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Argentinean Adaptation and Psychometric Properties of the Emotion Regulation Questionnaire (ERQ)

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Abstract

The Emotion Regulation Questionnaire (ERQ) is a self-report measure designed to assess the two most widely studied strategies of Gross' model: cognitive reappraisal and expressive suppression. Even though there are two Spanish adaptations of the ERQ, region-specific linguistic factors and dialects must also be considered when adapting a test for another country in order to ensure equivalent evaluations across cultures. The present work developed an Argentinean adaptation of the ERQ. Additionally, the study evaluated its psychometric properties and associations with theoretically related constructs. Study 1 consist of the translation the ERQ into Argentinean Spanish and the analysis of its internal structure and reliability in a sample of 2957 participants. The results supported a two-factor structure with

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good data fit, adequate factor loadings, and good test-retest reliability and internal consistency. Expected age and gender differences in the use of reappraisal and suppression were also observed. Study 2 analyzed the external validity (concurrent and convergent) of the ERQ adaptation in a sample of 2160 participants. Theory-consistent associations were found with emotion regulation mechanisms, anxiety, depression, and personality traits. In summary, the findings support the validity of a new ERQ adaptation and its use in Argentina.

Keywords
emotion regulation, adaptation, reappraisal, suppression, validity

Introduction

According to Thompson (1994), emotion regulation encompasses all the mechanisms that people engage in to manage, sustain, enhance, or suppress their affective states. Likewise, Gross (1998) has defined emotion regulation as the set of attempts to modify the occurrence, intensity or duration of an emotional state, either positive, or negative. Interest in the study of emotion regulation has increased in recent decades (Gross, 2014) due mostly to its role in mental health and well-being (Berking & Wupperman, 2012).

One widely accepted model for conceptualizing emotion generation is the modal model of emotion (Gross, 2015). The modal model suggests that an emotional response is a dynamic process that consists of a sequence of four elements: (1) a personally relevant situation occurs (internal or external), (2) a person pays attention to elements of the situation, (3) the person appraises the event as being either good for them or bad for them, and (4) the person experiences an action tendency toward a behavioral response. The behavioral response can then modify the initial situation that triggered the process creating a feedback loop.

Building on the modal model of emotion, the process model of emotion regulation organizes the strategies people can use to intervene on the emotion unfolding process. In the process model, emotion regulation strategies are grouped according to the time point in the emotion generating process where they have their main impact. There are five major sets of strategies in the model: situation selection, situation modification, attentional deployment, cognitive change and response modulation. The first four sets (i.e., situation selection, situation modification, attentional deployment, cognitive change) represent antecedent-focused strategies since they operate on the first phases of the emotional process, before the emotion is triggered (i.e., stages (1), (2) and (3) in the modal model). Meanwhile response modulation strategies are response-focused

since they affect the emotion response itself (i.e., stage (4) in the modal model). Of all the strategies considered by the model, two have been studied the most (Gross & John, 2003): *cognitive reappraisal* (belonging to the cognitive change set of strategies), and *expressive suppression* (belonging to the response modulation set of strategies). Cognitive reappraisal consists of modifying one's initial interpretation of an emotion-generating event in order to alter its emotional impact. On the other hand, suppression consists of reducing, diminishing, inhibiting or hiding emotional expressions (John & Gross, 2004).

Using one or another of emotion regulation strategy has differential effects. A recent review of experimental studies showed that the use of reappraisal over suppression is associated with healthier social and affective patterns and well-being (Cutuli, 2014). Other studies have shown that using suppression is associated with the presence of psychopathological disorders (Aldao et al., 2010; Ehring et al., 2010; Extremera Pacheco & Fernández-Berrocal, 2004), as well as higher levels of stress and lower overall health (Moore et al., 2008; Tamagawa et al., 2013). In contrast, reappraisal use has been shown to reduce self-perceived stress (Gross & Levenson, 1993) and to be associated with lower anxiety and depression (Andreotti et al., 2013; Carthy et al., 2010; Legerstee et al., 2010; Rood et al., 2012).

Given the range of outcomes associated with emotion regulation strategy use, it is important to have valid and reliable measurement instruments to assess their usage. For this purpose, Gross and John (2003) developed the Emotion Regulation Questionnaire (ERQ), which assesses the two most widely studied strategies of Gross' model: cognitive reappraisal and expressive suppression. The ERQ consists of ten items, six of which assess the use of reappraisal, while the remaining four assess the use of suppression. The ERQ evaluates both up-regulation of positive emotions (e.g., joy, happiness) and down-regulation of negative emotions (e.g., sadness, anger). The scale asks participants to indicate on a seven-point Likert-type scale (from 1 "strongly disagree" to 7 "strongly agree") their agreement with each statement. In confirmatory factor analysis, the ERQ exhibits a two-factor structure comprised of a reappraisal factor and suppression factor (Gross & John, 2003). The ERQ also has good validity, test-retest reliability ($r = .69$), and internal consistency (Reappraisal: $\alpha = .79$; Suppression: $\alpha = .73$; Gross & John, 2003).

