

*Development and Validation of the Interpersonal Emotion Regulation for
Couples Scale (SIERC) in the Spanish population*

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ABSTRACT

Antecedents. Interpersonal emotional regulation (IER) is the deliberate attempt to influence others' emotions. There is not enough research on IER in the context of romantic couples. **Aim.** The aim of the present study was to develop and validate an instrument to assess couples' IER and understanding its functioning at both an individual and dyadic level. **Method.** Participants were 764 adults and 91 dyads. Three studies were carried out: first, to study the psychometric properties of the scale and its validity; second, to understand the functioning of the scale at a dyadic level; third, to analyse the predictive capacity of the instrument. **Results.** Our 11-item scale has four factors: observe, ask, validate, and soothe feelings. These factors are doubly evaluated: as an agent (SIERC-A) and as a target (SIERC-B). The scale showed good psychometric properties and adequate internal consistency. It presents convergent validity with emotional competences, and divergent validity with emotional dysregulation and insecure attachment. At a dyadic level, there is an actor-partner effect of IER on couple adjustment. Finally, IER seems to predict relationship satisfaction, sexual satisfaction, and life satisfaction. **Discussion.** This new instrument can be a useful tool for assessment and intervention in couple therapy and research.

Keywords: interpersonal emotion regulation, couples, dyads, instrument, validation.

Introduction

From the beginning of our species, emotions provide us with important information about ourselves and our environment and predispose us to act (Al-Shawaf & Lewis, 2017). Emotions play a fundamental role in our adaptive functioning, but a complementary process of regulation is necessary to return to the homeostatic state (Tamir et al., 2020).

Emotional regulation or *self-regulation* (ER) refers to those processes by which people influence the emotions we have, when we have them, and how we experience and express them (Gross, 1999). Emotion regulation is a fundamental aspect of human socialization when a child learns to respond based on other people's inner states rather than to the outward behaviors (Hofmann et al., 2016). Therefore, attachment style is closely related to the way a person regulates their own or other people's emotions. People who are more capable to regulate their own emotions have more satisfying couple relationships (Rick et al., 2017) and are less likely to suffer or perpetrate intimate partner violence (Berke et al., 2019).

Most studies on emotion have focused on the study of ER (Brandão et al., 2019). However, as we are social beings, our emotional regulation usually occurs in social and interpersonal contexts, and its outcome is decisive for interactions with others (Niven et al., 2019). Therefore, research on interpersonal emotional regulation has been increasing in recent years (Christensen, 2019).

Interpersonal emotional regulation (IER) is defined as the deliberate attempt to influence the emotions or moods of others (Niven, 2017). There is considerable confusion in the literature about the terminology referring to IER and what its processes are (Dixon-Gordon et al., 2015). According to a recent clarification exposed by Niven (2017), IER has four distinctive characteristics: (1) it is a regulatory process, that is, it is about changing or maintaining a state in line with some kind of reference goal; (2) it has an affective target, as the state that is being regulated is a feeling state (this distinguishes IER from other processes whereby the state being regulated is cognitive or behavioral); (3) it is a deliberate process: it is intentional, controlled, resource-intensive and engaged with conscious awareness (this distinguishes IER from similar undeliberated processes as emotional contagion or emotional coregulation); and (4) it has a social target, involving a regulator (the *agent*, who is engaging in the act) and a different person (the *target*, who is being regulated).

It can be observed that, apparently, IER has some similarities with other interpersonal processes, such as social support. In addition, fMRI research demonstrates that EIR activates the brain areas responsible for mentalization and other facets of social cognition, such as the left anterior temporal pole and left anterior temporal cortex (Hallam et al., 2014). However, IER is a more specific construct that refers to the interpersonal context in which an individual's emotions are intentionally regulated by others, so available instruments on social support are not useful for measuring IER (Hofmann, 2016). To further increase the complexity of the concept, we can say that the appropriateness of an IER behavior can change depending on the interpretation of the target person or the context (Niven, 2017).

The regulation of emotions in the couple has a number of special characteristics: (1) it is dynamic and iterative, as the partners act and react to each other's emotions; (2) it is intrapersonal and interpersonal, as each person not only intentionally regulates his or her own emotions but also those of his or her partner; (3) it is bidirectional, as they regulate the intensity of emotions both downward (less intensity) and upward (more

intensity); and (4) it is bivalent, as the couple must regulate both negative and positive emotions (Levenson et al., 2014).

The literature suggests that IER is related to the well-being and health of both the agent and the target (Brandão et al., 2019; Haase et al., 2016). The ability to influence others' emotions is associated with a decrease in aggressive behavior, and an increase in positive affect and positive conflict resolution (Company, 2016). People with well-developed IER have a larger and higher quality social support network, basing their interpersonal relationships on trust and solidarity (Christensen, 2019). Regarding romantic couples, one partner's ability for emotional expression is related to the other partner's perception of relationship functioning and relationship stability (Rusu et al., 2019). In addition, the speed of regulating one's own and the partner's negative emotions in a conflict is an important longitudinal predictor of relationship satisfaction (Bloch et al., 2014).

One of the main problems is how to measure IER. A reduced number of instruments has been developed to assess which IER strategies people use in diverse social contexts, such as work team (*Interpersonal Emotion Management Scale*; IEM; Little et al., 2011). Other instruments are dedicated to detecting whether the intentionality of the strategies implemented is aimed at improving or worsening the other person's affection (*Emotion Regulation of Others and Self*; EROS; Niven et al., 2011). An instrument has also been developed to assess the target, in other words, how the target actually feels the IER attempt from the agent (*Interpersonal Regulation Interaction Scale*; IRIS; Swerdlow & Johnson, 2020). However, these instruments have been developed in English, and are not properly adapted and validated in Spanish. Some instruments for assessing aspects related to IER have been developed in this language (e. g., *Interpersonal Emotional Regulation Questionnaire*; CIRE-43; Company et al., 2012), but they have not been adequately validated nor they adhere to a clear definition of the concept of IER.

From the literature review, another relevant issue arises: do we really behave the same way in different social contexts, as work colleagues, family, friends, or acquaintances, even with our romantic partner? According to previous literature, people react with different emotional intensity and different behavioral responses to a perceived rejection, depending on the type of relationship they had with the person who rejects them (Jones & Barnett, 2020). Likewise, the patterns of emotional expressivity seem to be different according to the type of bond that exists between people (Lindsey, 2019), and some characteristics of that bond, such as the duration of the relationship in the case of romantic partners (Ursu & Turliuc, 2020). However, most previous studies examine the different emotional regulation strategies used according to the type of relationship, but it is unknown whether there are differences in the degree of skill (Niven et al., 2015). Then, are our IER skills with people in general different than our skills with the romantic partner?

In accordance with this proposal, IER with the romantic partner should be studied in a particular way. Firstly, because of the complexity of the romantic relationship and its characteristics, which are in some extent different from other social relationships (considering the high level of commitment, emotional and intellectual intimacy, future projects in common, cohabitation or time sharing, and its level of priority over other bonds) (Ditzen et al., 2019). Secondly, couple is considered the social bond with the strongest influence on adults' well-being and health (Roberson et al., 2018).

Although it would be expected that the literature on ER and IER in couples would be widely developed, this expectation is far from reality. According to the review by

Campos et al. (2011), only 12% of the studies on ER (from 2001 to 2011) assessed dyadic ER (in interaction with the partner). Thus, much of what is known about couple ER comes from single-person studies. Moreover, not enough attention has been paid to the study of IER in the specific context of couple relationships, e. g., what people concretely do to regulate their partner's emotions (Brandão et al., 2019). To our knowledge, there has not been yet developed a specialized instrument to measure IER in the context of the romantic couple.

