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Gendered self-concept and gender as predictors of emotional intelligence: a comparison through of age

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Abstract
This study researched the relevance of gendered self-concept and gender as predictors of emotional intelligence in different age groups: adolescents, young adults and middle-aged. Study 1 analyzed the psychometric properties of the Positive-Negative Sex-Role Inventory introducing the Spanish version (PN-SRI-SP20). Study 2 analyzed the relationship between gendered self-concept, gender and age, a) We specifically examined differences by gender and age in gendered self-concept and EI and b) identified the predictive capacity of gendered self-concept and gender in emotional intelligence in three age groups. Results indicated that the PN-SRI-SP20 presents a factorial structure of 4 related factors (positive feminine, negative feminine, positive masculine and negative masculine), with adequate reliability, and is therefore an appropriate measure to evaluate this subject Both men and women maintain a traditional gendered self-concept, however, differences were found according to age. Gendered self-concept becomes more positive with age. As regards emotional intelligence, differences were also found among varoius age groups with the middle-aged group reaching higher scores. In addition, gendered self-concept was more relevant than gender in predicting emotional intelligence in all age groups. Emotional attention was predicted by feminine gendered self-concept but emotional clarity and repair by both feminine and masculine gendered self-concept. Gender was only relevant for emotional repair in the middle-aged group. We comment on the relevance of promoting feminine and masculine gendered self-concept in order to enhance emotional intelligence.

Keywords Gendered self-concept · Gender · Emotional intelligence · Age

Introduction

Emotional intelligence (EI) is conceived as a multidimensional concept that includes various factors such as identifying one's own emotions (intrapersonal) and those of others (interpersonal) (Salovey and Mayer 1989-1990). Mayer and Salovey (1997) proposed a model of large empirical support (Fernández-Berrocal and Extremera 2005). This model defines EI as the ability to accurately perceive, assess and express emotions, access and/or generate feelings that facilitate thinking, understand emotions and emotional knowledge and regulate emotions promoting emotional and intellectual growth.

Research in EI has been very productive in recent years. There has generally been more work on the consequences of EI than its antecedents. A higher level of EI has positive effects on health in particular (Martins et al. 2010), promotes subjective well-being (Sánchez-Álvarez et al. 2016), improves academic performance (Nelis et al. 2009), ameliorates social relations (Lopes et al. 2004) and even prevents drug use (Brackett et al. 2004).

Less is known regarding the antecedents of Emotional Intelligence. Different studies found a link between gender and EI (Sánchez et al. 2008) mainly from the perspective of gender differences (Gartzia et al. 2012). Women were generally better at interpersonal sensitivity than men (Hall and Mast 2008), and also obtained higher scores on all EI dimensions (Joseph and Newman 2010), despite the magnitude of women's superiority differing from one study to another (Fernández-Berrocal et al. 2012). Nevertheless, other studies found no gender differences when using a global scale of EI (Whitman et al. 2009). These gender differences do not identify the psychological variable that could be an antecedent of EI.

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To clarify the significance of gender for emotional intelligence, no binary (men/women) approach can be considered. From an internal perspective (Abele 2000) gender may be broadened to include both attributions made by others and assumptions and suppositions about one's own properties which are socioculturally appropiate to women and men (Unger 1979). Gendered self-concept is the construct that extends the understanding of gender since it allows knowing how individuals define themselves in terms of "feminine and masculine meanings attached to men and women" (Wood and Eagly 2015). Incorporating gendered self-concept into research on EI allows us to evaluate whether it is a good antecedent, as a predictor of EI and compare its predictive power with gender.

Previous research also identified age as a salient variable in the evolution of EI. Research has generally found that EI increases with age due to its adaptive function and as it develops along with cognitive and social skills (Extremera and Fernández-Berrocal 2006; Kafetsios 2004; Mayer et al. 2001). However, other studies affirm that older people have lower EI than the middle-aged (Cabello et al. 2016). In addition, the relationship between EI and age appears to be linked to gender. Gender differences in EI in particular can decrease or disappear with age (Fernández-Berrocal et al. 2012). Taken together, all these findings support the idea that age and gender should be considered in the study of EI.

No previous research has jointly examined the effect of age, gender and gendered self-concept on EI, the main goal of the present study was to identify the relevance of gender and gendered self-concept in the prediction of EI, in three age groups.