Having established the validity, reliability, and factor structure of the ERQ, many researchers have used it to assess individual differences such as gender and age in emotion regulation strategy use. Several studies have found that men use suppression more than women (Gross & John, 2003; John & Eng, 2014; Simpson & Stroh, 2004; Zimmermann & Iwanski, 2014). However, the findings for gender differences in reappraisal are mixed. Some studies have reported no gender differences in reappraisal use (Cabello et al., 2013; Gross & John, 2003), while other studies have reported greater reappraisal use in women (Nolen-Hoeksema & Aldao, 2011; Spaapen et al., 2014). The research regarding age

differences in emotion regulation strategy usage is similarly mixed. John and Gross (2004) found that the use of suppression decreases with age, and that reappraisal increases. However, later studies have indicated that suppression increases with age (Nolen-Hoeksema & Aldao 2011; Wiltink et al., 2011). The mixed findings on individual differences in emotion regulation strategy use invite further research into the topic.

Given the utility of the ERQ, researchers have sought to increase its applicability to samples around the world. Studies of translated adaptations of the ERQ (e.g., Balzarotti et al., 2010; Eldeleklioğlu & Eroğlu, 2015; Gračanin et al., 2020), and studies in different samples (e.g., Brandão et al., 2017; Enebrink et al., 2013; Preece et al., 2020) have generally had good psychometric properties and factorial invariance (Matsumoto et al., 2008; Melka et al., 2011).

Currently, there are two Spanish adaptations of the scale: one developed in Peru by Gargurevich and Matos (2010) and another, developed in Spain by Cabello et al. (2013). Gargurevich and Matos' translation was analyzed using a confirmatory factor analysis (CFA) on a sample of 320 Peruvian university students. The results showed a two-factor structure and good psychometric properties (convergent validity, divergent validity and reliability). Meanwhile, the translation of Cabello et al. (2013) was administered to a sample of 866 Spanish participants from 18 to 80 years of age. The results also confirmed a two-factor structure, and showed adequate internal consistency, good test-retest reliability, and convergent and discriminant validity.

Although Spanish translations of the ERQ increase the broad utility of the instrument, region-specific linguistic factors must also be considered when adapting a test for another country. That is, to ensure that the evaluated construct is comparable across cultures, one must consider the socio-cultural environment in which the instrument will be used (Muñiz et al., 2013). Spain, Peru and Argentina differ socio-culturally (e.g., Green et al., 2015) and these regions have different dialects that express the same concept through different words (González et al., 2015). Thus, there are a number of expressions in the ERQ versions adapted for Peru and Spain that, if applied directly in Argentina's context, would not be interpreted equivalently. For example, item 1 of the original version ("*When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about*") was translated in the Spanish version as "*Cuando quiero incrementar mis emociones positivas (p.ej. alegría, diversión), cambio el tema sobre el que estoy pensando*". In Argentina, "cambiar de tema" [change the subject] is an expression that refers to thinking about something else or disengaging from a topic. These meanings are more representative of refocusing (Garnefski et al., 2017) or distraction (Gross, 2015; Van Dillen & Koole, 2007), rather than reappraisal. Therefore, in an Argentinean translation, it would be more appropriate to translate item 1 as "*Cuando quiero sentirme mejor (por ejemplo, más alegre/feliz/contento/de buen humor) me esfuerzo por cambiar mi manera de pensar*". In Argentina, "cambiar la manera de pensar" is

more typical of reappraisal because it refers to finding new meaning to an event. Also, in the Peruvian adaption of the ERQ, item 2 ("*I keep my emotions to myself*") was translated as *"Mantengo ocultas mis emociones (las guardo sólo para mí)"*. In Argentina, "mantener oculta una emoción" [keeping an emotion hidden] could be understood as "concealing ulterior motives" or other similar deceptive behavior (Armas-Vargas & García-Medina, 2009), rather than as suppressing an emotion. Hence, for Argentinean participants, it would be more accurate to translate the item as "*Preservo mis emociones, no las expreso o comunico, las guardo sólo para mí*". This translation reflects more faithfully the idea of inhibiting the behavioral expressive of an emotion.

Furthermore, culture has been shown to guide and orient the regulation of emotion (Ford & Mauss, 2015) and moderate its relationship to well-being (e.g., Butler et al., 2007; Su et al., 2015). Therefore, evidence on the functioning of the scale in Argentina would contribute to the analysis of its psychometric properties, especially regarding convergent validity.

Thus, the present study aimed to adapt and validate an Argentinean version of the ERQ, and to confirm that its psychometric properties are similar to those of the original scale. To this end, two studies were conducted. Study 1 aimed at translating and adapting the Argentinean version of the ERQ, and analyzing its internal structure and reliability. Study 1 will also explore whether there are differences in the use of emotion regulation strategies based on gender and age. Study 2 aimed at analyzing the external validity (concurrent and convergent) of the ERQ by assessing its association with other emotion regulation measures, and anxiety, depression, and personality traits.