Therefore, the study of IER in the romantic couple is an area that is still growing. After reviewing the existing literature, several gaps remain to be filled. First, it is required a development of new methods of dual assessment (both agent and target). In addition, it is needed to increase the number of dyadic studies to understand how the IER of both partners interacts, as they are commonly actors and targets at the same time. Finally, according to Stephens et al. (2021), it would be important to conduct more research on the consequences of couples' IER, studying its impact on other individual and relationship variables.

The aim of the present research is to develop and validate a scale to assess IER in romantic couples, considering a dual role (both “agent” or “my perception of my IER abilities with my partner”, and “target” or “my perception of my partner’s IER abilities with me”). Three studies will be carried out, with the following objectives: first, to study the reliability and validity of the developed scale; second, to study its functioning in dyads of romantic couples; and third, to analyze the predictive capacity of the IER measured by our scale of relationship satisfaction, sexual satisfaction and life satisfaction.

The hypotheses proposed are the following: (1) the scale will have adequate internal consistency, as well as other optimal psychometric properties; (2) the scale will present convergent validity with emotional intelligence and emotional competences, and discriminant validity with emotional dysregulation and insecure attachment; (3) self-perceived IER levels will match the levels that the partner reports about oneself; (4) the IER skills of both partners are combined in dyadic interaction influencing the relationship adjustment; and (5) the level of IER will positively predict relationship satisfaction, sexual satisfaction and life satisfaction.

Study 1

Objective

The aim of the present study was to develop and validate the SIERC-A (self-perception of skills) and SIERC-B (perception of partner skills) scales to measure interpersonal emotional regulation with romantic partners. It is planned to study both its reliability and its convergent validity with emotional intelligence and emotional competencies and its discriminant validity with emotional dysregulation and insecure attachment.

Method

Participants

Participants were 464 Spanish adults aged between 18 and 45 ($M = 24.57$ years; $SD = 4.32$). With regard to gender, 70.1% ($n = 325$) were women and 29.9% ($n = 139$) were men. All participants were in a couple, the duration of their relationships ranging

from 3 months to 11 years ($M = 38.12$ months; $SD = 27.35$) and 71.10% ($n = 330$) of the participants are not currently cohabitating with their partner. Considering the educational level of our sample, 10.94% have basic compulsory education, 22.40% have studied high school or vocational training, 40.63% have a university degree and 26.04% have a master's degree or doctorate. None of them had children.

Instruments

Couple's Interpersonal Emotion Regulation. The Interpersonal Emotion Regulation for Couples Scale (SIERC; see supplementary material) was used, developed in an original Spanish form and adapted into English language by the authors. It is a 5-point Likert scale (1: Almost never; 5: Almost always) composed by two forms (Form A and Form B) with 11 items each. Both forms are answered by the same respondent and completely independent, so they can be used separately. SIERC-A (self-perception or agent) assesses the perception of one's own ability to regulate their partner's emotions and is composed by four factors: (1) I observe your feelings; (2) I ask about your feelings; (3) I validate your feelings; and (4) I can soothe your feelings. SIERC-B (other-perception or target) assesses the respondent's perception of the partner's ability to regulate one's emotions, being composed by the same four factors: (1) I perceive you observe my feelings; (2) I perceive you ask me about my feelings; (3) I perceive you validate my feelings; and (4) I perceive you can soothe my feelings.

Emotional Intelligence. The Trait Meta-Mood Scale (TMMS-24; Fernandez-Berrocal & Extremera, 2004) was used. The 24-item scale, with five response alternatives, assesses the individual's perception of their own emotional skills (e. g., "*I am usually very clear about my feelings*"), and it is formed by three dimensions: (1) Attention, the ability to perceive and express one's feelings; (2) Clarity, the ability to understand one's emotions; and (3) Repair, the ability to manage emotional states adequately. The internal consistency estimated for all subscales was above .85, and the test-retest correlations after 4 weeks ranged from .60 to .83 (Fernandez-Berrocal & Extremera, 2004).

Emotional competences. The reduced version of the Emotional Skills and Competencies Questionnaire (ESCQ-21; Takšić et al., 2009; Spanish adaptation by Schoeps et al., 2019) was used. It consists of 21 items with a 6-points Likert scale (e. g., "*I can easily name most of my feelings*") and presents three factors: (1) Perception and understanding of emotions; (2) Labelling and expression of emotions; and (3) Management and regulation of emotions. Reliability according to Cronbach's α was good, specifically .84, .90 and .79 for the three factors respectively.

Emotional dysregulation. The Difficulties in Emotion Regulation Scale (DERS; Gratz y Roemer, 2004; Spanish validation by Hervás & Jódar, 2008) evaluates different aspects of maladaptive emotional regulation. The Spanish adaptation consist of 28 items with a 5-point Likert scale. In this study we used the total emotional dysregulation factor (e. g., "*When I feel bad, it is difficult for me to control my behavior*"). In terms of reliability and validity evidence, this scale was shown to have high internal consistency ($\alpha = .93$), good test-retest reliability over a 4- to 8-week period, and adequate predictive and criterion validity (Gratz and Roemer, 2004).

Adult Attachment. The Experiences in Intimate Relationships questionnaire (ECR-S; Brennan et al., 1998; Spanish version by Alonso-Arbiol et al., 2008) was used. It consists of 36 items with a 7-point Likert scale. It evaluates two dimensions of insecure attachment: anxiety (fear of rejection and abandonment by the romantic

partner; e. g., “*I need my partner to constantly confirm that he or she loves me*”) and avoidance (feeling uncomfortable maintaining emotional intimacy with others; e. g. “*I prefer not to show my partner how I feel inside*”). Regarding the psychometric properties, it presents high internal consistency and appropriate test-retest reliability over a 6-week period, as well as good criterion and construct validity. The Cronbach's α indices were .85 for the anxiety scale and .87 for the avoidance scale.

Procedure

The study was carried out following the guidelines of the Helsinki Declaration and the Council of Europe Convention on Human Rights. The present work has the approval of the Ethics committee of the host university (procedure number: H152846236674). In addition, the requirements established in Spanish legislation in the field of biomedical research, personal data protection and bioethics were met. The evaluation was developed online through the platform Limesurvey. We used a convenience sampling method, using a snowball-sampling technique. Participants were reached online, through the dissemination of the research through social networks and the research team's website. Before answering the questionnaires, participants were thoroughly informed about the terms of the study, and they consented their voluntary participation. The provided information included the anonymity and confidentiality of the collected data. The data were subsequently statistically analysed.

Data analysis

The Exploratory Factor Analysis (EFA) was carried out using FACTOR program (version 10.5.01). Parallel Analysis (PA) was used for determining the number of components in the model, which was conducted by using the Unweighted Least Squares method (ULS), with a Direct Oblimin rotation. The Confirmatory Factor Analysis (CFA) was conducted through the Mplus (version 7.0). We used the SPSS program (version 22.0) for calculating descriptive statistics, Cronbach's alpha and Pearson correlations. The Average Variance Extracted (AVE) and Composite Reliability Coefficient (CRC) were calculated using a template in Microsoft Excel 365. Finally, Pearson's bivariate correlations were performed to study: (1) convergent validity with emotional intelligence (attention, clarity, and reparation) and with emotional competences (perceive and understand, label and express, manage and regulate); and (2) discriminant validity with emotional dysregulation and insecure attachment (anxiety and avoidance).