Gender and Emotional Intelligence

Gender is identified as an important variable in relation to EI, but research appears to be inconclusive. In some studies, women scored more than men in EI, specifically in use, understanding and management of emotions (Mayer et al. 2000; Petrides and Furnham 2000). This was interpreted as endorsing that women have more and better emotional abilities than men (Grewal and Salovey 2005; Joseph and Newman 2010). However, in other research, men seemed to better manage negative emotions than women (Fernández-Berrocal and Extremera 2008). Contrary to these results, some studies did not identify a gender effect on EI. For instance, Fernández-Berrocal et al. (2004) found no significant differences between men and women in the three subscales of the Trait Meta-Mood Scale (TMMS). Similarly, Whitman et al. (2009) did not observe gender differences in EI. These contradictory results suggest caution before concluding that gender is a determining factor in EI, especially without considering possible interactions with other variables. Most studies that found women are more emotionally intelligent than men, did not completely consider gender a fully-fledged independent variable. Assigning people to a group on the basis of gender does not actually imply that gender is considered an independent variable (Jayme and Sau 1996). Therefore, studies that consider gender in terms of two groups assume it to be a collateral factor rather than an analytical variable (Fernández-Berrocal et al. 2012). For this reason, we need to go further into group comparisons and address why women and men differ in EI. A way to do so is to study the relationship between EI and gender to consider how men and women understand themselves regarding feminine and masculine cultural meanings (Eagly and Wood 2013), which also contain elements related to emotions (Chaplin 2015). Analyzing the dimensions of masculinity and femininity could clarify the contradictory results on the differences between men and women in EI.

Gendered Self-Concept

Gendered self-concept is the extent to which a person perceives and identifies as masculine or feminine based on what is considered masculinity or femininity in a specific cultural context (Wood and Eagly 2015). The construction process of gendered self-concept involves attributing to oneself what is thought to be typical and desirable for men and women (Krahé 2018). Femininity has traditionally been seen as a dimension reflecting emotional and interpersonal orientation. Contrarily, masculinity is defined by characteristics reflecting instrumental orientation (Mehta and Strough 2010). Culturally, women are expected to be more expressive, while for men, avoidance of feelings is reinforced. Most research suggests men identify with more masculine attributes and women with more feminine (Eagly and Karau 2002). However, male and female attributes are exhibited both by women and men to various degrees and contexts (Leszczynski and Strough 2008). This two-dimensional conceptualization where masculinity and femininity comprise two separate dimensions formed the basis of the instrument elaborated by Sandra Bem (Bem 1974).

The application of Bem Sex-Role Inventory (BSRI) in different cultures has enabled us to identify differences in the extent to which participants used masculine and feminine attributes (Troche et al. 2007). Furthermore, evaluating masculinity-femininity across cultures, as dimensions of gendered self-concept, requires focusing on culture specific definitions of concepts (Best and Thomas 2004). Given that gendered self-concept can vary through the cultural context (Schmader and Block 2015), the validation of measuring instruments becomes essential.

Gendered self-concept changes and develops throughout our lives (Tobin et al. 2010). During childhood and adolescence young men and women learn from parents and peers what kind of behavior is expected from a male or female and also learn to identify feminine and masculine aspects that comprise gendered self-concept (Leaper and Friedman 2007). According to a phase transition model described by

Ruble (1994), when an individual begins a new life phase, their previously existing beliefs and expectations might be challenged by the social demands of this new phase. The dynamic view on gendered self-concept supports the gender intensification hypothesis (Hill and Lynch 1993), according to which, during preadolescence, gender differences increase among girls and boys due to increased pressure to conform to traditional gender role stereotypes. According to Alfieri et al. (1996) gender stereotypes increase or decrease during adolescence, depending on the individual's social environment. In addition, older, well educated people maintain less gender stereotypes than younger people with lower education (Sánchez et al. 2011). Adolescents generally internalize gender stereotypes more than older people, and boys more than girls amongst adolescents (Colás and Villaciervos 2007; Ruiz-Palomino et al. 2010). This process of internalization of gender stereotypes could explain changes in gendered self-concept throughout life.

Gendered Self-Concept and Emotional Intelligence

There is little research on the relationship between gendered self-concept and EI. In some studies, masculinity and femininity have been reconsidered as agency and communion (Bakan 1966). Findings show that agentic characteristics (stereotypically masculine roles correspond to an instrumental orientation focused on meeting the needs of the self) correlate more strongly with the intrapersonal dimension of EI (skill of probing one's own feelings, to recognize, and distinguish them, and to represent them characteristically) (Siegling et al. 2012). Given that the agentic rather than communal dimension was a stronger predictor of EI (Vesely et al. 2013), suggests that the instrumental characteristics, related to masculine characteristics, could be beneficial for the development of EI competences.

On the other hand, communion characteristics which refer to the maintenance of relationships and forming connections, correlate more with the interpersonal dimension of EI (the capacity to understand the intentions, motivations and desires of other people) (Keener et al. 2012). Given that the communual dimension is part of stereotypically feminine roles could explain why women obtained higher scores than men in EI. In fact, girls are socialized to try to please others and maintain harmony (Chaplin 2015), which may predispose developing emotional problems and depression (Keenan and Hipwell 2005).