Study 1

Objectives

Study 1 aimed to translate and adapt an Argentinean version of the ERQ, and to analyze its internal structure (through exploratory factor analysis and confirmatory factor analysis) and its reliability (through composite reliability and test-retest). The study also aimed to analyze if there are gender and age differences in the use of emotion regulation strategies.

Hypotheses

The hypotheses of Study 1 were: (1) the internal structure of the ERQ is composed of two factors, namely reappraisal and suppression; (2) composite reliability, internal consistency (α) and test-retest indicate good levels of reliability for the ERQ adaptation; (3) there are gender differences in emotion regulation strategy use: women use more reappraisal, while men use more suppression

(4) there are age differences in emotion regulation strategy use: reappraisal increases with age while suppression decreases.

Method

Participants

This study was conducted with a non-probabilistic (convenience) sample of 2957 students from different academic units of the National University of Mar del Plata. The ages ranged from 18 to 63, with a mean of 22.86 ($SD = 5.55$). Furthermore, 2147 participants were female (72.6%) and 810 were male (27.4%). The sample was randomly divided into two parts, using a total of 1486 cases to perform an Exploratory Factor Analysis (EFA) and another 1471 to perform a CFA. The rest of the analyses in this study considered the total sample. In order to evaluate test-retest reliability and after a period of 12 months, 397 of the participants answered the ERQ again.

Measures

Emotion Regulation Questionnaire (ERQ): The ERQ (Gross & John, 2003) is a self-report measure composed of 10 items designed to assess Reappraisal and Suppression. The items are answered on a Likert scale from 1 to 7 (from "totally disagree" to "totally agree"). The original version of the ERQ also has good validity, test-retest reliability ($r = .69$), and internal consistency (Reappraisal: $\alpha = .79$; Suppression: $\alpha = .73$; Gross & John, 2003). The items and the instructions were translated by the authors, incorporating the typical speech (*voceo*) of the country. The translation was reviewed and endorsed by two English language experts to ensure semantic and grammatical clarity. The items' comprehension was tested through nine interviews with student volunteers. They were asked to explain the content of the item, and to try to give concrete examples of it. If necessary, they could suggest alternative phrasings. Subsequently, final adjustments were made to improve understanding. The back-translation from Argentina-Spanish to English was considered, but not conducted. Even though this phase has been considered an integral part of the translation process, it has been recently questioned (Behr, 2017; Epstein et al., 2015; Sinadi et al., 2010). As well as translation, back-translation may involve several errors, so it is not necessarily a good indicator of the quality of the direct translation (Martínez et al., 2006). As previous studies indicate that there is no clear evidence that back-translations specifically improved translation quality and that this step could be omitted (e.g., Behr, 2017; Epstein et al., 2015; Perneger et al., 1999; Sidani et al., 2010), the current authors decided to rely on the rigorous translation process, the expert judges reviews, and the volunteers pilot testing.

Procedure

Students were informed about university research studies in their classes at the National University of Mar del Plata and were invited to voluntarily participate. Those who agreed read and signed informed consent forms. Data collection was carried out or supervised by the authors. Participants were assessed in groups using paper-based protocols. All procedures followed the recommendations and ethical principles of the American Psychological Association (2010).

Data analysis

The applicability of the EFA was determined using the Bartlett's sphericity test and the KMO test. The EFA was performed through the FACTOR software (Lorenzo-Seva & Ferrando, 2020) using half of the sample (selected randomly; $n = 1486$). A parallel analysis with optimal implementation (Timmerman & Lorenzo-Seva, 2011) on the polychoric correlations matrix (Ferrando & Anguiano-Carrasco, 2010) was implemented. The extraction method was the Unweight Least Squares (ULS) which is robust against ordinal variables (Lloret-Segura et al., 2014). The applied rotation was the orthogonal Varimax (Clarkson & Jennrich, 1988; Lloret-Segura et al., 2014), assuming that the factors were not related to each other (as reported in previous studies). One-dimensional factor loads of .32 points were considered for item retention (Tabachnick & Fidell, 2001).

With the second half of the sample ($n = 1471$), a CFA was applied through the Lisrel program (Scientific Software International, 2006). The estimation method was the Unweighted Least Squares (ULS). To evaluate model fit the following indices were used: chi-square (χ^2), χ^2/df coefficient, GFI, IFC, NFI, NNFI; and the RMSEA was considered as measure of error (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1998).

Reliability of the ERQ was analyzed by three different procedures: Cronbach's α, composite reliability (Hair et al., 1995), and test-retest correlations (Pearson's r). Descriptive statistics of the variables were also calculated. Finally, gender and age differences were explored. For this purpose, the normality of the distributions was tested, considering ± 2 as acceptable values of skewness and kurtosis (Field, 2009; George & Mallery, 2016). The results showed that both for suppression and reappraisal, skewness and kurtosis ranged between -0.39 and 0.58. Gender differences were estimated by Student's t-test (Levene's test revealed equality of variances), and the effect size was determined using Cohen's d. Regarding age differences, participants were divided into three groups following the World Health Organization (2014) cut-off criteria. Group 1 ($n = 2304$), called "adolescents", comprised the ages 18–24; group 2 ($n = 605$), called "young adults", comprised the ages 25–44; group 3 ($n = 48$), called "adults", comprised the ages 45–65. The differences

were calculated using the ANOVA test (Levene's test revealed equality of variances), and Cohen's d was used to determine the effect size of the differences between each group.

