 2008; Mayor, 2008; Peck, 2002; Riso, 1999).

Phase 2: qualitative analysis. The corpus was processed through three sequential stages following the procedure of Maxwell (2012) and Ventura-León (2021). With respect to familiarization and segmentation, each source was read in full by two researchers independently (at least three readings each), and information segments related to symptoms of emotional dependence were underlined. In this sense, categorization was carried out inductively by grouping segments according to semantic similarity, with triangulation between researchers until consensus was reached. Following the steps in Cooper (2019), the correspondence stage then operationalized each category as items. It is worth

mentioning that three categories emerged: need for affection, low autonomy, and fear of abandonment. From these, 12 items were generated, with four items per dimension.

Phase 3: refinement by expert judges. Five expert judges with doctoral training in clinical psychology and at least five years of experience in psychometrics evaluated the candidate items. In this sense, a 60-minute calibration session was held in order to align criteria on relevance and representativeness; each judge received a written guide with the operational definitions of the three factors. Judges then rated each item on a 0–3 scale (0 = the item does not represent the construct; 3 = the item represents the construct fully) for both relevance and representativeness. On the other hand, the V coefficient of Aiken (1980) with 95% confidence intervals was computed (Penfield & Giacobbi, 2004; Rubio et al., 2003; Skjong & Wentworth, 2001). It is worth mentioning that items whose lower confidence limit fell below .70 would have been submitted to a consen-

Figure 1. EDS-S construction process



sus discussion, although this procedure was not required since all items exceeded that threshold.

With respect to ethical compliance, the study followed Peruvian legal and ethical norms and the principles of the Declaration of Helsinki ([World Medical Association, 1964](#)). It is worth mentioning that the research protocol received approval from the Ethics Committee of the Universidad Privada del Norte (registration number: 0282024). On the other hand, the specific considerations for internet-based research were also taken into account, in line with the guidelines put forward by [Hoerger and Currell \(2012\)](#).

Data Analysis

In Phase 3, preliminary statistical analyses identified the best polytomous IRT model (e.g., GRM, PCM, GPCM) using the Bayesian Information Criterion (BIC), known for its accuracy in model selection ([Kang et al., 2009](#)). The IRT analysis employed a 2PL model and the MCEM algorithm. The discrimination parameter (range: 0–3) was used to discriminate between individuals with different levels of the latent trait. The plogis function calculated probabilities for individuals with $\theta = 0$ in order to characterize category transitions in the multidimensional model. The Zh index ([Drasgow et al., 1985](#)) was used to check for response biases. Values $> \pm 2.0$ showed trends that were not normal ([Felt et al., 2017](#)). Descriptive item statistics and Aiken's V ([Aiken, 1980](#)) with confidence intervals were used to verify expert ratings and detect problematic items.

In Phase 4, IRT served as the primary analytic framework of the EDS-S's internal structure. There were three models that were tested: one-dimensional, three-dimensional, and bifactorial. AIC, BIC, CFI ($> .95$), TLI ($> .95$), and RMSEA ($< .08$) were used to check model fit. Lower AIC and BIC numbers indicated better model fit ([Raykov & Marcoulides, 2011](#)). The Q3* statistic was used to evaluate local independence in the one-dimensional model, using the standard 0.20 threshold that has been examined and critically discussed by [Christensen et al. \(2017\)](#). This index is only shown for the one-dimensional

model because it assumes there is only one latent dimension. Differential Response Functioning (DRF) examined differences between men and women using sDRF (mean score) and uDRF (deviation). An uDRF of 0.20 corresponds to a 0.20-point difference in responses ([Chalmers, 2018](#)). Negative sDRF values indicated lower scores for women compared to men, and positive values indicated the reverse.

The dimensionality of the bifactorial model was examined using ECVGen, PUC, ωH , and ωHS . Values of $ECV > .60$ and $\omega H > .70$ supported a primarily unidimensional interpretation despite some multidimensionality ([Reise et al., 2013](#)). Reliability was measured using hierarchical omega coefficients (ωH , ωHS), with values $\geq .20$ and $\leq .30$ indicating moderate specific factor variance ([McDonald, 2013](#); [Smits et al., 2015](#)). $ECV-I > .85$ confirmed a unidimensional item structure ([Stucky & Edelen, 2015](#)). SEM tested the EDS-S's relationship with other variables, using CFI ($> .95$) and RMSEA ($< .08$) for model fit evaluation ([Hu & Bentler, 1999](#)). Finally, quintile scales with interpretative labels were established for psychopathological variable assessments.

Four competing models were specified and compared: M1, a unidimensional graded-response model; M2, the tridimensional model with the three theoretical factors; M3, a bifactor model with 12 items; M4, a bifactor a model in which items 7, 10, and 12 were removed (the principal model). Convergent validity at the subscale level was assessed through average variance extracted (AVE) and composite reliability (CR); discriminant validity was inspected through the Fornell-Larcker criterion, comparing $\sqrt{AVE}$ with the absolute value of the inter-factor correlations.

Measurement invariance across sex was tested in a configural $\rightarrow$ metric $\rightarrow$ scalar sequence, using AIC, BIC, and log-likelihood differences as decision criteria. Item-level precision was inspected through the Test Information Function (TIF) and the conditional standard error of measurement (cSEM). Differences between pairs of subscale-criterion correlations

with the BSFL were evaluated through Steiger's test for dependent correlations. All analyses were conducted in R 4.4.1 with packages mirt, lavaan, sem-Plot, and BifactorIndicesCalculator.

Results

Content validity evidence

The content validity process, where three symptoms were identified. In the first place, [Castelló \(2005\)](#) and [De la Villa-Moral & Sirvent-Ruiz \(2008\)](#) put forward descriptions of excessive need for the partner and of submission, which were folded into the Need for Affection category. In the second place, [Peck \(2002\)](#) and [Riso \(1999\)](#) traced descriptions of identity loss and inability to make decisions without the partner, which fed the Low Autonomy category. In the third place, [Mayor \(2008\)](#) underlined tolerance, anticipatory anxiety, and panic at the

prospect of a breakup, which informed the Fear of Abandonment category. On the other hand, the correspondence between sources and emerging categories is brought together in [Table 1](#).