Development of SIERC

This instrument was developed following the main criteria proposed by Muñiz & Fonseca-Pedrero (2019): (1) delimitation of the general framework, (2) definition of the variable to be measured, (3) specifications about the questionnaire administration, (4) item development, (5) edition of the instrument, (6) pilot study, (7) selection of other measurement instruments, (8) test administration, (9) assessment of psychometric properties, and (10) development of the final version.

In the first place, the general framework about IER skills was delimited, as well as the definition of the variable to be measured (perception of own IER skills and the romantic partner's IER skills). Then, the specifications about the questionnaire administration were addressed. The instruction was “*Please indicate how often the following statements occur to you in relation to your partner*” for SIERC-A, and “*Please indicate how often you think the following statements occur to your partner in*

relation to you" for SIERC-B). It was decided to use a 5-point Likert scale (1: Almost never; 5: Almost always). This was followed by the item development phase.

The development of the items was carried out by three experts in the area, who proposed a total of 24 items. These items were formulated both in self-perceived format for form A and in partner perception format for form B. Subsequently, five other experts judged each item on the basis of four criteria: validity (adequacy and appropriateness of the item to the object of study), location (assignment of the item to the dimension in question, assessing the extent to which it is correct), univocity (precision in the formulation of the item, so that it can only be understood in a specific way, in the face of possible ambiguity or other interpretations of the item) and intelligibility (ability of the item to be understood by the target population). Each item was scored on a scale of 1 to 5 (1 = Not at all; 5 = Very strongly) for each of these four criteria. A fifth criterion called "indispensability" was used, where the judges marked whether they considered the item essential for the scale or whether, on the contrary, it might not be necessary or even eliminated. Those items with the best indexes for both forms of the SIERC were chosen, also considering those that were most often considered indispensable. In the first version of the instrument, 13 items were proposed, three of which were reversed (items 5, 8 and 11).

Subsequently, the instrument was edited following the suggestions of the experts by implementing certain modifications to the wording of some items to improve their intelligibility. A brief pilot study was subsequently conducted, where a small sample of people ($n = 10$) were asked to respond to the scale and were briefly interviewed by a member of the research team. Both the time they took to respond ($M = 4.10$ minutes; $SD = 1.05$) and their subjective and qualitative perception of the ease of comprehension of the items were evaluated. The feedback obtained in this pilot study was positive. Furthermore, other measurement instruments were selected to compare convergent and discriminant validity, choosing emotional skills questionnaires whose psychometric properties had been previously demonstrated.

Then, the instrument was administered and its psychometric properties were studied as described in the Data analysis section. Finally, the final version of the instrument was reached. As will be explained later, after the exploratory and confirmatory analyses, also considering the qualitative criteria of the authors, it was decided to eliminate two items (items 5 and 11) from both forms. Thus, the final version of the instrument has 11 items, in a four-factor structure. This version was made and applied in Spanish language. Subsequently, a double translation was performed by two bilingual experts in the field. First, the items were translated from Spanish into English and back into Spanish to check that the translation was faithful to the original message.

Results

Exploratory Factor Analysis (EFA)

First, the database was separated into two sub-databases, allocating the participants by randomization. The first sub-database was used for the EFA, and the second for the CFA. An EFA (Table 1) was conducted for both forms of the questionnaire separately. The Kaiser-Mayer-Olkin indexes and the Bartlett's sphericity test were satisfactory [SIERC-A: $KMO = .84$, $\chi^2(78) = 1046.1$, $p < .001$; SIERC-B: $KMO = .92$, $\chi^2(78) = 1826.2$, $p < .001$] and both forms showed adequate index fits (SIERC-A: $RMSEA = .02$; $CFI = .99$; $GFI = .99$; SIERC-B: $RMSEA = .00$; $CFI = 1.00$; $GFI = .99$).

With respect to SIERC-A, it is observed that all items saturate adequately in their factor (with a coefficient above .400), except for the item 11 ($c = -.045$). With respect to SIERC-B, it is observed that all items saturate adequately in their factor, except for the item 5 ($c = .382$) and 11 ($c = .065$).

-----TABLE 1-----

Confirmatory Factor Analysis (CFA)

CFA were conducted (Table 1), obtaining adequate fit indexes for the SIERC-A [χ^2 (df) = 749.67 (78); RMSEA (CI) = .06 (.04-.08); CFI = .93; TLI = .90] and SIERC-B [χ^2 (df) = 1349.78 (78); RMSEA (CI) = .09 (.07-.10); CFI = .91; TLI = .88].

Regarding the SIERC-A, all items saturated adequately (above .504) with the exception of item 8 ($c = .347$), item 5 ($c = .272$) and item 11 ($c = .296$). Regarding the SIERC-B, all items saturated adequately (above .557). After deleting the two items with the least acceptable saturation (item 5 “I criticize my partner for feeling a certain way” and item 11 “I can accept and support my partner's negative emotions”), the model was retested, adding also a total interregulation factor formed by the sum of the four factors. In this version, better indices were obtained for both forms of the questionnaire than in the previous version [SIERC-A: χ^2 (df) = 664.86 (55); RMSEA (CI) = .04 (.01-.07); CFI = .97; TLI = .96; and SIERC-B: χ^2 (df) = 1175.49 (55); RMSEA (CI) = .08 (.06-.10); CFI = .94; TLI = .91].

Considering that these indexes are already good, it was decided to definitively eliminate items 5 and 11, keeping item 8 in order to preserve the coherence of the scale's content. From this point on, the rest of the analyses were carried out with the final version of 11 items (Figure 1 and Figure 2).

-----FIGURE 1-----

-----FIGURE 2-----

Descriptive statistics and reliability

As we can see in Table 2, reliability analysis showed a good internal consistency for both forms of the questionnaire in the total factor (SIERC-A: $\alpha = .84$, $\sqrt{AVE} = .68$, $CRC = .90$; SIERC-B: $\alpha = .92$, $\sqrt{AVE} = .78$, $CRC = .95$). The internal consistency of the SIERC-A factor "I observe your feelings" shows poor internal consistency ($\alpha = .56$). All items presented adequate item-scale correlations and the instrument's Cronbach's alpha did not increase with the removal of any of the items, which indicates that all of them contribute positively to the internal consistency of the scale.

-----TABLE 2-----

Regarding the descriptive analysis, we observe that the mean obtained for agent IER abilities is slightly higher ($M = 16.67$; $SD = 2.16$) than target IER abilities ($M = 16.14$; $SD = 3.18$), although it was not studied the significance of this difference. With respect to gender differences, it is observed that women seem to ask their partners significantly more about their emotions than men do ($t = 2.56$; $p = .011$).

Validity

As shown in Table 3, considering the significance of Pearson correlations, the total factor of IER (in both forms A and B) presents: (1) convergent validity with emotional intelligence (attention, clarity, and reparation) and with emotional

competences (perceive and understand, label and express, manage and regulate); and (2) discriminant validity with emotional dysregulation and insecure attachment (anxiety and avoidance).

All the SIERC-A subfactors are significantly and positively correlated with emotional intelligence and emotional competences factors, excepting "I can soothe your feelings" with emotional attention. The correlations with the largest effect sizes are between: (1) "I observe your feelings" with emotion perception and understanding ($r = .43$; $p = .000$); (2) "I ask you about your feelings" with emotional clarity ($r = .40$; $p = .000$) and with emotional labelling and expression ($r = .41$; $p = .000$); and (3) "I validate your feelings" with emotional clarity ($r = .42$; $p = .000$). All the SIERC-A subfactors are significantly and negatively correlated with emotion dysregulation and with insecure attachment styles. The correlation with the largest effect size is between ask the partner about his or her emotions and avoidant attachment ($r = -.51$; $p = .000$).