However, other studies have confirmed the relevance of both types of dimensions of gendered self-concept, masculinity and femininity in EI. For instance, people with both male and female attributes focus less on negative emotions than those who describe themselves as feminine (Conway et al. 1990). In addition, these people showed higher levels of EI (Guastello and Guastello 2003) than those presenting only a masculinity or femininity gendered self-concept (Gartzia et al. 2012).

These different findings prevent us from reaching a general conclusion about the relationships between gendered self-concept and EI. A question yet to be answered is what specific relationship exists between masculinity and femininity and the different facets of EI.

Moreover, gendered self-concept might show some changes depending on age and period of development. Therefore, it is essential to understand the relationship between gendered self-concept and different facets of EI in different age groups. This could clarify the different results obtained from the studies mentioned above.

Age and Emotional Intelligence

Age has also been identified as a sociodemographic variable relevant to the evolution of EI (Mayer et al. 1999). There is a generally positive relationship between EI and age (Fariselli et al. 2006) that develops from childhood to adulthood. Studies reported that older adults achieved significantly higher scores than young adults in emotional intelligence (Gardner and Qualter 2011; Mayer et al. 2000; Tsaousis and Kazi 2013). This relationship can be explained by lifelong learning and accumulated knowledge (Kaufman et al. 2008). Older adults have had more opportunities to practice emotional intelligence throughout life, which has provided them with a better understanding of emotions (Blanchard-Fields et al. 1997) and use better emotional regulation strategies than younger adults (Gross and John 2003; John and Gross 2004). Similarly, older adults can self-regulate emotions through either rearranging their environments or acquiring strategies and capacities to manage these (Carstensen et al. 2000; Labouvie-Vief and Medler 2002).

However, some studies found a more complex link between age and EI. Specifically, Cabello et al. (2016) found that EI as a skill varies with age according to an inverted U curve: young people and older adults scored less in EI than middle-aged adults. This implies that age is a very relevant variable and could be a decisive factor accounting for variations in emotional intelligence.

The Present Study

In the present research an exploratory analysis was conducted to jointly examine the relevance of gender self-concept and gender in EI in three age groups. Two studies were performed. In the first, in the Spanish cultural context we validate the Positive-Negative Sex-Role Inventory (PN-SRI; Berger and Krahé 2013). This measure of gendered-self concept answers criticism of traditional Bem's measure (BSRI). The Bem Sex-Role Inventory (BSRI: Bem 1974) has generally been conceptualized

in terms of positive attributes. However, as Berger and Krahé (2013) indicated, focusing gendered self-concept solely on positive attributes may be restrictive. The selective auto-stereotype model (Biernat et al. 1996) affirms that men and women desire a positive self-image and therefore prefer positive attributes related to gendered self-concept. However, reducing this to positive characteristics is conceptual and empirically problematic; people also need to integrate negative aspects into their self-concept. Another issue refers to whether that measure adequately captures changes in what attributes men and women desire in today's world, as the BSRI was developed in the 70s (Berger and Krahé 2013). Notions of masculinity and femininity have changed in recent decades, especially regarding women (Donnelly and Twenge 2017; López-Zafra and García-Retamero 2012). In order to solve these difficulties, Berger and Krahé (2013) built a new instrument analyzing the German population, the so-called Positive-Negative Sex-Role Inventory (PN-SRI), as a measure of gendered self-concept.

Study 1 analyzed the psychometric properties of the Spanish version of PN-SRI, through factor, multigroup, reliability analyses and divergent validity. Depression has been negatively related to self-concept (Chacón-López and López-Justicia 2016), and is therefore a suitable variable to test divergent validity. Research has found that depression scores are positively correlated with femininity scores, a woman subscribing to a traditional feminine role stereotype is more vulnerable to depression (Tinsley et al. 1984). It is well established that women are twice as likely to develop a depressive disorder (Nolen-Hoeksema and Keita 2003). Gender socialization processes during childhood may contribute to a higher incidence of depression or depressive symptoms in females than males (Ruble et al. 1993). This study will provide us with a reliable measure of gendered self-concept.

In the second study, we tested whether gendered self-concept predicts better than gender in EI. Given the relevance of age in the development of both EI and gendered self-concept, we use three different age groups. The following hypotheses were expected:

Hyp 1: Differences by gender in gendered self-concept were expected to be found
Hyp 1.1: Women were expected to score higher than men in the feminine dimension, both positive and negative.
Hyp 1.2: Men were expected to score higher than women in the masculine dimension, both positive and negative.
Hyp 2: Women were expected to score higher than men in EI.
Hyp 3: Gendered self-concept will be more stereotypical in adolescents than other age groups.
Hyp 4: Age will positively correlate with EI.
Hyp 5: Gendered self-concept was expected to have more explanatory power predicting EI than gender in all three age groups.
Hyp 5.1. Positive dimensions (Fem + and Mas+) will be a positive predictor of EI
Hyp. 5.2. Negative dimensions (Fem- and Masc-) will be a negative predictor of EI.