[Table 2](#) shows a trend towards low response alternatives, with higher proportions from alternative 3 and downwards. Regarding Aiken's V, all values in relevance and representativeness criteria exceed 0.70, as established by [Penfield and Giacobbi \(2004\)](#).

Evidence of internal structure validity

Initially, the best IRT model was selected based on the BIC statistic. In this sense, the Graded Response Model (BIC = 34068.37) had the lowest BIC value compared to the Partial Credit Model (BIC = 34348.03), and the Generalized Partial Credit Model (BIC = 34152.53).

Three Graded Response Models were estimated: unidimensional, tridimensional, and bifactorial.

Table 1. *Systematization of the characteristics of emotional dependence according to different authors*

Familiarization and Segmentation				
Peck (2002, pp. 99-100)	Mayor (2008, p. 20)	Riso (1999, p.17)	Castelló (2005, p. 56)	De la Villa-Moral, & Sirvent-Ruiz, (2008, p. 154)
a) They are so busy seeking to be loved that they have no energy left to love.	a) Tolerance, understood as a growing need of the couple.	a) In spite of the inconveniences, the dependence persists and even increases over time.	a) Excessive need for the other, desire for constant access to him/her	a) Possessiveness and intense energy draining
b) They tolerate loneliness very poorly.	b) Withdrawal syndrome, deep discomfort experienced after abandonment or loss of the product.	b) The absence of the other produces abstinence syndrome.	b) Desire for exclusivity in the relationship	b) Inability to break ties
c) It is as if within them they have an inner emptiness.	c) Loss of control is the persistent and unsuccessful effort to control or interrupt the relationship	c) Attempts to suspend the relationship; nonexistent or unsuccessful.	c) Priority of the couple over everything else.	c) Voracity of affection, of love
d) They always feel "a part of me is missing".		d) Investment of a great deal of time and effort to be with the other at any cost and above all; and, among others	d) Idealization of the object	d) Negative feelings (guilt, emptiness, fear of abandonment).

Continue

e) They have no real sense of identity, and they define themselves solely by their relationships.	e) Continues to nurture the bond despite being aware of serious repercussions for their health.	e) Relationships based on submission and subordination	e) Involvement of emotional dependents in asymmetrical relationships, assuming a subordinate position
f) They show rapid emotional changes		f) History of unbalanced partner relationships	
g) It is as if it does not matter whom they are dependent upon as long as there is just someone		g) Fear of breaking up	
		h) Assumption of the partner's belief system	

Categorization

- I. **Need for affection**: The individual's search for affection that leads him/her to feel bad or experience pain when he/she does not receive it.
- II. **Low autonomy**: Difficulty in making decisions; change of opinion, resignation, and modification of plans to satisfy the partner, in addition to implicitly measuring submissive behavior and perceived handicap.
- III. **Fear of abandonment**: Feeling of fear or ideas of uneasiness experienced by the individual when he/she perceives that his/her partner will abandon him/her or end the sentimental relationship.

Correspondence

- Deja de realizar actividades porque su pareja se lo pide (Low autonomy)
- Necesita que su pareja le demuestre afecto (Need for affection)
- Si tiene planes los cambia para hacer sentir bien a su pareja (Low autonomy).
- Considera doloroso no recibir afecto por parte de su pareja (Need for affection).
- Se siente mal si su pareja no le demuestra afecto (Need for affection).
- Sentiría intranquilidad si su pareja le plantea terminar la relación (Fear of abandonment).
- Le atemoriza que su pareja se aleje enojado de su lado (Fear of abandonment).
- Ha cambiado su decisión después de escuchar la opinión de su pareja (Low autonomy).
- La idea de ser abandonado por su pareja le da miedo (Fear of abandonment).
- Hace cosas solo para que su pareja le demuestre afecto (Need for affection).
- Le preocupa pensar que la relación con su pareja vaya a terminar (Fear of abandonment).
- Le resulta difícil tomar una decisión sin el apoyo de su pareja (Low autonomy).

Note. The different colors indicate the groupings of the information segments (Categorization).

Table 2. Response rate and Aiken's V

Items	Response rate					Aiken's V [95% CI]	
	1	2	3	4	5	Rel	Representative
EDS-S2	17	28	30	16	9	.93 [.70, .99]	.93 [.70, .99]
EDS-S10	49	28	14	7	2	1.00 [.80, 1.00]	1.00 [.80, 1.00]
EDS-S5	23	35	23	13	7	1.00 [.80, 1.00]	1.00 [.80, 1.00]
EDS-S4	26	31	24	14	7	1.00 [.80, 1.00]	1.00 [.80, 1.00]
EDS-S8	19	40	27	12	2	1.00 [.80, 1.00]	1.00 [.80, 1.00]
EDS-S12	44	32	15	7	2	1.00 [.70, .99]	1.00 [.70, .99]
EDS-S1	48	32	14	5	2	.93 [.80, 1.00]	.93 [.80, 1.00]
EDS-S3	22	39	24	10	4	1.00 [.80, 1.00]	1.00 [.80, 1.00]
EDS-S9	38	30	16	10	6	1.00 [.80, 1.00]	.93 [.80, 1.00]
EDS-S7	27	33	20	14	6	.93 [.70, .99]	.87 [.62, .96]
EDS-S11	32	33	19	11	5	1.00 [.80, 1.00]	1.00 [.80, 1.00]
EDS-S6	24	26	23	18	10	1.00 [.80, 1.00]	1.00 [.80, 1.00]

Note. Rel: Relevance; Representative: Representativeness; [95 % CI]: 95 % confidence intervals.

The bifactor model required a new specification by eliminating items 7, 10, and 12 due to lower specific variability. Its objective was to decrease ω_{HS} to at least .20, validating the bifactorial model (see Table 3). Under the unidimensional specification (M1) the Q3* statistic yielded a value of 0.51, exceeding the .20 threshold, which indicated that local independence was not satisfied and supported the move to multidimensional alternatives; because Q3* presumes a single latent dimension, it is reported only for M1.