All SIERC-B subfactors are correlated with the variables mentioned in the same direction, except: (1) "You ask me about my emotions" with the three factors of emotional competences and with emotional dysregulation; (2) "You validate my emotions" with perception and understanding; and (3) "You can soothe my emotions" with attention. Some of the highest effect size correlations are between avoidant attachment and the perception that the partner does not observe ($r = -.40$; $p = .000$), does not ask ($r = -.40$; $p = .000$), does not validate ($r = -.47$; $p = .000$), and does not soothe emotions ($r = -.42$; $p = .000$).

-----TABLE 3-----

Study 2

Objective

The aim of the present study was to analyse the functioning of the SIERC scale in dyads of romantic couples. First, we studied whether what participants say about themselves about their abilities matches what their partner says about them. Then, we studied the impact of interpersonal emotional regulation abilities on the perception of dyadic adjustment of the relationship.

Method

Participants

A total of 216 people initially completed the evaluation battery. However, some of these people answered individually, without their romantic partner, and were therefore eliminated from the database. Finally, participants were 91 Spanish heterosexual couples ($N = 182$) aged between 18 and 43 ($M = 22.79$ years; $SD = 4.13$). With regard to gender, 50% ($n = 91$) were women and 50% ($n = 91$) were men. Considering the educational level of our sample, 5.63% have basic compulsory education, 10.50% have studied high school or vocational training, 48.85% have a university degree and 35.02% have a master's degree or doctorate. None of them had children. The length of their relationships ranged from 6 months to 15 years ($M = 39.90$ months; $SD = 27.54$). At the time of the evaluation, the majority of participants (87.5%) did not cohabit. None of the couples was receiving psychotherapy or considering applying for it.

Instruments

Couple's Interpersonal Emotion Regulation (form A and B).

Dyadic adjustment. The Dyadic Adjustment Scale (DAS; Spanier, 1976; Spanish validation by Cano-Prous et al., 2014) is a 32-item scale which assesses couple adjustment (e. g., “*We are in agreement in making important decisions*”). Dyadic adjustment is defined as the outcome of a process determined by the perception of problematic differences in the relationship, interpersonal tensions and personal anxiety, satisfaction with the relationship, cohesion with the relationship and mutual consensus on issues of importance to relationship functioning.

Procedure

The 11-item version of the SIERC obtained in Study 1 was used to evaluate its functioning with dyads. The evaluation was developed online through the platform Limesurvey. We used a convenience sampling method, using a snowball-sampling technique. Participants were reached online, through the dissemination of the research through social networks and the research team's website. The participation of both members of the couple was requested, linking them through a code.

Data analysis

We used the SPSS program (version 22.0) for Pearson correlations and Mplus (version 7.0) for calculate two Actor Partner Interdependence Models (APIM), in which we study the impact of IER on couple adjustment considering the interaction between both members of the dyad. In both APIM models, the dependent variable was the men's and women's perception of their relationship adjustment. In the first model, the independent variable was the IER agent ("my perception of my own IER"), whereas in the second model, the independent variable was the IER target ("my perception of my partner's IER").

Note that in this analysis heterosexual couples were treated as not interchangeable or distinguishable (Kenny et al., 2020). In order to make this decision, a theoretical criterion was followed, in accordance with Kenny & Ledermann (2010) for the treatment of members of distinguishable or indistinguishable dyads. First, there is a dichotomous variable that differentiates both members of the dyad (gender) when dealing with heterosexual couples. Secondly, there is an empirical difference in terms of this variable, since in Study 1 it was shown that women have more interpersonal emotional regulation skills than men measured with the SIERC (women ask more questions about emotions to their partners than men).

Results

Correlations between IER of both members of the dyad

As we can see in Table 4, the IER (agent) of women and men weakly correlates in a positive and significant way ($r = .26$; $p = .021$). The ability of both members to ask each other about their feelings correlates positively and significantly ($r = .38$; $p = .008$).

-----TABLE 4-----

We also studied whether the perceptions of both partners tend to coincide or not. We first correlated "what women say about men" with "what men say about themselves", finding some significant correlations [Ask ($r = .38$; $p = .000$) and Soothe ($r = .26$; $p = .013$)] and non-significant correlations [Observe ($r = .21$; $p = .050$), Validate ($r = -.06$; $p = .607$), and Total IER ($r = .20$; $p = .065$)]. Then, we correlated “what men say about women” with “what women say about themselves”, finding mostly significant

correlations [Ask ($r = .32$; $p = .002$), Validate ($r = .40$; $p = .000$), Soothe ($r = .41$; $p = .000$), and Total IER ($r = .42$; $p = .000$)] excepting in one factor [Observe ($r = .13$; $p = .208$)].

Dyadic impact of IER on couple non-adjustment

As shown in Figure 3 and Figure 4, we found an actor-partner effect from IER to couple adjustment, it means, both actor effects and partner effects were significant. The lack of IER agent of women and men negatively influences the perception of relationship adjustment of both. The same happens with the IER target. The perception that the partner has few IER skills seems to explain more strongly the lack of adjustment ($R^2 = .214$ for women; $R^2 = .236$ for men) than one's own IER skills ($R^2 = .184$ for women; $R^2 = .161$ for men).

-----FIGURE 3-----

-----FIGURE 4-----

Study 3

Objective

The aim of the present study was to analyse the predictive capacity of the SIERC scale on sexual, relationship and life satisfaction.

Method

Participants

Participants were 282 Spanish adults aged between 18 and 72 ($M = 27.15$ years; $SD = 8.20$). With respect to gender, 81.90% were women ($n = 231$) and 18.10% were men ($n = 51$). All of them were in a romantic relationship. The length of their relationships ranged from 1 month to 23 years ($M = 42.30$ months; $SD = 30.43$). At the time of the evaluation, 34.30% of the participants cohabitated with their partner, and 18.20% have at least one child.

Instruments

Couple's Interpersonal Emotion Regulation (form A and B).

Relationship satisfaction. It was assessed using the Relationship Rating Scale (RAS; Hendrick et al., 1998; Spanish validation by Lozano et al., 2010). It consists of seven items in a 7-point Likert scale and refer to the general degree of satisfaction with the romantic relationship (e. g., "My partner satisfies my needs"). It shows good reliability scores ($\alpha = .86$).

Sexual satisfaction. The New Scale of Sexual Satisfaction (NSSS; Stulhofer et al., 2010; Spanish validation by Strizzi et al., 2016) was used. It consists of 12 items with a 5-point Likert scale. In this study we used the factor referred to sexual satisfaction with the partner, in which the respondent is asked to rate their satisfaction with their sexual partner in relation to different aspects (e.g. "Your partner's sexual creativity"). The internal consistency of this scale is excellent ($\alpha = .93$).

Life satisfaction. The Satisfaction with Life Scale (SWLS; Diener et al., 2011; Spanish validation by Vázquez, Duque & Hervás, 2013) was used. It consists of five items with a 7-point Likert-type scale which evaluates people's satisfaction with their

life in general (e. g., “*My life conditions are excellent*”). The scale presents a very good internal consistency ($\alpha = .84$).