Results

Exploratory and confirmatory factor analyses

Both Bartlett's sphericity test (3609(45); $p < .001$) and the KMO statistic (.77) confirmed the applicability of the EFA. The results suggested retaining two factors that explained 51.24% of the variance. The first factor included the six items of the Reappraisal strategy, while the second factor included the four items of the Suppression strategy. All factor loadings were one-dimensional and higher than .33 points (Table 1).

The theoretical model of the original scale was tested through the CFA. The results showed good fit for a two-factor model ($\chi^2 = 139.25$, $p < .01$; $\chi^2/df_{(34)} = 4.095$; GFI = .99; CFI = .98; NFI = .97; NNFI = .97; RMSEA .046). All factor loadings were satisfactory and presented in Table 1.

Reliability

The composite reliability index for both subscales was estimated. The results were adequate in both cases (Reappraisal: .78; Suppression: .78). Cronbach's α was also calculated with good results (Reappraisal: .73; Suppression: .71). In addition, 397 participants re-answered the scale after 12 months. Correlations between test and re-test were statistically significant, both for Reappraisal ($r = .43$; $p < .001$), and for Suppression ($r = .58$; $p < .001$).

Descriptive statistics and gender and age differences

The descriptive statistics are presented in Table 2. The two considered strategies were not associated with each other, neither at time 1 ($r = .03$; $p = .11$), nor at time 2 ($r = .02$; $p = .64$).

Participants were divided by gender and age, and differences between groups were estimated. Regarding gender, Student t-tests were applied. The results are shown in Table 3. Differences were observed for both emotion regulation strategies. Women reported more use of reappraisal, and men more use of suppression. Reappraisal effect size was small while suppression effect size was moderate.

Regarding age, the participants were divided into three groups as explained before. The descriptive statistics of each group are presented in Table 4. The differences were estimated using ANOVA test. The results showed statistically significant differences for Reappraisal, and no differences for Suppression.

Table 1. ERQ's factor loadings (exploratory factor analysis and confirmatory factor analysis).

	EFA		CFA	
	Reap.	Sup.	Reap.	Sup.
1. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about. *1. Cuando quiero sentirme mejor (por ejemplo, más alegre / feliz / contento / de buen humor) me esfuerzo por cambiar mi manera de pensar.*	.68		.67	
3. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about. *3. Cuando no quiero sentirme tan mal (por ejemplo, menos triste / enojado / de mal humor) trato de ver o pensar las cosas de una manera diferente.*	.64		.69	
5. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm. *5. Cuando tengo que enfrentarme a una situación difícil, que me pone nervioso, trato de pensar desde una perspectiva que me ayude a mantener la calma, a estar tranquilo.*	.33		.39	
7. When I want to feel more positive emotion, I change the way I'm thinking about the situation *7. Cambiar la manera de pensar sobre una situación o problema que me preocupa, me ayuda a sentirme mejor.*	.59		.61	
8. I control my emotions by changing the way I think about the situation I'm in. *8. Controlo mis emociones mirando la situación en la que me encuentro desde una perspectiva diferente.*	.58		.56	
10. When I want to feel less negative emotion, I change the way I'm thinking about the situation. *10. Cambiar la manera de pensar sobre una situación que me preocupa, me ayuda a no sentirme tan mal.*	.71		.69	
2. I keep my emotions to myself. *2. Preservo mis emociones, no las expreso o comunico, las guardo sólo para mí.*		.73		.70
4. When I am feeling positive emotions, I am careful not to express them. *4. Cuando estoy sintiendo emociones positivas (por ejemplo, alegre o contento), trato de no expresarlas o comunicarlas.*		.52		.61
6. I control my emotions by not expressing them. *6. Controlo mis emociones, pero no las expreso, no las comunico ni las demuestro.*		.81		.83
9. When I am feeling negative emotions, I make sure not to express them *9. Cuando siento emociones negativas, me aseguro de no expresarlas, comunicarlas o demostrarlas.*		.60		.58

Note: Reap. = Reappraisal; Sup. = Suppression

Table 2. Descriptive statistics of emotion regulation strategies.

	Min.	Max.	M	SD	Skewness	Kurtosis
Cognitive reappraisal	1.00	7.00	4.76	1.06	−0.24	−0.08
Expressive suppression	1.00	7.00	2.93	1.25	0.48	−0.25

Table 3. Gender differences for emotion regulation strategies.