Auxiliary measures of the bifactor model

Based on the ECVGen and PUC measures, the Bifactor model (ECVGen = .68; PUC = .75) indicates the presence of a general factor for the scale. In terms of reliability, the Hierarchical Omega was opti-

mal ($\omega_H = .81$). Regarding the Hierarchical Omega Subscale (ω_{HS}), there was a moderate proportion of variance in specific factors, namely, need for affection ($\omega_{HS} = .25$), low autonomy ($\omega_{HS} = .35$), and fear of abandonment ($\omega_{HS} = .23$). Construct replicability and factor determinacy were also inspected: $H = .90$ for the general factor and ranged from .43 to .52 across the three specific factors, whereas $FD = .91$ for the general factor and ranged from .70 to .76 across the specific factors. In this sense, the general factor shows robust replicability ($H > .70$) and minimal indeterminacy ($FD > .90$), whereas the specific factors fall below these thresholds, in line with the modest ω_{HS} coefficients reported above (Rodríguez et al., 2016). All of these elements jointly support H1.

Table 3. Statistical fit indices of the EDS-S models

Model	AIC	BIC	-2LL	M2	df	p	RMSEA	TLI	CFI	Q3*
M1 Unidimensional	33758.10	34061.42	33638.10	191.005	18	.000	.091	.864	.918	.51
M2 Tridimensional	32972.96	33291.44	32846.96	20.941	15	.139	.018	.994	.997	—
M3 Bifactor	32738.16	33102.15	32594.16	166.346	42	.000	.051	.988	.992	—
M4 Bifactor^a	25160.34	25433.32	25052.34	30.186	18	.036	.024	.997	.999	—

Note. a. Respecified model where items 7, 10, and 12 were eliminated. In bold the best models.

Table 4. Item statistics for the Bifactor^a model

Items	Parameters				plogis					ECV-I	DIF (Sex)	
	a1	a2	a3	a4	p1	p2	p3	p4	p5		uDRF	sDRF
EDS-S2	1.61	0.93			.09	.34	.42	.13	.03	.75	0.08	0.07
EDS-S5	4.17	2.70			.02	.69	.28	.01	.00	.70	0.09	-0.07
EDS-S4	3.13	2.01			.06	.57	.34	.03	.00	.71	0.09	-0.09
EDS-S8	1.31		0.93		.11	.51	.30	.07	.01	.66	0.22	-0.21
EDS-S1	1.33		1.56		.45	.45	.09	.01	.00	.42	0.25	-0.25
EDS-S3	1.75		1.51		.10	.58	.27	.04	.01	.58	0.34	-0.34
EDS-S9	3.76			2.35	.18	.69	.11	.01	.00	.72	0.14	-0.14
EDS-S11	2.67			1.63	.16	.62	.19	.03	.00	.73	0.11	-0.11
EDS-S6	2.17			1.09	.11	.37	.37	.13	.02	.80	0.05	-0.05

Note. a = discrimination parameter; p = plogis, the number represents each of the categories; uDRF and sDRF are measures of effect.

The discrimination factors (a) and plogis values are presented in Table 4. All parameters exceed unity, which means that the items can be distinguished well. Lower probabilities are observed for categories 4 and 5 (see Figure 4). All of the items' ECV-I scores are below the limit (ECV-I < .85), which suggests multidimensionality within the factor (Stucky & Edelen, 2015). Additionally, Table 4 shows the Differential Item Functioning (DIF) analysis by sex. It should be noted that the highest uniform DIF (uDRF) appears in item 3 ("If they have

plans, they change them to make their partner feel good"), followed by item 1 ("They stop doing activities because their partner asks them to"), and the lowest in item 6 ("They would feel uneasy if their partner suggested ending the relationship"). Moreover, in almost all cases, women obtain lower scores (sDRF) except for item 2 ("They need their partner to show affection"), where women have higher scores. However, all differences can be considered small. This finding supports H2.

Convergent and discriminant validity

To complement the IRT-based evidence, convergent and discriminant validity were inspected at the subscale level. All three subscales exceeded the recommended thresholds (Need for Affection: AVE = .73, CR = .89; Low Autonomy: AVE = .53, CR = .77; Fear of Abandonment: AVE = .74, CR = .90), supporting that the items of each subscale share enough variance to represent a coherent construct. With respect to discriminant validity, the Fornell-Larcker criterion was supported: the square root of the AVE for each subscale (.86, .73, and .86, respectively) exceeded the absolute value of the inter-factor correlations (range .63 to .73), indicating that the three factors capture related but empirically distinguishable facets of emotional dependence.

Measurement invariance across sex

Measurement invariance across sex was tested comparing three layered models, a configural mo-

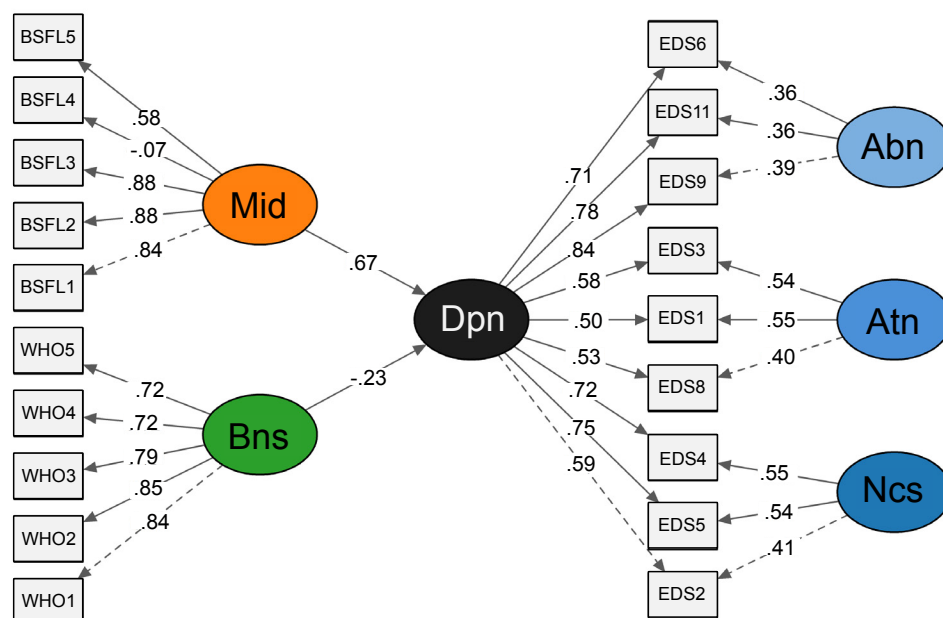
del without equality requirements, a metric model constraining the factor loadings to be equal between women and men, and a scalar model constraining the item thresholds to be equal between women and men. For model comparison, the metric model was better than the configural model ($\Delta BIC = -58.2$) while the scalar model was better than the metric model ($\Delta BIC = -207.0$). In this way, the EDS-S demonstrates scalar invariance across sex, allowing for valid comparisons of latent means and observed scores across women and men. This finding supports H3.