Procedure

The evaluation was developed online through the platform Limesurvey. We used a convenience sampling method, using a snowball-sampling technique. Participants were reached online, through the dissemination of the research through social networks and the research team's website. The 11-item version of the SIERC obtained in Study 1 was used to evaluate its criterion validity, observing its ability to predict different aspects of participants' satisfaction: sexual, relationship and life satisfaction.

Data analysis

We used the SPSS program (version 22.0) for multiple linear regression, using stepwise method and selecting the most appropriate regression model. IER factors from SIERC-A and SIERC-B were used as independent variables. Dependent variables were relationship satisfaction, sexual satisfaction, and satisfaction with life.

Results

Influence of IER on satisfaction variables

As shown in Table 5, the three types of satisfaction assessed are significantly predicted by certain IER factors. First, relationship satisfaction is significantly and positively predicted by three SIERC-B factors: my partner asks me about my emotions, validates them, and can soothe them. Second, sexual satisfaction is significantly and positively predicted by the ability to ask my partner about his or her emotions, and by the feeling that my partner asks me about my emotions and can soothe them. Lastly, life satisfaction is significantly and positively predicted by my ability to soothe my partner's emotions and the feeling that my partner validates my emotions.

Specifically, 45.50% of the variance of relationship satisfaction is explained by the perception that the romantic partner validates, asks about, and soothes one's feelings. Then, 26.70% of the variance of sexual satisfaction is explained by the perception that the romantic partner asks about and soothes one's feelings, in combination with the own ability to ask the partner about their feelings. Finally, 12.20% of the variance of life satisfaction is explained by the perception that the romantic partner validates the own's feelings together with the own ability to soothe the partner's feelings.

-----TABLE 5-----

Discussion

The present study arises the interest of filling in the existing gaps in the literature regarding the study of IER in the romantic couple context (Brandão et al., 2019; Campos et al., 2011; Stephens et al., 2021). Our aim was to develop and validate an instrument that assesses the IER of both partners in a doubly informed way: as an agent or self-perception (“*what I say about my own ability to regulate my partner's feelings*”) and as a target or other-perception (“*what I say about my partner's ability to regulate my feelings*”).

First, our first hypothesis was confirmed, as the scale developed showed adequate psychometric properties. Considering the results of exploratory and confirmatory analysis, the final version of our instrument consists of 11 items and a four-factor

structure. The indexes of internal consistency indicated that it is an instrument with an adequate reliability. The second hypothesis was also supported by the validity of the scale, which showed convergent validity with emotional intelligence and emotional competences, and discriminant validity with emotional dysregulation and insecure attachment (anxiety and avoidance). These results are in line with previous studies, which affirm that interpersonal emotional regulation is related to the capacity to regulate one's own emotions as well as to the quality of bonds (Hofmann et al., 2016).

Consistent with the literature, we found that attention is the variable least strongly related to IER, as a high attention to emotions can be counterproductive (Fernández-Berrocal et al., 2004). The variable most strongly and negatively related to IER is attachment avoidance. As they understand emotional regulation as an autonomous process that should be individual (Alonso-Arbiol et al., 2008), avoidant people are the ones who have more difficulties in regulating their partner's emotions.

Furthermore, with respect to the study of heterosexual dyads, we observed some interesting results that partially confirm our third hypothesis. We first correlated "what women say about men" with "what men say about themselves", finding that correlations between self-perceived IER levels informed by men and their levels reported by their female couples are low to non-significant. The report of both members correlates poorly with the factors "I ask about your feelings" and "I soothe your feelings" and does not correlate with the factors "I observe your emotions" and "I validate your emotions", nor with the total IER. Observing the means regarding gender, we understand that women perceive their male partners to be less skilled than men perceive themselves to be. These data could be explained by previous studies (Petrides, 2016), in which it is observed that men seem to have the perception of being more emotionally intelligent than women's perception of themselves, which could suggest a tendency in men to overestimate their emotional intelligence.

This discrepancy does not occur when we correlate "what men say about women" with "what women say about themselves". Here we found moderate correlations, except in the factor "I observe your emotions", where there is no correlation. Women inform that they observe their male partners' feelings more than men actually feel observed. This could mean that women may overestimate their ability to identify their male partner's emotions, or may misattribute certain emotional states to him. This should be studied further in future studies.

Regarding our fourth hypothesis, it is confirmed by the results: there is an actor-partner effect on dyadic adjustment. This means that the own IER in interaction with the partner's IER influences the own perception of dyadic adjustment; and, at the same time, the partner's IER in interaction with own IER influences his or her perception of dyadic adjustment. This is in line with previous studies suggesting that IER has a positive effect on relationship stability and functioning at the longitudinal level (Bloch et al., 2014; Rusu et al., 2019). Being target of IER seems to influence more strongly the perception of dyadic adjustment than being agent, so feeling emotionally cared by the partner may be a more relevant factor than having the ability to regulate the partner's feelings. However, more dyad studies would be needed to fill the lack of existing information in the literature in this regard, as well as the evaluation of pairs at different time points to come to understand the predictive ability of IER (Brandão et al., 2019).

Finally, our instrument confirms our fifth hypothesis, as it seems to predict both couple and individual satisfaction variables. The IER strongly predicts relationship satisfaction, moderately predicts sexual satisfaction, and poorly predicts life satisfaction. The SIERC-B (other-perception or target) instrument more strongly predicts the three types of satisfaction than SIERC-A (self-perception or agent). This

means that a person's perception of his or her romantic partner's abilities may be even more important than their own skills in predicting their own satisfaction. In the same line as proposed by Levenson (2014), the feeling that the romantic partner has the capacity to sustain one's emotions arises as an essential factor for living a relationship as fulfilling.

The present study is not without limitations, such as the use of a convenience sample, as well as the limitations derived from self-report instruments in general. In addition, in the study of dyadic models it would be necessary to control for the role of certain covariates such as cohabitation with the partner, duration of the relationship and other sociodemographic data, such as age and socioeconomic status (Hittner et al., 2019). For future research, we recommend expanding the sample and diversifying it, obtaining a larger number of people in all age ranges. An in-depth study of gender differences in IER would also be of interest, as well as the dyadic study of non-heterosexual couples (Brandão et al., 2019).

Likewise, it would be necessary to check whether the developed scale maintains its psychometric characteristics in people from different cultural contexts than the Spanish one, in order to be able to generalize the usefulness of the instrument (Mikle & Gilbert, 2019). For further research, it would be interesting to validate the scale in different languages, expanding the sample and diversifying its sociodemographic characteristics.

In sum, we consider that our instrument can provide relevant information both in research and couple therapy, as it assesses both partners' subjective perception of their attempts to regulate their partner, as well as how they receive their partner's attempts to regulate them (Swerdlow & Johnson, 2020). This can be a novel and useful tool to guide the couple diagnosis, considering the agreement or discrepancy between the opinions of both members to planning the intervention (Roberson et al., 2018). Working on the couple's IER skills can be a way to improve both their individual and couple well-being (Stephens et al., 2021).

Conclusion

In conclusion, the SIERC instrument, both in its form A (self-perception or agent) and in its form B (other-perception or target), appears to be useful for assessing how two people in a couple interregulate their emotions (pay attention to their feelings, ask about them, validate them, and soothe them). The scale seems to have good psychometric properties, showing an adequate reliability. It also shows convergent validity with other measures of emotional competencies, discriminant validity with measures of emotional dysregulation and insecure attachment, and predictive validity on sexual, relationship and life satisfaction. Likewise, it is observed that the instrument has a high potential to be used to study dyads, pointing out that the perception of the two partners about themselves and the other do not necessarily coincide. Feeling that the partner has a high level of IER has a relevant influence on the perception of relationship adjustment, being even more important than the own level of IER itself. Therefore, this instrument can be a useful tool for couple therapists in the process of diagnosis, using it as a way to find the strengths and weaknesses that the couple needs to work on.