Study 1

Materials and Methods

Participants

A total of 1949 people from a Spanish University (10% teachers and 90% students) participated in the study. 71% women and 29% men. Age range was from 18 to 60 years ($M_{age} = 24$, $DT = 6.9$). All participants were native Spanish speakers and predominantly from a middle socioeconomic status. Questionnaires were sent through the University's online platform to students and teachers from all schools and departments of the University.

Instruments

The Positive-Negative Sex-Role Inventory (PN-SRI) of Berger and Krahé (2013) is a four-scale measure of positive and negative masculine and feminine self-concept: a) positive masculine (Mas+): analytical, logical, objective, practical, rational and solution-focused; b) negative masculine (Mas-): arrogant, harsh, boastful, inconsiderate, ostentatious and power-hungry; c) positive feminine (Fem+): emotional, empathic, loving, passionate, sensitive and tender; and d) negative feminine (Fem-): anxious, disoriented, naive, overcautious, oversensitive and self-doubting. Participants used a 5-point scale ranging from 1 (*Not characteristic*) to 5 (*Completely characteristic*) to indicate to what extent each participant considered each attribute applicable to them. Responses reflected to what degree participants´ self-concept includes feminine characteristics (i.e., attributes considered more typical and more desirable for women than men) and masculine characteristics (i.e., attributes considered more typical and more desirable for men than women). In the original scale Cronbach's alpha values were: Mas + ($\alpha = .81$), Mas- ($\alpha = .80$), Fem + ($\alpha = .88$) and Fem- ($\alpha = .74$).

The Spanish adaptation of the Beck-II Depression Inventory (BDI-II, Vázquez and Sanz 1991) was used to evaluate divergent BDI-II validity. The questionnaire consists of 21 items, with four answers showing different symptom severity levels. The sum scores of items indicate a single depression score. Cronbach's alpha was .87 in the original scale.

Procedure

The PN-SRI was adapted according to international standard methodology (Muñiz et al. 2013). Native Spanish and German speakers translated the original questionnaire into Spanish and then back into German, respectively. The instrument was later applied to test the phrasing of attributes. Questionnaires were completed online through the university platform. Participation was voluntary, requesting consent after reporting on the study objectives and methodology. Confidentiality and anonymity were guaranteed. Participants were not financially compensated.

Data Analysis

The internal structure of PN-SRI was examined through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). For this purpose, following the recommendations of Izquierdo et al. (2014), cross-validation was carried out. The sample ($n = 1949$) was randomly divided into two subsamples each comprising approximately 50% of participants. Firstly, given the absence of previous validation studies, EFA was carried out in the first sub-sample ($n = 1000$) to determine the appropriate number of factors, using the polychoric correlation matrix, Unweighted Least Squares (ULS) for the extraction, scree test for retention of factors, oblimin method for rotation of factors, and the criterion of minimum factor load of .35 for retention of items. The Kaiser-Meyer-Olkin (KMO) as sample adequacy test and Bartlett's sphericity test tested suitability of the data matrix to apply EFA.

A CFA was subsequently performed with the second subsample ($n = 949$) to confirm the structure found in the first. In this case we used the Weighted Least Squares Means and Variance Adjusted (WLSMV), oblique rotation and matrix of polychoric correlations. The goodness of fit was evaluated with (a) absolute adjustment measures (RMSEA and GFI), (b) incremental adjustment measures (TLI and CFI) and (c) measure of parsimony adjustment, AGFI. The acceptable adjustment model was defined as RMSEA <.08, CFI > .90, TLI > .90, GFI > .90 and AGFI> .90.

According to Timmons (2010), the four levels of factorial invariance were analyzed: base, weak, strong and strict. These levels should be considered as a hierarchy; therefore the existence of a higher level invariance implies its existence at lower levels. In order to detect possible gender bias in the instrument, we explored whether the PN-SRI factorial structure was invariant through gender with multigroup analysis. First, a base model was defined with a pattern of similar charges in the groups, although charges, interceptions, and other parameters may differ across groups. The adjustment of each model was subsequently compared with that of the previous. For comparison between models, the difference test in chi-squared and the change in CFI and RMSEA were used; if the Δ is smaller (normally accepted $\Delta < .01$), invariance is assumed (Cheung and Rensvold 2002).