Evidence of validity based on relationship with other variables

Figure 2 displays the correlation of the EDS-S with the WHO-5 and the BSFL, illustrating the theoretical relationship between these variables (Bonilla-Asalde et al., 2021; Castelló, 2005; Petrucci et al., 2014).

The goodness of fit of the model was evaluated

Figure 2. Structural model of the relationship between EDS-S, BSFL and WHO-5



Note. Standardized estimates are shown. Dpn = emotional dependence (general factor of the EDS-S); Ncs = need for affection; Atn = low autonomy; Abn = fear of abandonment; Mid = fear of loneliness (BSFL-5); Bns = well-being (WHO-5). Latent factors are color-coded by domain (blue = EDS-S specific factors; green = well-being; orange = fear of loneliness).

and found to be optimal, as demonstrated by the following indices: χ^2 (141) = 1,087.27; CFI = .961; SRMR = 0.073; RMSEA = 0.076. The estimates reveal a negative relationship with the WHO-5 ($r = -.23$) and a positive relationship with the BSFL ($r = .67$). All correlations align with the expected direction and magnitude. This pattern supports H4.

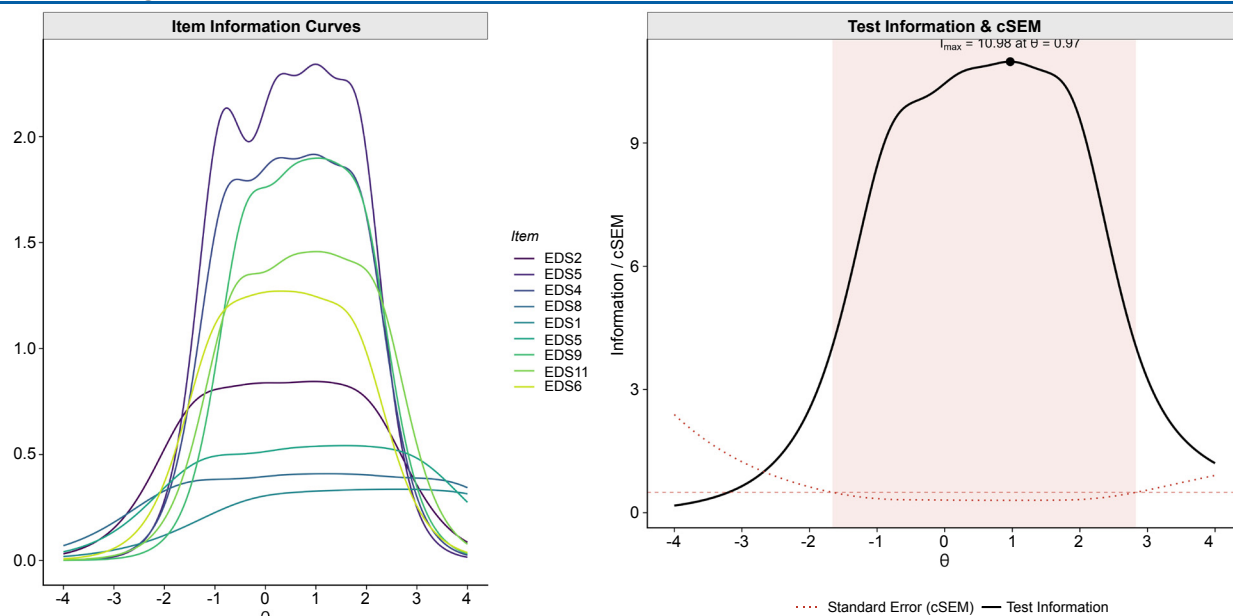
Test Information Function and conditional standard error of measurement

The Test Information Function (Figure 3) showed that the EDS-S provides its highest precision for moderate-to-severe levels of the latent trait, with the conditional standard error of measurement remaining below 0.50 throughout the interval $\theta \in [-1.67, +2.83]$. This range covers the trait region where clinical decisions are most relevant and indicates that the EDS-S is well suited to discriminate respondents from average to severe levels of emotional dependence.

Differential criterion validity (Steiger tests)