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Table 1. Estimation indexes of SIERC items obtained in Exploratory (EFA) and Confirmatory Factor Analysis (CFA)

	SIERC-A					SIERC-B				
	EFA				CFA	EFA				CFA
	F1	F2	F3	F4		F1	F2	F3	F4	
<i>Observe</i>										
item 1	.053	.017	.798	-.031	.504	.448	.011	.173	.253	.770
item 4	-.032	.067	.512	.427	.693	.770	.137	.093	.048	.884
item 8	.090	.256	.474	.146	.347	.438	-.056	.155	.518	.557
<i>Ask</i>										
item 2	.110	-.118	.185	.556	.718	.386	.102	.447	-.091	.791
item 3	-.040	.068	.070	.673	.732	.109	.010	.797	-.093	.777
item 9	.118	-.028	-.100	.629	.713	.064	.052	.670	.098	.771
<i>Validate</i>										
item 5	.009	.717	-.042	-.124	.272	-.015	.249	.091	.382	.621
item 6	.062	.507	.039	.135	.646	.098	.271	.067	.470	.765
item 7	.066	.607	.200	.001	.571	-.217	.256	.389	.433	.734
item 10	.192	.402	-.040	.401	.675	.081	.072	.389	.477	.781
<i>Soothe</i>										
item 11	-.045	.672	-.039	.044	.296	.056	.065	-.115	.734	.492
item 12	.715	.116	.022	-.051	.760	-.008	.964	-.004	-.024	.888
item 13	.959	-.043	.004	.023	.958	.125	.737	-.007	.049	.896

Table 2. Descriptive statistics, internal consistency indexes and test-retest correlations.

	Mean (SD)			α	$\sqrt{\text{AVE}}$	CRC
	Entire sample	Women	Men			
SIERC-A	16.67 (2.16)	16.77 (2.14)	16.46 (2.20)	.84	.679	.899
Observe	4.30 (.61)	4.33 (.59)	4.25 (.64)	.56	.554	.526
Ask	4.24 (.70)	4.30 (.69)	4.11 (.69)	.72	.721	.765
Validate	4.22 (.64)	4.22 (.66)	4.18 (.60)	.67	.620	.650
Soothe	3.91 (.85)	3.92 (.84)	3.91 (.86)	.83	.871	.860
SIERC-B	16.14 (3.18)	16.07 (3.32)	16.26 (2.87)	.92	.784	.945
Observe	3.97 (.90)	3.94 (.92)	4.03 (.86)	.77	.749	.788
Ask	4.01 (.96)	3.96 (.99)	4.12 (.85)	.83	.779	.823
Validate	4.04 (.90)	4.03 (.91)	4.05 (.87)	.81	.744	.787
Soothe	4.12 (.95)	4.14 (.96)	4.07 (.93)	.88	.866	.857

Table 3. Pearson correlations among SIERC, TMMS, ESCQ, DERS and ECR-S

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. OBS	1	.53**	.49**	.39**	.75**	.10*	.33**	.24**	.16*	.27**	.16**	-.24**	-.34**	-.40**
2. ASK	.53**	1	.47**	.43**	.78**	.26**	.40**	.18**	.09	.10	.13	-.13	-.34**	-.40**
3. VAL	.49**	.47**	1	.48**	.77*	.11*	.42**	.26**	.13	.29**	.16*	-.28**	-.35**	-.47**
4. SOO	.39**	.43**	.48**	1	.78**	.03	.21**	.21**	.17*	.16*	.20**	-.22**	-.24**	-.42**
5. IER	.75**	.78**	.77**	.78**	1	.16**	.43**	.29**	.17*	.25**	.20**	-.26**	-.37**	-.49**
6. AT	.10*	.26**	.11*	.03	.16**	1	.28**	-.02	.41**	.35**	.05	-.02	.14**	-.14**
7. CL	.33**	.40**	.42**	.21**	.43**	.28**	1	.39**	.35**	.80**	.30**	-.51**	-.19**	-.37**
8. RP	.24**	.18**	.26**	.21**	.29**	-.02	.39**	1	.38**	.17*	.67**	-.26**	-.22**	-.21**
9. PER	.43**	.34**	.26**	.26**	.41**	.41**	.35**	.38**	1	.40**	.46**	-.25**	-.03	-.20**
10. LAB	.27**	.41**	.39**	.18**	.39**	.35**	.80**	.17*	.40**	1	.34**	-.55**	-.22**	-.38**
11. MAN	.25**	.16*	.31**	.24**	.31**	.05	.30**	.67**	.46**	.34**	1	-.46**	-.15*	-.23**
12. DER	-.24**	-.29**	-.38**	-.31**	-.40**	-.02	-.51**	-.26**	-.25**	-.55**	-.46**	1	.43**	.39**
13. ANX	-.22**	-.20**	-.29**	-.23**	-.30**	.14**	-.19**	-.22**	-.03	-.22**	-.15*	.43**	1	.21**
14. AV	-.31**	-.51**	-.34**	-.30**	-.47**	-.14**	-.37**	-.21**	-.20**	-.38**	-.23**	.39**	.21	1

* $p < .05$; ** $p < .01$ *Note.* SIERC-A to the left of the diagonal, SIERC-B to the right. OBS: Observe; ASK: Ask; VAL: Validate; SOO: Soothe; IER: Interpersonal Emotion Regulation Total; AT: Attention; CL: Clarity; RP: Repair; PER: Perception; LAB: Labelling; MAN: Management; DER: Dysregulation; ANX: Attachment Anxiety; AV: Attachment Avoidance.