We used the total Omega coefficient (ω_T) to evaluate internal consistency. It has been shown that ω_T is a more sensitive index of internal consistency, both compared to alpha coefficient and other alternatives. This is also always a better option in the presence of items with asymmetry (Trizano-Hermosilla and Alvarado 2016).

To explore evidence of divergent validity, we calculated correlation coefficients between factors of the factorial structure of the Spanish version of the PN-SRI with the depression measure.

Statistical analyses were performed using R-project version 0.99.879 and IBM SPSS 22.

Results

Factorial Analysis

Barlett's sphericity test indicated that items were dependent (χ^2 (df, 276) = 6387.9, $p < 0.0001$), and the adequacy index of the KMO sample was .80.

With subsample 1 ($n = 1000$) EFA showed the four dimensions. Three items were eliminated: Anxious, due to complex saturation, and Empathic and Disoriented due to saturations lower than 0.35. Once items were eliminated, EFA was again performed on the 21 items. The rotated matrix appears in Table 1, showing the terms grouped in each factor. Factor 1 explains 13% of total variance, factor 2 (12%), factor 3 (11%) and factor 4 (9%).

5 different models were contrasted with subsample 2 in the CFA, ($n = 949$). Model 1, with a single factor, is proposed as a null hypothesis. Model 2 proposes a structure of two related factors. Model 3 replicates the original four-factor model proposed by the authors. Model 4 includes the structure of 4 unrelated factors. Model 5 proposes a structure of four correlated factors based on that found in CFA. As for modification indexes, the Inconsiderate item was eliminated and the residual covariances proposed by said indices between pairs of items within a single factor are defined. I.e. in Fem+, Harsh and Loving, and Passionate and Tender; in Fem-, Naive and Self-doubting; and in Mas-, Boastful and Ostentatious.

Results confirm with sub-sample 2 that model 5, with four related factors and 20 items, best fits data. Table 2 shows the adjustment rates of all proposed models. These results provide empirical evidence on the multidimensionality of the construct. Figure 1 shows the path diagram with the factorial loads of the four-factor model of the first order.

Multigroup Confirmatory Factor Analysis by Gender

Multigroup CFAs were performed in the total sample ($n = 1949$) to examine if there was a similar factor structure for

Table 1 Descriptive statistics and standardized loads of exploratory factor analysis

Items	F1 Mas+	F2 Fem-	F3 Fem+	F4 Mas-	*M*	*SD*
Analytical (Analítico/a)	0.56				3.39	1.07
Logical (Lógico/a)	0.75				3.52	1.00
Objective (Objetivo/a)	0.57				3.27	0.91
Practical (Práctico/a)	0.59				3.43	1.00
Overcautious (Cauteloso/a)	0.47				3.24	1.04
Rational (Racional)	0.78				3.59	0.97
Solution-focused (Resolutivo/a)	0.52				3.44	0.98
Emotional (Emocional)		0.62			3.86	1.04
Naive (Ingenuo/a)		0.35			2.42	1.10
Sensitive (Sensible)		0.85			3.89	1.04
Oversensitive (Hipersensible)		0.85			2.49	1.31
Self-doubting (Dubitativo/a)		0.49			3.19	1.31
Harsh (Seco/a)			−0.52		2.05	1.06
Loving (Cariñoso/a)			0.83		3.40	1.17
Passionate (Pasional)			0.57		3.48	1.14
Tender (Tierno/a)			0.72		3.27	1.16
Arrogant (Arrogante)				0.69	1.62	0.77
Boastful (Presuntuoso/a)				0.64	1.87	0.91
Inconsiderate (Desconsiderado/a)				0.59	1.42	0.70
Ostentatious (Ostentoso/a)				0.60	1.65	0.81
Power-hungry (Ambicioso/a)				0.38	2.97	1.17

*Note:*The terms in parentheses are thoseused in the study with Spanish sample

men and women. Firstly, baseline adjustment of the model was established. The structure with four related factors of the Spanish version of PN-SRI (PN-SRI-SP20) with 20 items supported by previous research, showed adequate adjustment (CFI = .93, TLI = .92, RMSEA = .06). Once the reference model was identified, its equivalence was proven through gender. The goodness of fit for the gender invariance test, of the model with four related factors is presented in Table 3. Concerning the adjustment index and variations in CFI and RMSEA, comparisons between models indicate that factor loads can be considered equals, since ΔCFI and ΔRMSEA are below the proposed cut off point of 0.01.