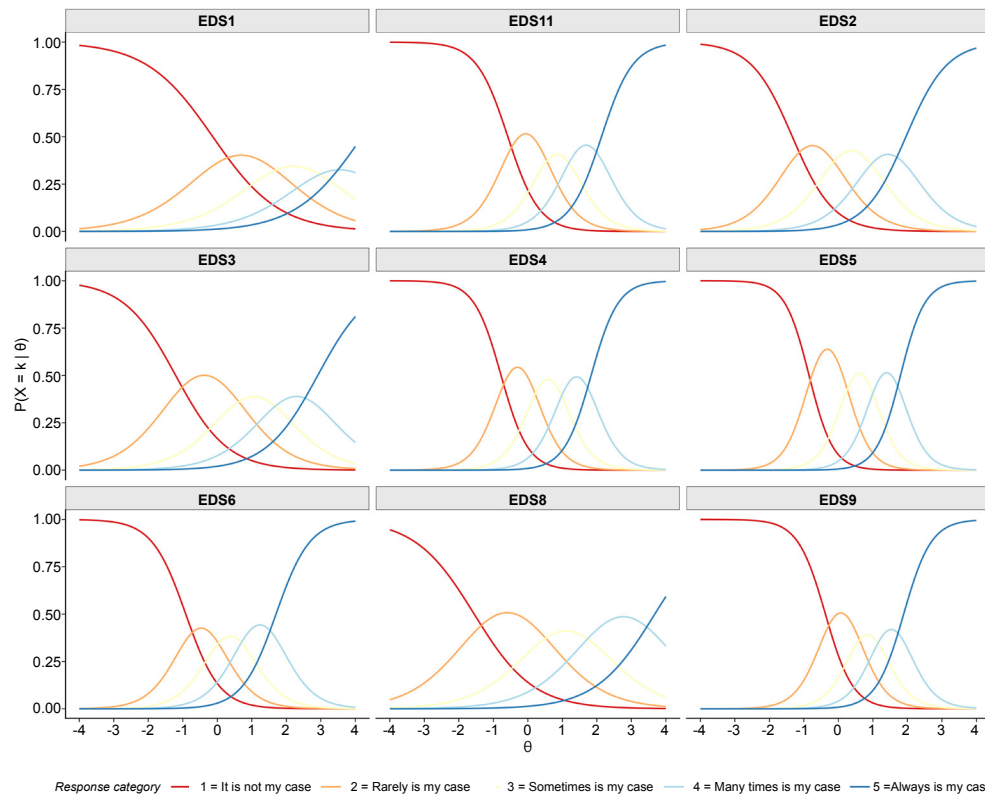
With respect to differential criterion validity, Steiger's z-tests for dependent correlations served as the analytical tool to evaluate whether the three subscales relate differently to fear of loneliness, operationalized through the BSFL. All three pairwise comparisons reached statistical significance: Need for Affection versus Low Autonomy ($t = 2.11, p = .035$), Need for Affection versus Fear of Abandonment ($t = -3.50, p < .001$), and Low Autonomy versus Fear of Abandonment ($t = -5.10, p < .001$). In this sense, the magnitude of these associations places fear of abandonment as the strongest correlate of the BSFL ($r = .65$), followed by need for affection ($r = .57$) and low autonomy ($r = .52$). On the other hand, the three subscales capture qualitatively distinct facets of emotional dependence and not redundant variations of a single construct.

Figure 3. Test Information Function and conditional standard error of measurement of the EDS-S



Note: Left panel: Item Information Curves for the nine retained EDS-S items (EDS1, EDS2, EDS3, EDS4, EDS5, EDS6, EDS8, EDS9, EDS11). Right panel: Test Information Function (solid black line) and Conditional Standard Error of Measurement (dotted red line). The horizontal dashed line marks the SE = 0.5 threshold; the shaded region indicates the θ range where the EDS-S provides adequate precision (cSEM < 0.5).

Figure 4. Item Characteristic Curves (ICCs) under the Graded Response Model for the nine retained EDS-S items



Note. Item Characteristic Curves under the Graded Response Model for the nine retained EDS-S items. The five colored lines per panel represent the probability of endorsing each response category (1 = It is not my case to 5 = It is always my case) as a function of θ .

Table 5. Quintiles for EDS-S

Interpretation	Need for Affection	Fear of Abandonment	Low Autonomy	Emotional Dependence
No	≤4	≤4	≤4	≤14
Light/minor	5–6	5	5	15–19
Moderate	7–8	6–7	6	20–23
Severe	9–10	8–10	7–8	24–27
Very severe	≥11	≥11	≥9	≥28
Mean	7.62	7.04	6.56	21.22
SD	3.12	3.24	2.45	7.35
Min	3	3	3	9
Max	15	15	15	45

Note. *M* = arithmetic mean, *SD* = standard deviation; Min = minimum value; Max = maximum value.

Norm development

Table 5 shows the quintiles of the specific and general factors of the EDS-S, along with descriptive statistics such as mean, standard deviation, minimum, and maximum values.

Discussion

Emotional dependence has been positioned as a significant psychosocial concern, with documented links to phenomena such as violence against women and to mental health conditions including depression and personality disorders (Lemos et al., 2019). With respect to prior instruments, the existing measures have proven useful but have largely leaned on the theoretical framework put forward by Castelló (2005). In this sense, the present study delivers a substantial contribution to the field, in that it adopts a qualitative procedure to trace thematic patterns across the writings of several influential authors. This approach affords a broader understanding of emotional dependence and provides the basis on which the EDS-S was constructed.

Mental and behavioral models (Riso, 1999) and psychological theories (Castelló, 2005; De la Villa-Moral & Sirvent-Ruiz, 2008) have been used to explain emotional dependence. The interpersonal model (Blatt & Maroudas, 1992) integrates these two perspectives by proposing that emotional dependence stems from early relational deficits (Horney, 1945). In this respect, these early emotional impairments typically lead to distorted love and attachment patterns, as people constantly seek affirmation and affection from their romantic partners (Scantamburlo et al., 2013). It is important to note that the interpersonal approach integrates different perspectives and offers the theoretical basis for the development of the EDS-S.

Concerning its methodological peculiarity, the current research is grounded on new psychometric methodologies, namely Item Response Theory (IRT), in order to address the limits of past instruments. In this manner, previous tools did not systematica-

lly analyze factorial structures with rigor, they just used Cronbach's alpha and ignored the tau-equivalence requirement (Cho, 2016). On the other hand, the use of IRT enables the EDS-S to attain parameter invariance, which enhances the accuracy of measuring this complicated multidimensional concept. It is worth noting that, while critics have pointed out that brief instruments might not be able to capture complex phenomena adequately, the EDS-S is consistent with a global trend towards the development of brief but useful tools, as evidenced in adjacent fields such as personality traits (Zhang et al., 2019) and emotional regulation and emotional regulation.

With respect to response patterns, the EDS-S revealed that the most extreme options, namely "Many times my case" and "Always my case", were selected less frequently. This finding is in agreement with the conceptualization of emotional dependence as a psychopathological construct (Castelló, 2005), which is uncommon in non-clinical populations. These results highlight the relevance of examining response behavior in groups at greater risk, such as women survivors of intimate partner violence (Bonilla-Asalde et al., 2021). On the other hand, such response distributions may pose methodological challenges for certain IRT models, including the Andrich scale (Andrich, 1978); nevertheless, when investigating phenomena whose distribution is presumed to be skewed, these models can still capture information aligned with the research objective (Linacre, 2002).