	Female		Male				
	M	SD	M	SD	*t*	Mean difference	*d* Cohen
Reappraisal	4.81	1.04	4.61	1.09	4.63**	0.20	0.19
Suppression	2.79	1.22	3.32	1.26	−10.44**	−0.53	0.43

**$p < .001$

Table 4. Descriptive statistics: age differences.

Strategy	Groups	M	SD	*F*
Reappraisal	Group 1: adolescents	4.71	1.04	$F_{(2, 2956)} = 10.819$**
	Group 2: young adults	4.88	1.11	
	Group 3: adults	5.22	1.03	
Suppression	Group 1: adolescents	2.94	1.25	$F_{(2, 2956)} = 0.168$
	Group 2: young adults	2.92	1.27	
	Group 3: adults	2.84	1.19	

In general, older groups reported more reappraisal use than younger groups. The differences were: (1) small between groups 1 and 2 ($d = 0.16$), (2) small between groups 2 and 3 ($d = 0.32$), (3) and moderate between groups 1 and 3 ($d = 0.49$).

Study 2

Objectives

Study 2 aimed to analyze the concurrent validity of the ERQ by assessing its association with other emotion regulation measures. The study also aimed to analyze the convergent validity of the ERQ by assessing its association with theoretically related aspects, such as anxiety, depression, and personality traits.

Hypotheses

The hypotheses of Study 2 were: (1) The ERQ adaptation has good concurrent validity since it is associated with other emotion regulation measures

(i.e., Difficulties in Emotion Regulation Scale, Cognitive Emotion Regulation Questionnaire); (2) The ERQ adaptation has good concurrent and predictive validity since it is associated with theoretically related aspects, such as anxiety, depression, and personality traits.

Method

Participants

Study 2 was conducted with a non-probabilistic (convenience) sample of 2160 students from different academic units of the National University of Mar del Plata. The ages ranged from 18 to 61, with a mean of 23.40 ($SD = 5.86$). Furthermore, 1553 participants were female (71.9%) and 607 were male (28.1%). The total sample completed the ERQ and the Adjective Checklist for Personality Assessment. Out of the 1553, 153 students completed the Difficulties in Emotion Regulation Scale, the Cognitive Emotion Regulation Questionnaire, the State-Trait Anxiety Inventory and the Beck Depression Inventory-II. The ages of this subgroup of 153 students ranged from 18 to 57 years, with a mode of 21, a median of 25 and a mean of 26.71 (SD = 7.53). Also, 130 (85%) participants were female and 23 (15%) were male.

Measures

Emotion Regulation Questionnaire (ERQ): The ERQ (Gross & John, 2003) was administered. The ERQ characteristics were reported previously in Study 1. In this sample, reliability of both subscales was good (Reappraisal: $\alpha = .75$; Suppression: $\alpha = .71$).

Adjective Checklist for Personality Assessment: The Adjective Checklist for Personality Assessment (Ledesma et al., 2011) was administered. It is a self-report instrument that assesses the five personality traits according to McCrae and Costa's (1997) Big Five Factor Model. It consists of 67 adjectives (items) that participants rate on a five-point Likert scale (from 1 "*it does not describe me at all*", to 5 "*it describes me just as I am*"). The instrument has been developed and validated in Argentina, has good psychometric properties (α between .74 and .85) (Ledesma et al., 2011), and has been previously used with Argentinean participants (del Valle et al., 2020). In this study, reliability indices were adequate (Openness to Experience: $\alpha = .72$; Responsibility: $\alpha = .80$; Friendliness: $\alpha = .82$; Neuroticism: $\alpha = .82$; Extraversion: $\alpha = .83$).

Difficulties in Emotion Regulation Scale (DERS): the Argentinean adaptation (Medrano & Trógolo, 2014) of the DERS (Gratz & Roemer, 2004) was applied. It assesses six classes of difficulties in regulating emotions: (1) Nonacceptance of emotional responses, (2) Difficulties engaging in goal-directed Behavior, (3) Impulse control difficulties, (4) Lack of emotion awareness, (5) Limited access

to emotion regulation and (6) Lack of emotion clarity. The adaptation is composed of 28 items that are measured on a five-point Likert scale (from 1 "*almost never*", to 5 "*almost always*"). Previous studies in Argentinean population (e.g., Khalil et al., 2020; Medrano & Trógolo, 2014) have shown good evidence of reliability (Cronbach α's between .70 and .90) and validity. In this study, the total Cronbach's α was .93.

Cognitive Emotion Regulation Questionnaire (CER-Q): Argentinean adaptation (Medrano et al., 2013) of Garnefski and Kraaij's (2007) CER-Q was applied. The CERQ assesses the use of the nine cognitive emotion regulation strategies of Garnefski's et al. (2001): other-blame, self-blame, rumination, catastrophization, putting in perspective, positive reappraisal, planning, acceptance and positive focusing. It is a self-report scale composed of 36 items representing thoughts that may arise when facing negative events. Items are measured on a five-point Likert scale ranging (from 1 "*[almost] never*", to 5 "*[almost] always*"). Several studies (e.g., Domínguez-Lara & Medrano, 2016; Domínguez-Sánchez et al., 2013; Jermann et al., 2006; Medrano et al., 2013) have reported adequate levels of internal consistency (Cronbach α's between .60 and .90). In this study, reliability (Cronbach's α) for adaptive strategies was .83, and for maladaptive strategies was .81.