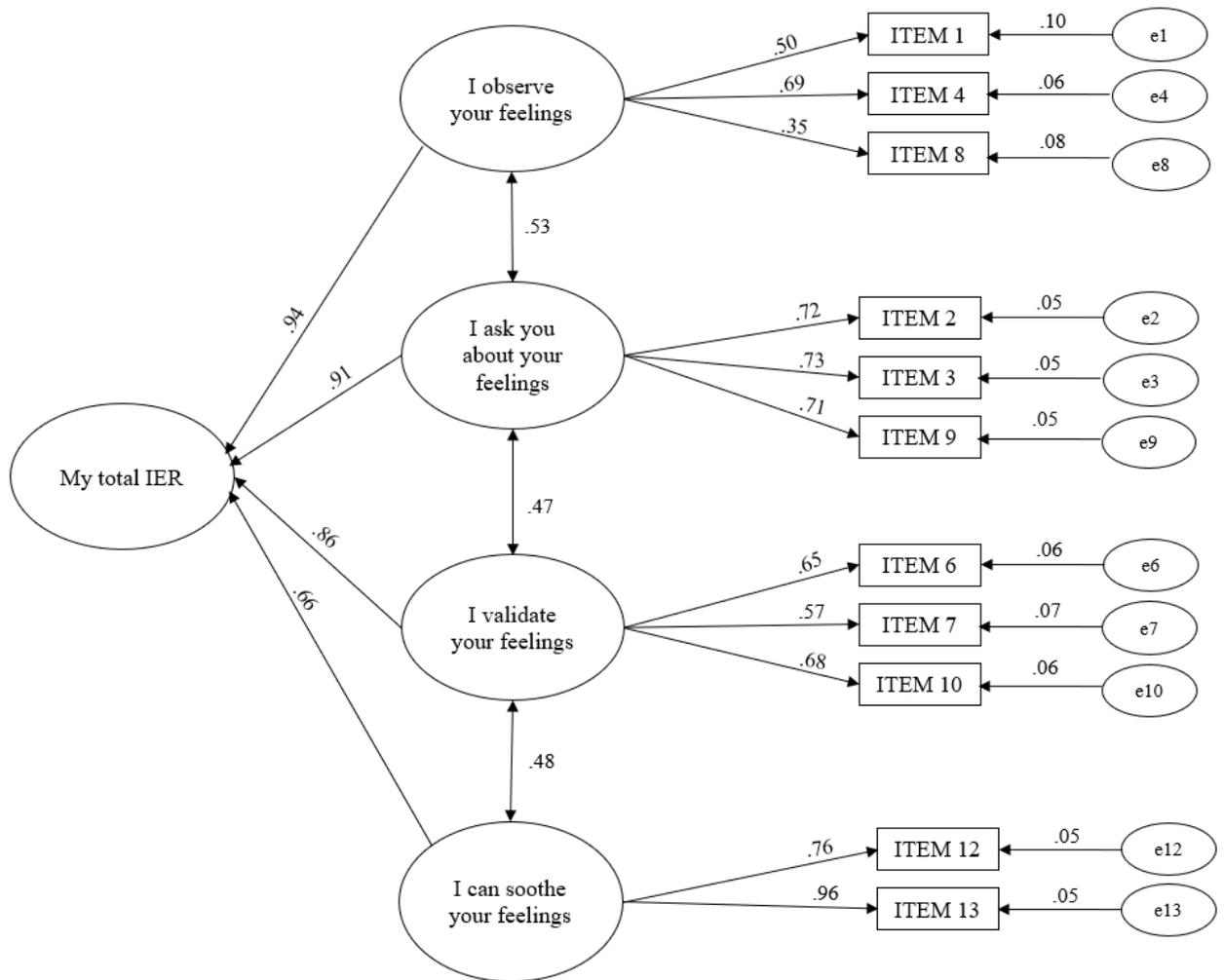


Figure 1. SIERC-A factor loadings of the final 11-items version. *Note:* “My” is referred to the respondent, “you” is referred to the partner.

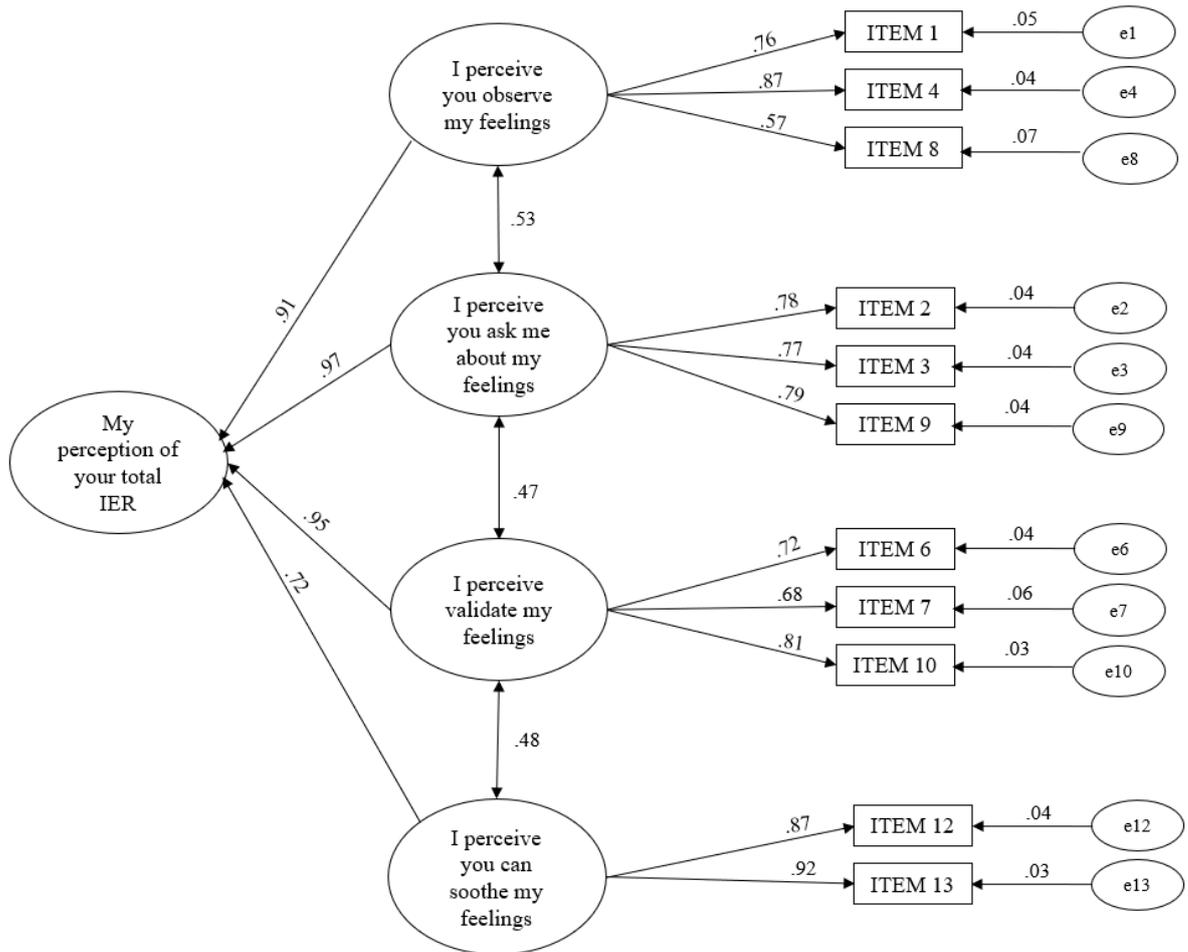


Figure 2. SIERC-B factor loadings of the final 11-items version. *Note:* “My” is referred to the respondent, “you” is referred to the partner.

Table 4. Pearson correlations of SIERC-A factors (self-perception) between both members of the dyad

	W-I observe	W-I ask	W-I validate	W-I soothe	W-My IER	M-I observe	M-I ask	M-I validate	M-I soothe
W-I observe	1								
W-I ask	.35**	1							
W-I validate	.45**	.46**	1						
W-I soothe	.47**	.47**	.59**	1					
W-My IER	.71**	.72**	.81**	.85**	1				
M-I observe	.04	.24*	.24*	.16	.22*	1			
M-I ask	.14	.38**	.19	.23*	.30**	.51**	1		
M-I validate	-.03	-.05	.10	.03	.02	.39**	.38**	1	
M-I soothe	.19	.12	.20	.15	.21*	.35**	.35**	.50**	1
M-My IER	.13	.23*	.25*	.20	.26*	.73**	.74**	.74**	.79**

* $p < .05$; ** $p < .01$ Note. W: What women say about themselves; M: What men say about themselves.