The EDS-S is best conceptualized as a measure of emotional dependence. It has a general factor and three specific dimensions: the need for affection, the lack of autonomy, and the fear of abandonment. The internal consistency observed for these dimensions was moderate, which is in line with previous research (Castelló, 2005; Riso, 1999), which supports their validity. Notably, the general factor matches the idea of emotional dependence as a broad affective need, in line with how anxiety and depression have been conceptualized (Castelló, 2005; Horney, 1945). Aside from that, while

previous research has used second-order models to describe emotional dependence (Urbiola et al., 2014), the present study also examined a bifactor solution that yielded an acceptable empirical fit and permitted the measurement of additional relevant indicators (Rodríguez et al., 2016). When looked at as a whole, this data puts emotional dependence in a multidimensional context that does not make it harder to understand.

Differential Item Functioning (DIF) analysis showed only minor differences between women and men. This is in line with previous studies that found men to have slightly higher scores (Aiquipa, 2012; Valle & De la Villa-Moral, 2017). In this way, the items related to low autonomy (Items 1 and 3) showed larger differences between the sexes, which may indicate lower decision-making maturity among male respondents. The item addressing the need for affection (Item 2) showed higher endorsement among women, which is consistent with the view that men and women have different emotional needs (Castelló, 2005; Horney, 1945). Even though these changes are still modest, their consistent appearance across analyses indicates that the EDS-S is applicable to a wide range of different populations.

In terms of keeping items, the removal of Items 7, 10, and 12 was warranted on both empirical and conceptual grounds. These items had low discrimination parameters and high ECV-I values, an indication of unidimensionality concerns (Stucky & Ede-len, 2015). Conceptually, Item 7 captured distancing behaviors rather than fear of abandonment, whereas Items 10 and 12 contained exclusive wording that non-clinical respondents could misinterpret. In this way, the final nine-item version of the EDS-S is both theoretically sound and statistically consistent. This positions the EDS-S as a suitable instrument for screening in general populations. Specifically, the hierarchical omega coefficient indicated that the EDS-S was internally consistent, providing accurate measurement of both the general and specific factors. In this way, the result supports the reliability of the instrument and its ability to catch the subtleties

of the concept (Rodríguez et al., 2016).

With respect to reliability, the hierarchical omega coefficient brought to light the internal consistency of the EDS-S and speaks to its precision for measuring both the general factor and the specific factors. In this sense, the finding underpins the consistency of the instrument and its capacity to capture the nuances of the construct (Rodríguez et al., 2016).

The EDS-S also showed significant associations with external variables like such as well-being (WHO-5) and fear of loneliness (BSFL-5), in line with theoretical expectations (Castelló, 2005; Perrotta, 2021). Loneliness is an aversive experience that can make people do hurtful and unhealthy elements in relationships, which can hurt their general health (Bonilla-Asalde et al., 2021). The WHO-5 covers a wide range of well-being dimensions, which may attenuate its association with emotional dependence. However, structural equation modelling (SEM) confirmed the EDS-S's internal structure, providing further support for its construct validity.

Because of this, quintile-based scoring frameworks were created for clinical use, giving us a useful way to understand the EDS-S results. These scales, widely used in psychological assessments, facilitate diagnosis and the planning of psychological interventions. This addition enhances the EDS-S's applicability for mental health professionals.

Several alternative interpretations of the present results deserve close attention. With respect to the bifactor solution, the strong fit may partly reflect statistical over-fitting rather than substantive psychological structure, since bifactor models are known to absorb residual variance even when the underlying dimensions are not theoretically distinct (Bonifay et al., 2017). On the other hand, the high correlation observed between the EDS-S and fear of loneliness could reflect a common construct of anxious attachment rather than two empirically separable phenomena (Vowels et al., 2022). It is worth mentioning that, beyond statistical fit, the rejection of items 7, 10, and 12 might also stem from item wording, particularly the use of exclusive quantifiers

such as “only” and “without”, rather than from the absence of the underlying construct.

Both the three-dimensional model (M2) and the M4 Bifactor model reached acceptable global fit, indicating that both solutions are psychometrically defensible. The M4 Bifactor model was retained as the principal model not because M2 was inadequate, but because it allows testing the presence and strength of a general factor underlying the EDS-S items. Its selection was supported by lower information criteria and by bifactor-specific indices (ECVGen, ω H, H, FD), which provide complementary evidence about the general factor without invalidating the three-dimensional structure (Rodríguez et al., 2016). However, bifactor solutions may be sensitive to sample size and model characteristics, such as factor loadings and the relative strength of the general and specific factors (Bader et al., 2022). Thus, in smaller samples, the general factor may be less stable or less clearly defined. In such cases, M2 remains a prudent, valid, and theoretically coherent alternative, especially because it preserves the original three-dimensional structure of the EDS-S.

In addition to these factors, variables not assessed in the present study may help account for some of the variability in EDS-S scores. Attachment anxiety is known to correlate strongly with emotional dependence in adults (Vowels et al., 2022). The absence of this measure precludes consideration of the contribution of insecure attachment. Traumatic childhood events, a history of intimate partner abuse, and current depressive or anxious symptoms are plausible third variables not included in the present study. Regarding cultural factors, religious beliefs and gender-role expectations may influence responses to questions about romantic relationships. Furthermore, social desirability was not controlled in the present study. This constitutes a methodological safeguard that should be incorporated into future studies.

Beyond unmeasured variables, several methodological factors deserve close attention. With respect to data collection, online modality through

social networks may have favored participants with greater voluntary engagement and digital access, which restricts the representativeness of the analytic sample. On the other hand, the cross-sectional design precludes inferences about temporal stability or causal direction between emotional dependence and external constructs. It is worth mentioning that the present application relied exclusively on self-report, without behavioral validation or external informants, which is a known source of mono-method bias (Podsakoff et al., 2003). Accordingly, future studies should adopt mixed designs that include behavioral indicators (e.g., relationship-specific behavioral diaries) and multi-informant assessment (e.g., partner reports), to provide convergent evidence beyond the EDS-S self-report.