State-Trait Anxiety Inventory (STAI): the Argentinean adaptation (Leibovich de Figueroa, 1991) of the STAI (Spielberger et al., 1970) was administered. The STAI is a self-report instrument composed of 40 items designed to separately assess anxiety as a state (transitory condition) and anxiety as a trait (stable condition). Each dimension is composed of 20 items that are measured on a 4-point Likert scale (from 0 "*Not at all*", to 3 "*Very mucho so*"). In Spanish populations, internal consistency ranges from .84 to .93 (Cronbach α; Guillén-Riquelme & Buela-Casal, 2011; Leibovich de Figueroa, 1991; Spielberger, 1999). In this study, the state-anxiety scale (Cronbach $\alpha = .92$) and trait-anxiety scale (Cronbach $\alpha = .88$) both exhibited good reliability.

Beck Depression Inventory-II (BDI-II): The Argentinean adaptation (Brenlla & Rodríguez, 2006) of the BDI-II (Beck et al., 1996) was administered. The BDI-II is a self-report inventory that assesses the presence and severity of depressive symptoms. It consists of 21 items that assess symptoms such as sadness, crying, loss of pleasure, guilt, pessimism, etc. Responses are measured on a four-point Likert scale, were each item has four possible responses that indicate the intensity of that symptom (e.g., Sadness: 0 "*I do not feel sad*", 1 "*I feel sad*", 2 "*I am sad all the time and I can't snap out of it*", 3 "*I am so sad and unhappy that I can't stand it*"). Respondents are asked to choose the statement that best describes their feelings during the past two weeks, including the present day. The BDI-II has good reliability (Cronbach's $\alpha > .86$, Brenlla & Rodríguez, 2006; Sanz et al., 2003, 2005) and validity (e.g. Beltrán et al., 2012; Sanz & Vázquez, 1998, 2011). In this study, Cronbach's α was .91.

Procedure

Students at the National University of Mar del Plata were informed about the study and invited to voluntarily participate. Those who agreed read and signed informed consent forms. Data collection was carried out or supervised by the authors. Participants were assessed in groups using paper-based protocols. All procedures followed the recommendations and ethical principles of the American Psychological Association (2010).

Data analysis

For each instrument used, the total scores of scales and subscales were calculated. Reliability indices (α) were also calculated for each instrument. In order to simplify the interpretation of the results and as it was reported in previous studies (e.g., Giovannini et al., 2014; Karatzias et al., 2016), all DERS items were unified into a single composite score. Similarly, CERQ's adaptive strategies (putting in perspective, positive reappraisal, planning, acceptance and positive focusing) and maladaptive strategies (other-blame, self-blame, rumination, catastrophization) were combined into two composite scores per participant (as previous studies have done, e.g., Davodi et al., 2016). To determine the extent of the relationship between the variables, partial correlations were computed. The controlled variables were gender and age, since both study 1 and previous literature suggest that gender and age have effects on emotion regulation processes. To describe the sample, descriptive statistics were also calculated for each variable under study (mean and standard deviation). Regarding effect size, Cohen (1988, 1992) recommendation for Pearson *r* values were considered (.10, .30, and .50 as small, medium, and large effects).

Results

To determine the convergent and concurrent validity of the ERQ, partial correlations (controlling for gender and age) and descriptive statistics were calculated. The results are expressed in Table 5.

In general, theoretically congruent significant relationships were found between most variables and the ERQ strategies. Reappraisal was positively associated with adaptive strategy use (CERQ), and the personality variables extraversion, agreeableness, consciousness, and openness to experience. Conversely, reappraisal was negatively associated with difficulties in emotion regulation (DERS), maladaptive strategy use (CERQ), anxiety (state and trait), depression, and neuroticism. Suppression was positively associated with difficulties in emotion regulation (DERS), trait anxiety, and neuroticism. Suppression was negatively associated with extraversion, agreeableness, consciousness and openness to the experience.

Table 5. Descriptive statistics and partial correlations.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Reap.	4.81	1.05												
2. Sup.	2.97	1.23	−.19*											
3. Adaptive strat.	3.61	0.50	.47**	−.14										
4. Maladaptive strat.	2.39	0.53	−.19*	.14	−.10									
5. DERS−total	2.19	0.64	−.50**	.21**	−.25**	.53**								
6. STAI-state	15.73	8.66	−.47**	.08	−.29**	.39**	.52**							
7. STAI-trait	20.10	9.41	−.48**	.20*	−.28**	.57**	.73**	.67**						
8. BDI-II	8.75	8.49	−.44**	.06	−.19*	.35**	.52**	.64**	.65**					
9. Extraversion	3.64	0.67	.17**	−.33**	.16*	−.33**	−.34**	−.26**	−.48**	−.33**				
10. Agreeableness	3.80	0.45	.22**	−.09**	.14	−.20*	−.16	−.13	−.15	−.08	.30**			
11. Consciousness	3.51	0.59	.18**	−.07**	.08	−.25**	−.34**	−.29**	−.34**	−.33**	.32**	.36**		
12. Neuroticism	2.89	0.55	−23**	.09**	−.24**	.47**	.56**	.58**	.72**	.45**	−.32**	.02	−.25**	
13. Openness	3.36	0.59	.14**	−.15**	.22**	−.08	−.12	−.28**	−.15	−.10	.34**	.12	.01	−.04