Table 2 Goodness of fit índices for the proposed models

Factorial model	RMSEA	GFI	TLI	CFI	AGFI
Model 1 1 factor. 24 items	0.138	0.978	0.438	0.487	0.971
Model 2 2 related factors. 24 items	0.102	0.987	0.697	0.724	0.984
Model 3 4 related factors. 24 items	0.089	0.990	0.767	0.793	0.987
Model 4 4 unrelated factors. 24 items	0.124	0.982	0.550	0.589	0.977
Model 5 4 related factors. 20 items	**0.060**	**0.996**	**0.911**	**0.925**	**0.995**

Reliability and Divergent Validity

PN-SRI-SP20 internal consistency was good, the ω_T indices were: Mas + = .85, Fem + = .76, Mas- = .67, and Fem- = .80.

Regarding divergent validity, data reveal that correlation coefficients between Mas+, Fem+, Mas- and Fem- and depression dimensions were statistically significant. As expected, Mas + and Mas- showed a positive correlation ($r = .27$; $p < .01$), as well as Fem + and Fem- ($r = .47$; $p < .01$), while Mas- and Fem- are not related. A negative correlation was found between Mas + and Fem- ($r = -13$, $p < .05$). Finally, depression scores correlate negatively with the positive dimension of masculinity [Mas + ($r = -.16$; $p < .01$)] and femininity [Fem + ($r = -.11$; $p < .01$)], and positively with the negative dimension of masculinity [Mas- ($r = .06$; $p < .05$)] and femininity [Fem- ($r = .24$; $p < .01$)].

Discussion of Study 1

The aim of this study was to analyze the psychometric properties of Positive-Negative (PN-SRI; Berger and Krahé 2013) and introduce the Spanish version (PN-SRI-SP20). Results

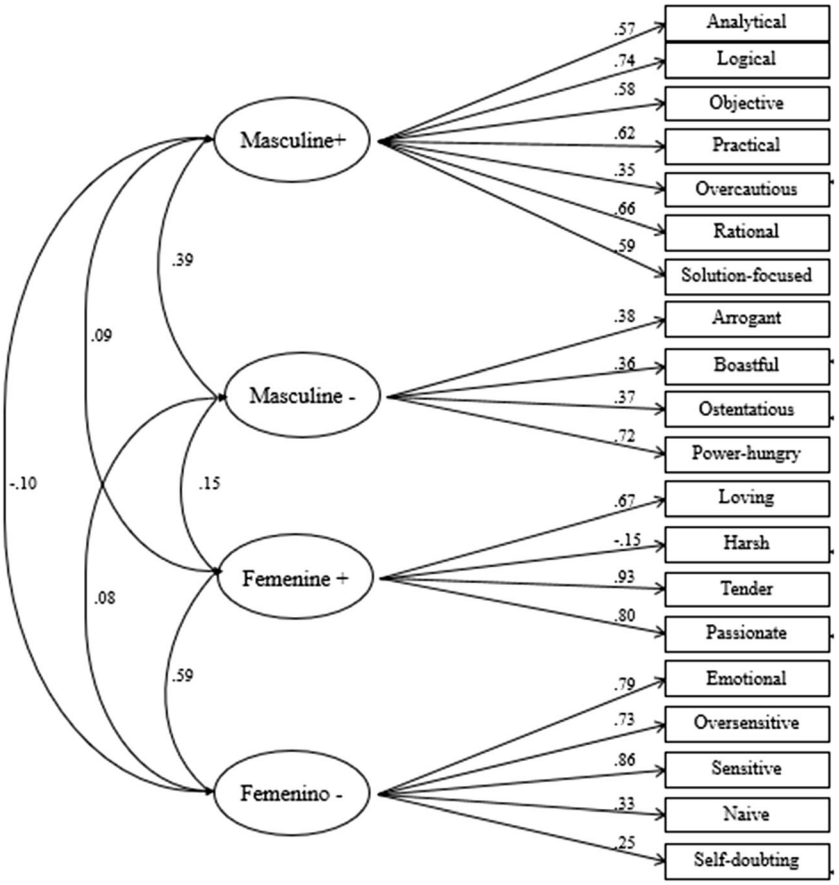

Fig. 1 Confirmatory factor analysis of PN-SRI according to a four-factor first-order model

confirm that PN-SRI-SP20 has appropriate psychometric properties, reliability and divergent validity. In addition, the four-dimensional model, similar to the original instrument, best fits the Spanish population. The confirmation of the invariance model through gender, as well as internal consistency and divergent validity values allow us to state that the PN-SRI-SP20 Spanish version is a reliable and valid instrument for use among adult populations.

Study 2

The aims of this study were (a) to analyze differences by gender and age in gendered self-concept and EI, (b) compare EI scores at different ages and (c) test the predictive capacity of gendered self-concept and gender on EI in three age groups.