Several limitations of the present research should be considered when interpreting the results. With respect to sampling, recruitment relied on non-probabilistic convenience sampling through social networks, which over-represented young adults with internet access and education above the secondary level. It is worth mentioning that the analytic sample skews toward adults aged 18 to 25 (74.9 % of the analytic sample fell in the 18–25 range). Although the EDS-S was validated within this age range, generalization to clinical populations or older adults requires further evidence. On the other hand, the absence of clinical samples (i.e., individuals diagnosed with dependent personality disorder or attending psychotherapy for relationship issues) limits the applicability of the present norms for high-severity cases.

Alternatively, the analyses are bounded by the restrictions of the polytomous IRT framework. With respect to model assumptions, the graded response model presumes ordered response categories and monotonic item characteristic curves, conditions which may be partially violated in items where extreme categories are rarely selected. It is worth mentioning that the bifactor solution requires essential unidimensionality, an assumption that may not hold strictly when specific factors carry substantive theo-

retical content. In addition, the Q3* statistic for local independence has yet to be benchmarked in bifactor IRT settings (Christensen et al., 2017). Additionally, the elimination of 45 participants through Zh person-fit screening may have removed clinically interesting cases (highly dependent individuals with extreme response patterns), an aspect that future research should address with clinical reference samples.

In this sense, future research should address these limitations along four specific lines. With respect to representativeness, it would be desirable to (a) extend the validation to clinical samples and survivors of intimate partner violence, with quota sampling for older adults aged 41 to 65. Second, longitudinal evidence is needed; therefore, future studies should (b) collect repeated measures so as to document the temporal stability of EDS-S scores and the predictive validity of the instrument over relationship outcomes. It is worth mentioning that face-to-face administration is also recommended, in order to (c) compare the response pattern between online and in-person modalities. With respect to dimensionality, future studies should (d) consider mixed-method designs that combine the EDS-S with qualitative interviews on adult attachment and trauma history.

It is worth mentioning that this sample produced a relatively homogeneous profile in terms of age and academic exposure, which may explain the attenuation of the specific factors observed in the bifactor solution ($\omega_{HS} \leq .25$ in need for affection and fear of abandonment). With respect to age, the upper bound of the present analytic sample was 50 years, which limits the inference about older adults whose relational patterns may differ in substantive ways. In this sense, the educational and age homogeneity of the present sample restricts the generalization of the present findings, an aspect that the future multi-context studies described above should explicitly address.

Taken together, the present work redefines emotional dependence as an "excessive emotional bond experienced within a romantic relationship", thereby

putting forward a clearer and more precise conceptualization. In this sense, the EDS-S has emerged as a brief, valid, and reliable instrument that brings together modern theoretical and methodological approaches and sets a rigorous standard for future research. When looked at as a whole, this instrument could make it easier to facilitate the early identification of emotional dependence and support more personalized and effective interventions for this complex psychological phenomenon.

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Appendix A

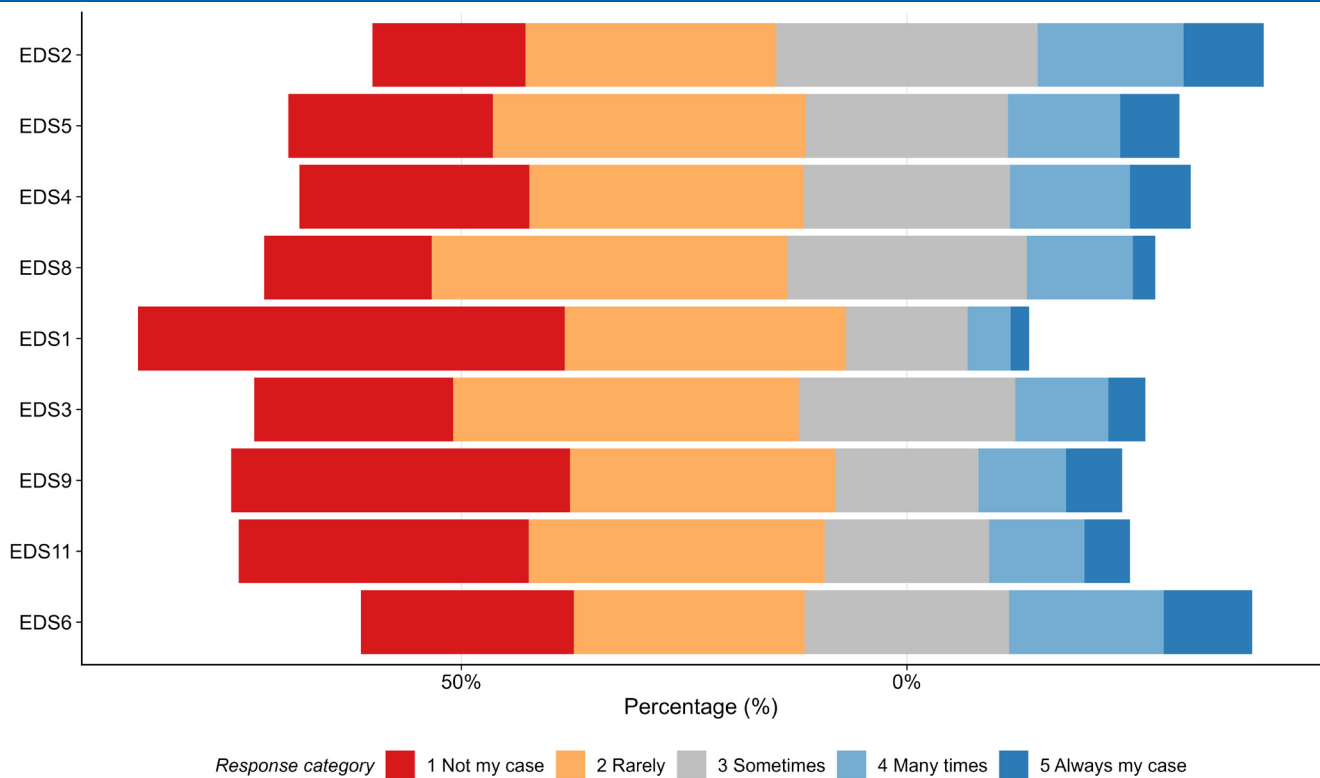
EDS-S-9 Instrucciones: A continuación, se le presentan un conjunto de preguntas acerca de su relación de pareja. Responder a las preguntas valorando en una escala del 1 al 5, donde:

1	2	3	4	5				
No es mi caso	Pocas veces es mi caso	Regularmente es mi caso	Muchas veces es mi caso	Siempre es mi caso				
Preguntas								
1. Deja de realizar actividades porque su pareja se lo pide.				1	2	3	4	5
2. Necesita que su pareja le demuestre afecto.				1	2	3	4	5
3. Si tiene planes los cambia para hacer sentir bien a su pareja.				1	2	3	4	5
4. Considera doloroso no recibir afecto por parte de su pareja.				1	2	3	4	5
5. Se siente mal si su pareja no le demuestra afecto.				1	2	3	4	5
6. Sentiría intranquilidad si su pareja le plantea terminar la relación.				1	2	3	4	5
7. <i>Le atemoriza que su pareja se aleje enojado de su lado.</i>				1	2	3	4	5
8. Ha cambiado su decisión después de escuchar la opinión de su pareja.				1	2	3	4	5
9. La idea de ser abandonado por su pareja le da miedo.				1	2	3	4	5
10. <i>Hace cosas solo para que su pareja le demuestre afecto.</i>				1	2	3	4	5
11. Le preocupa pensar que la relación con su pareja vaya a terminar.				1	2	3	4	5
12. <i>Le resulta difícil tomar una decisión sin el apoyo de su pareja.</i>				1	2	3	4	5

Note. Items in italics were deleted after statistical analysis.

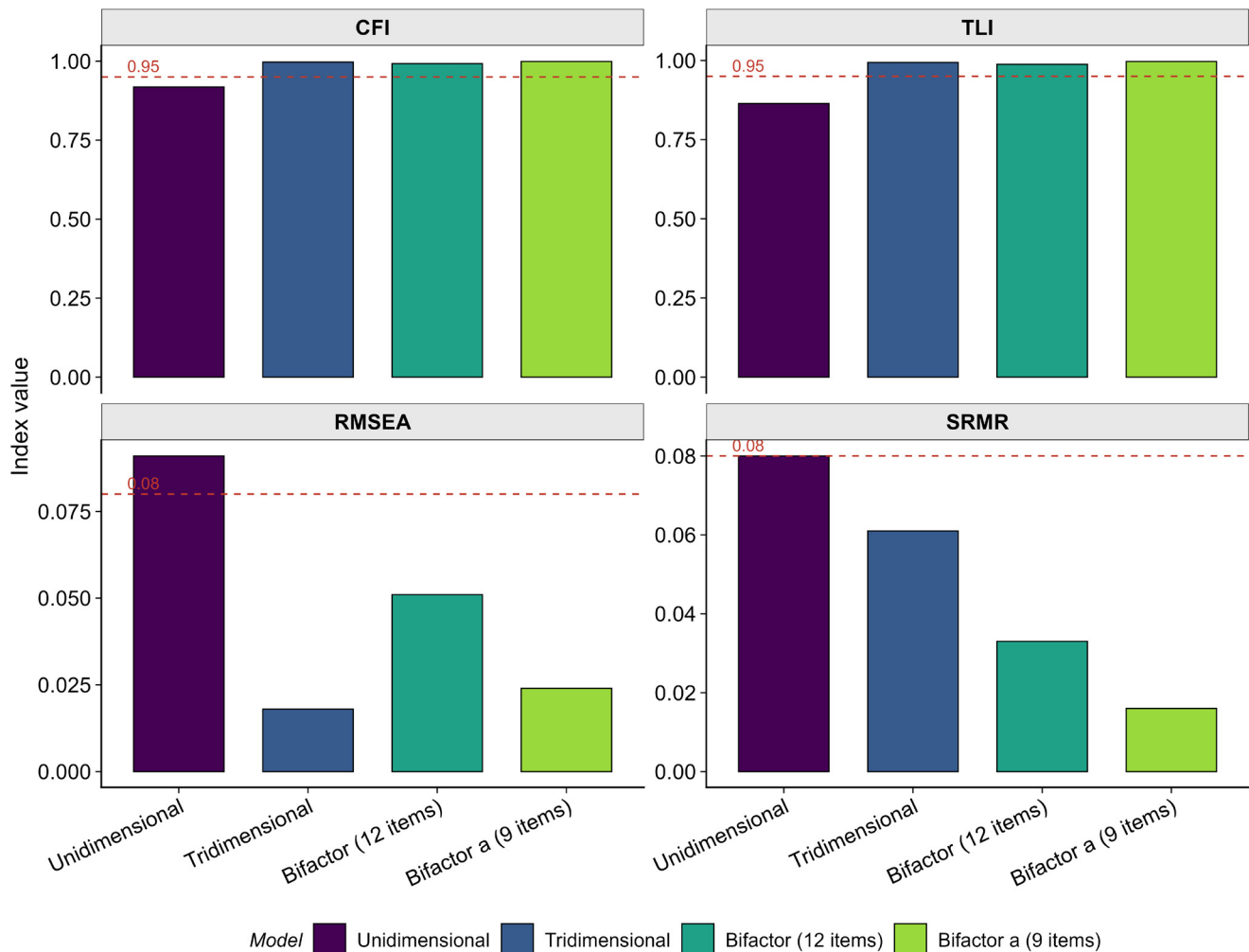
Supplementary Material

Figure S1: Item-level response distribution across the five Likert categories for the EDS-S



Note. Divergent (Heiberger-Holland style) plot showing the response distribution of the nine retained EDS-S items. Each bar segment is the percentage of respondents endorsing each Likert category.

Figure S2: Comparison of model fit indices across four candidate IRT/CFA specifications



Note. Comparison of four IRT/CFA model specifications on standard fit indices. Dashed red lines mark conventional thresholds (CFI $\geq .95$, TLI $\geq .95$, RMSEA $\leq .08$, SRMR $\leq .08$).