*$p < .05$; **$p < .01$; Reap. = Reappraisal; Sup. = Suppression; Adaptive Strat. = CERQ Adaptive strategies; Maladaptive Strat. = CERQ Maladaptive strategies.

General discussion

This study sought to adapt and validate an Argentinean version of the ERQ. The approach was to incorporate the typical speech of the country (*voceo*) enabling an equivalent assessment of emotion regulation strategy use in the context of linguistic and cultural differences (Cardoso Ribeiro et al., 2010). To achieve this goal, two studies were conducted. The results of Study 1 showed that the adaptation had a two-factor structure, consistent with Gross's theoretical proposal (Gross, 2014; Gross & John, 2003) and with previous studies and adaptations (Cabello et al., 2013; Gargurevich & Matos, 2010; Melka et al., 2011; Preece et al., 2020). The goodness-of-fit indices from the CFA showed that the fit of the model was good (Hu & Bentler, 1998). All items had good factor loadings suggesting the adequacy of the scale (Tabachnick & Fidell, 2001). This findings suggests that, as in many other countries (e.g., Balzarotti et al., 2010; Eldeleklioğlu & Eroğlu, 2015; Gračanin et al., 2020), two main strategies assessed by the ERQ can also be discriminated in Argentinean population: cognitive reappraisal (modifying one's initial interpretation of an emotion-generating event), and expressive suppression (reducing, diminishing, inhibiting or hiding emotional expressions) (John & Gross, 2004). Consistently with previous research (Balzarotti et al., 2010; Gross & John, 2003), this strategies were not related to each other: people who use cognitive reappraisal frequently are no more or less likely to use expressive suppression than people who use cognitive reappraisal infrequently.

Also, the subscales of the ERQ adaptation revealed good internal consistency, similar to what was found in previous research (e.g., Cabello et al., 2013; Eldeleklioğlu & Eroğlu, 2015; John & Gross, 2004). Additionally, test-retest reliability provided evidence for temporal stability of the Argentinean ERQ even up to 12 months after initial administration. The reliability found in the present study is comparable to that of the original version of the ERQ (John & Gross, 2004). These findings verify hypotheses 1 (*the internal structure of the ERQ is composed of two factors, namely reappraisal and suppression*) and hypotheses 2 (*composite reliability, internal consistency (α) and test-retest indicate good levels of reliability for the ERQ adaptation*) of Study 1.

Regarding gender differences, women reported the use of more reappraisal than men. These results are congruent to those reported in Anglo-Western cultures (e.g. Nolen-Hoeksema & Aldao, 2011; Spaapen et al. 2014). Several studies have shown that women are more aware of their own emotions than men (e.g., Barrett et al., 2000) so they may have a greater concern for consciously regulating them. Similarly, existing research (e.g., Gross & John, 2003) suggests that men use suppression more frequently. The gender differences found for suppression in this study are similar to those reported in other cultural contexts (e.g., John & Eng, 2014; Simpson & Stroh, 2004; Zimmermann & Iwanski, 2014). This increased rate of suppression may be due to differences in parenting

and social patterns where the expression of emotions may be interpreted as unmanly (Brody, 2000). In summary, the present research suggests that gender differences for suppression in Argentina are similar to those found in several other cultures (Cabello et al., 2013; Gross & John, 2003). This finding constitutes a novel contribution to the literature and verify hypothesis 3 of Study 1 (*there are gender differences in emotion regulation strategy use: women use more reappraisal, while men use more suppression*).

Increasing life experience and wisdom regarding the relative costs and benefits of different forms o

About age, results showed that the use of reappraisal is more frequent in older groups. Existing researchers who have identified this pattern in USA-based samples have theorized that life experience can increase knowledge about the disadvantages and benefits of different forms of emotion regulation (John & Gross, 2004). By contrast, no difference was found in suppression use between age groups. This finding diverges from studies conducted in other cultures which found a relationship between suppression use and age (e.g., John & Gross, 2004; Nolen-Hoeksema & Aldao, 2011; Wiltink et al., 2011). Therefore, hypothesis 4 of Study 1 (*there are age differences in emotion regulation strategy use: reappraisal increases with age while suppression decreases*) is only partially correct. This divergence may be due to an insufficient number of participants in the adult group (45–65 years; $n = 48$) or this may constitute a cross-cultural difference. It is also possible that these differences can only be detected after reaching an older age (e.g., over 60 years). For example, Márquez-González et al. (2008) found that older participants used suppression more frequently than younger ones, but the older group was composed of people between 60 and 84 years of age. The other two age groups studied, composed of young (20–33) and middle-aged (40–59) participants, showed no differences in the use of suppression. This topic warrants future research.