Table 3 Model fit statistics for the multi-group confirmatory factor analysis across gender of a model with 4 related factors of PN-SRI-SP20

Model	χ^2	df	$\Delta\chi^2$	Δdf	RMSEA	CFI	ΔCFI
Gender invariance							
Configural	1515.8	318			.062	.913	
Weak	1564.5	334	12.1	16	.062	.911	.002
Strong	1654.3	350	26.6	16	.062	.905	.006
Strict	1771.3	370	67.8	20	.062	.898	.007

Materials and Methods

Participants

In this study, 3 samples were selected randomly from the total sample: adolescents between 17 and 20 years old ($n = 227$, $M_{age} = 19$, $SD = .90$, 75% women and 25% men), young adults between 21 and 30 years (n = 227, $M_{age} = 24$, $SD = 2.52$, 70% women and 30% men) and middle-aged people between 31 and 60 years old (10% teacher and 90% students) (n = 227, $M_{age} = 40$, $SD = 7.36$, 59% women and 41% men). All participants were native Spanish speakers and predominantly middle socioeconomic status. Questionnaires were sent through the University's online platform to students and teachers from all schools and departments of the University.

Instruments

The evaluation of gendered self-concept was carried out using the instrument from study 1, PN-SRI-SP20, the Spanish version of the original PN-SRI. This comprises 4 dimensions: a)

Mas+: analytical, logical, objective, practical, overcautious, rational and solution-focused; b) Mas-: arrogant, boastful, ostentatious and power-hungry; c) Fem+: loving, harsh (inverted item), passionate and tender; and d) Fem-: emotional, oversensitive, sensitive, naive and self-doubting. Participants used a 5-point scale ranging from 1 (*Not characteristic*) to 5 (*Completely characteristic*) to indicate to what extent each attribute was characteristic of them.

EI evaluation was performed through the Trait Meta Mood Scale (TMMS-24; Fernández-Berrocal et al. 2004). This self-report measure evaluates the emotional processes characterizing emotionally intelligent people. It consists of 24 items in three dimensions: a) Attention, degree to which we attend to our feelings, emotions or mood? b) Clarity, degree of understanding and identification of our emotional states, and c) Repair, individual beliefs on the ability to regulate our feelings and emotions. The Likert-type scale ranges from 1 (*Not at all*) to 5 (*Strongly agree*). In our study, internal consistency was adequate: Attention ($\omega_T = .93$), Clarity ($\omega_T = .88$) and Repair ($\omega_T = .89$).

Procedure

The same procedure as study 1 was used.

Data Analysis

Several MANOVA were carried out to examine the multivariate and univariant effect of gender on gendered self-concept and on EI dimensions. The masculine or feminine gendered self-concept dimensions were introduced as dependent variables, and participant gender as independent variable.

Several ANOVAS were performed to identify differences among age groups in gendered self-concept and EI.

A linear hierarchical regression analysis was carried out for each age group to identify the predictive capacity of gendered self-concept and gender on EI. The positive and negative facets of a masculine and feminine gendered self-concept were introduced in the first place and gender in the second. Gender was coded as 1 = male and 2 = female.

Results

Descriptive Statistics

Descriptive statistics for the total sample and for men and women are presented in Table 4. For gendered self-concept, the MANOVA revealed a significant multivariate effect for gender, Wilks Lambda = .87, F(4, 676) = 23.58, $p < .001$, $\eta^2 = .12$. Moreover, all univariate effects were significant (confirming Hyp 1). Women scored higher on both positive and negative femininity scales (confirming Hyp 1.1). Men scored higher on both positive and negative masculinity scales (confirming Hyp 1.2). On EI, a significant multivariate effect on gender was found, Wilks Lambda = .98, F(3, 677) = 4.45, $p < .01$, $\eta^2 = .02$. A univariant effect was significant, women scored higher in attention than men (partially confirming Hyp 2).

Correlations and Anovas. Gendered Self-Concept and Emotional Intelligence through Age Group

Table 5 shows correlations between gendered self-concept, gender and EI by age group, descriptive statistics are also included. Regarding correlations between gender and gendered self-concept, it has been found that, in adolescents, boys self-assign more attributes from the masculine dimension (Mas + and Mas-) than girls, and girls more attributes from the feminine dimension (Fem + and Fem-). In young people, men assigned more Mas + attributes, and women more Fem- attributes. In the middle-aged group, men self-attribute more attributes from the masculinity dimension, and women self-attribute more Fem- (confirming Hyp 2). As for correlations between gender and EI, it was found that in the middle-aged group, women scored higher in Attention and Repair.