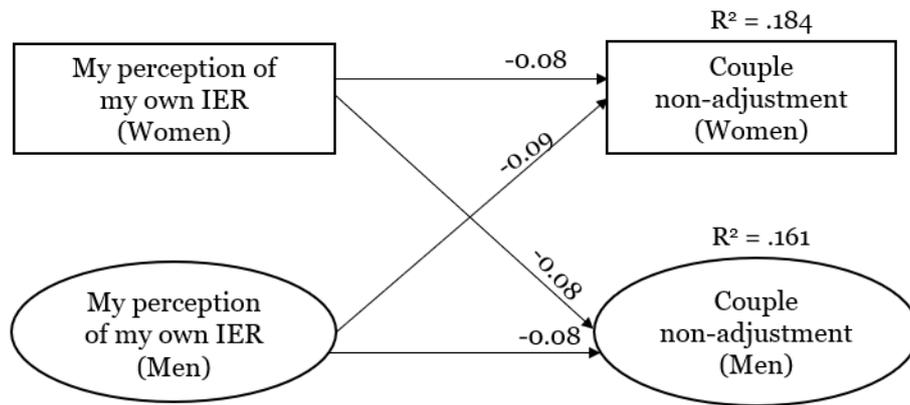


Figure 3. APIM model with SIERC-A total factor and couple non-adjustment.
Note. Model fit indexes: χ^2 (df) = 44.74 (5); CFI = .98; TLI = .96; RMSEA = .06; SRMR = .04.
All relationships drawn are significant.

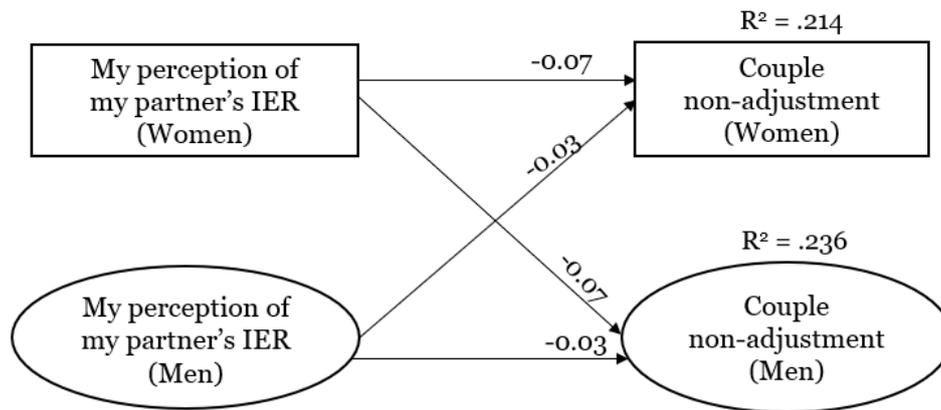


Figure 4. APIM model with SIERC-B total factor and couple non-adjustment.
Note. Model fit indexes: χ^2 (df) = 51.14 (5); CFI = .99; TLI = .96; RMSEA = .06; SRMR = .07.
All relationships drawn are significant.

Table 5. Linear multiple regression on relationship, sexual, and life satisfaction

<i>Predictor</i>	<i>Couple Satisfaction</i>				<i>Sexual satisfaction</i>				<i>Life satisfaction</i>			
	<i>R</i> ²	<i>F</i>	β	<i>t</i>	<i>R</i> ²	<i>F</i>	β	<i>t</i>	<i>R</i> ²	<i>F</i>	β	<i>t</i>
I observe your feelings			.06	0.95			.01	0.08			.08	1.06
I ask you about your feelings			.06	1.01			.17	2.55*			-.01	-0.06
I validate your feelings			.07	1.20			.04	0.52			.01	0.16
I can soothe your feelings	.455	79.06**	-.03	-0.63	.267	35.10**	.01	0.15	.122	18.25**	.16	2.58*
I perceive you observe my feelings			.07	0.90			.01	0.16			.18	1.85
I perceive you ask me about my feelings			.26	3.92**			.24	3.11*			-.07	-0.61
I perceive you validate my feelings			.32	4.52**			.09	0.97			.24	3.91**
I perceive you can soothe my feelings			.18	2.88*			.22	3.23**			.03	0.30

* $p < .01$; ** $p < .001$.

Appendix 1. Interpersonal Emotion Regulation for Couples Scale (SIERC) form A.

Por favor, indica con qué frecuencia te ocurren las siguientes afirmaciones en relación con tu pareja. // *Please indicate how often the following statements occur to you in relation to your partner.*

1= Casi nunca; 2 = Raramente; 3 = A veces; 4 = A menudo; 5 = Casi siempre

1 = Almost never; 2 = Seldom; 3 = Sometimes; 4 = Often; 5 = Almost always.

1. Me fijo en la comunicación no verbal de mi pareja para saber cómo se siente. // *I observe my partner's non-verbal communication to know how they feel.*
2. Suelo preguntarle a mi pareja cómo está o cómo se siente. // *I often ask my partner about how they are or how they are feeling.*
3. Dedico tiempo a hablar con mi pareja de nuestras emociones. // *I spend time talking to my partner about our emotions.*
4. Presto atención a los cambios emocionales de mi pareja. // *I pay attention to my partner's emotional changes.*
5. Puedo aceptar y sostener las emociones negativas de mi pareja. // *I can accept and support my partner's negative emotions.*
6. Mi pareja puede expresar libremente sus emociones conmigo, porque no las juzgo. // *My partner can freely express their emotions with me, because I am not judgemental about them.*
7. Tengo dificultades para identificar lo que siente mi pareja. // *I struggle to identify what my partner is feeling.*
8. Ayudo a mi pareja a “desglosar/desplegar” sus emociones. // *I help my partner "break down" their emotions.*
9. Muestro comprensión ante las emociones de mi pareja. // *I show understanding of my partner's emotions*
10. Sé cómo calmar a mi pareja cuando está nerviosa, enfadada o preocupada. // *I know how to calm my partner down when they are nervous, angry, or worried.*
11. Tengo recursos para hacer que mi pareja se sienta tranquila y segura. // *I have resources to make my partner feel calm and safe.*

Appendix 2. Interpersonal Emotion Regulation for Couples Scale (SIERC) form B.

Por favor, indica con qué frecuencia piensas que a tu pareja le ocurren las siguientes afirmaciones en relación contigo. // *Please indicate how often you think the following statements occur to your partner in relation to you.*

1= Casi nunca; 2 = Raramente; 3 = A veces; 4 = A menudo; 5 = Casi siempre

1 = Almost never; 2 = Seldom; 3 = Sometimes; 4 = Often; 5 = Almost always.

1. Mi pareja se fija en mi comunicación no verbal para saber cómo me siento. // *My partner observes my non-verbal communication to know how I feel.*
2. Mi pareja suele preguntarme cómo estoy o cómo me siento. // *My partner often asks me how I am or how I am feeling.*
3. Mi pareja dedica tiempo a hablar conmigo de nuestras emociones. // *My partner spends time talking to me about our emotions.*
4. Mi pareja presta atención a mis cambios emocionales. // *My partner pays attention to my emotional changes.*
5. Mi pareja puede aceptar y sostener mis emociones. // *My partner can accept and support my negative emotions.*
6. Puedo expresar libremente mis emociones con mi pareja, porque no las juzga. // *I can freely express my emotions with my partner, because they are not judgemental about them.*
7. Mi pareja tiene dificultades para identificar lo que siento. // *My partner struggles to identify what I am feeling*
8. Mi pareja me ayuda a “desglosar/desplegar” mis emociones. // *My partner helps me "break down" my emotions.*
9. Mi pareja muestra comprensión ante mis emociones. // *My partner shows understanding of my emotions*
10. Mi pareja sabe cómo calmarme cuando siento nervios, enfado o preocupación. // *My partner knows how to calm me down when I am nervous, angry, or worried.*
11. Mi pareja tiene recursos para hacerme sentir tranquilidad y seguridad. // *My partner has resources to make me feel calm and safe.*