Study 2 sought to assess the validity of Argentinean ERQ. The results of this study showed relationships with theoretically related variables. Regarding concurrent validity, reappraisal was directly associated with the use of adaptive strategies (CERQ), and inversely associated with the use of maladaptive strategies (CERQ). Reappraisal was also associated with the presence of more emotion regulation difficulties (DERS). Conversely, Suppression showed a direct relationship with the presence of emotion regulation difficulties (DERS), but no relationship with the other emotion regulation strategies explored (CERQ). This last finding may be due to the fact that CERQ does not explore the suppression strategy (but does indeed explore reappraisal). In general, reappraisal was associated with protective mental health factors while suppression was associated with greater difficulties for emotion regulation. Combined, all these results support the concurrent validity of the Argentinean adaptation of the ERQ and verify hypothesis 1 of Study 2 (*the ERQ adaptation has good concurrent validity since it is associated with other emotion regulation measures*).

Finally, hypothesis 2 of Study 2 (*the ERQ adaptation has good concurrent validity since it is associated with theoretically related aspects, such as anxiety, depression, and personality traits*) was also correct. Concerning convergent validity, reappraisal was positively associated with extraversion, agreeableness, consciousness and openness to experience and negatively associated with neuroticism. By contrast, suppression was negatively related to extraversion, agreeableness, consciousness and openness to experience, and positively related to neuroticism. The findings are similar to those reported in previous studies on the relationships between personality traits and emotion regulation (Andrés et al., 2016; del Valle et al., 2020; Gross & John, 2003; Wang et al., 2009) and suggest that an individual's personality can predict his or her tendency to choose one or the other emotion regulation strategy. It should be noted that these associations were low to moderate, indicating that ERQ strategies converged with these personality traits, but did not duplicate them.

Regarding the predictive validity of the ERQ, reappraisal was inversely associated with anxiety and depression, which is similar to what has been reported in previous studies (Andreotti et al., 2013; Carthy et al., 2010; Dennis, 2007; Legerstee et al., 2010; Rood et al., 2012). By contrast, suppression was positively associated with anxiety, but not associated with depression. This is partially congruent with previous studies that indicate that suppression is associated with higher levels of anxiety and also higher levels of depression (e.g., Aldao et al., 2010; Ehring et al., 2010). However, like in the present study, other studies have also not found a relationship between suppression and depressive symptoms (e.g. Dennis, 2007; Wang et al., 2009). Therefore, further investigation is needed to better understand the relationship between suppression and depressive symptoms. Overall, the observed relationships are similar to those presented in the literature and support the predictive validity of the ERQ adaptation.

In general, strong empirical evidence was found for the validity and reliability of the Argentinean adaptation of the ERQ. However, there were some limitations that warrant mention. Firstly, like many studies in this field, the sample was limited to university students. Therefore, it would be important to evaluate the psychometric properties of adaptation in a non-university sample with a greater diversity of age, socioeconomic status, and education levels. Secondly, the study worked with a non-clinical sample. Therefore, further research is needed to generalize the results to populations with emotion dysregulation pathologies. Third, the gender and age equivalence analyses (Study 1) were performed over groups with different sample sizes. Some studies indicate that unequal sample sizes represent a problem only if unequal variances are also observed (Blanca et al., 2018; Pardo Merino & Ruiz Díaz, 2009; Sweet & Grace-Martin, 2012), which was not the current case. Furthermore, other studies suggest that both t, and F are scarcely influenced when the data do not meet the tests assumptions (Boneau, 1960; Blanca et al., 2017). Even though in the present study equality of variances was achieved, other studies suggest that

sample sizes could directly affect the results (Rusticus & Lovato, 2014). Because of this, the equivalence analyses expose here should be considered with caution. Future studies with equal sample sizes could explore gender and age effects, and even explore different age ranges.

In summary, this study used a large sample of participants to assess the validity and reliability of the Argentinean ERQ. Moreover, this adaptation reflects the linguistic idiosyncrasies of Argentina enabling accurate assessment of emotion regulation strategy use in the Argentinean cultural context (Cardoso Ribeiro et al., 2010). The adaptation showed that two emotion regulation strategies can be discriminated in Argentinean population: cognitive reappraisal and expressive suppression. These findings replicate Gross and John's (2003) proposal about emotion regulation mechanisms assessed through the ERQ. The adaptation is also reliable to be use in the Argentinean context. Good concurrent, convergent and predictive validity were also found, suggesting that emotional regulation strategies are associated with other regulatory mechanisms and impact on mental health. By adapting a widely used and well accepted scale, this study expands the scope in which researchers are able to investigate emotion regulation and takes a step towards more broadly generalizable, cross-cultural science.

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