Table 4 Descriptive statistics and differences by gender for PN-SRI-SP20

	Total *M*(*SD*)	Men *M*(*SD*)	Women *M*(*SD*)	$t_{(679)}$	Cohen's *d*
PN-SRI-SP20					
Mas+	3.44(.66)	3.69(.59)	3.33(.66)	6.81**	.57
Mas-	1.97(.61)	2.10(.66)	1.91(.58)	3.81**	.30
Fem+	2.78(.65)	2.67(.68)	2.83(.63)	−3.16*	−.24
Fem-	3.90(.99)	3.59(.93)	4.04(.99)	−5.68**	−.47
Emotional Intelligence					
Attention	25.14(6.97)	23.93(7.21)	25.71(6.79)	−3.13*	−.25
Clarity	24.83(6.34)	25.27(6.02)	24.63(6.48)		
Repair	26.29(6.58)	26.27(6.30)	26.31(6.71)		

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

Table 5 Correlations among gendered self-concept, gender and emotional intelligence by age groups. Descriptive statistic by age groups

Adolescents (M_{age} = 19) N = 227								
	1	2	3	4	5	6	7	*M*
1. Mas+								23.2
2. Fem+	.10							13.8
3. Mas-	.11	.06						8.3
4. Fem-	.03	.39**	.17**					15.8
5. Gender	−.20**	.23**	−.22**	.23**				
6. Attention	.03	.28**	.10	.61**	.06			24.9
7. Clarity	.28**	.16*	.06	.02	−.02	.17*		22.9
8. Repair	.28**	.32**	.00	.05	.02	.13	.38**	25.0
Young people (M_{age} = 24) N = 227								
	1	2	3	4	5	6	7	*M*
1. Mas+								24.0
2. Fem+	−.04							13.9
3. Mas-	.19**	−.01						8.2
4. Fem-	−.16**	.48**	−.04					16.0
5. Gender	−.27**	.06	−.11	.17*				
6. Attention	−.07	.41**	.12	.65**	.13			26.3
7. Clarity	.24**	.17*	−.03	−.01	−.07	.12		24.7
8. Repair	.34**	.09	.08	−.08	−.07	−.12	.27**	26.0
Middle-age (M_{age} = 40) N = 227								
	1	2	3	4	5	6	7	*M*
1. Mas+								25.1
2. Fem+	.07							14.0
3. Mas-	.11	−.05						7.0
4. Fem-	−.06	.43**	−.05					15.0
5. Gender	−.23**	.09	−.24**	.22**				
6. Attention	−.09	.41**	−.01	.60**	.14*			24.1
7. Clarity	.22**	.28**	−.01	.09	.06	.27**		26.9
8. Repair	.31**	.24**	−.03	.09	.14*	.15*	.45**	27.9

*p < .05; **p < .01

Correlations showed that Mas + correlates with Clarity and Repair in the three age groups. In addition, Fem + correlates with the three IE dimensions in adolescent and middle-aged groups, while in the young adult group it does so with Attention and Clarity. In addition, Fem- correlates positively with Attention in the three age groups.

We carried out several Anovas to identify differences among age groups in gendered self-concept and EI Results showed significant differences regarding gendered self-concept, specifically for Mas- ($F(2,680) = 21,01$, $p < .001$; $\omega^2 = .06$) with a higher mean for adolescents, for Fem- ($F(2,680) = 3,54$, $p < .01$; $\omega^2 = .01$) with a higher mean for young adults and Mas + ($F(2,680) = 9575$, $p < .001$; $\omega^2 = .03$) with a higher mean for middle-aged people. However, no significant differences for Fem + were found.

As for EI the Anovas showed significant differences among the three age groups. Specifically for Attention ($F(2,680) = 5824$, $p < .01$; $\omega^2 = .02$) with a higher mean for young people, and Clarity ($F(2,680) = 24,816$; $p < .0001$; $\omega^2 = .02$) and Repair ($F(2,680) = 11,113$; $p < .0001$; $\omega^2 = .03$) with a higher mean for middle-aged people. Thus, our Hyp 4 was confirmed: EI improves with age.

Predictive Capacity of Gendered Self-Concept and Gender

The results of the regression analyses for the 3 age groups are shown in Table 6. In adolescents, Attention ($F(1,226) = 130.22$, $p < .0001$) included as a predictor Fem-; while for Clarity ($F(2,226) = 12.15$; $p < .0001$) and Repair ($F(2,226) = 21.67$; $p < .0001$) included as predictors Mas + and Fem + .

In young people, the regression model for Attention ($F(3,226) = 63.22$; $p < .0001$) included Fem-, Mas- and Fem+. In the model for Clarity ($F(2,226) = 10.72$, $p < .0001$) Mas + and Fem + were included. In the model for Repair ($F(1,226) = 28.57$; $p < .0001$), Mas + was included as a predictor.

In middle-aged adults the model for Attention ($F(2,226) = 69.60$; $p < .0001$) included Fem- and Fem+. For Clarity ($F(2,226) = 15.47$; $p < .0001$) the model included Fem + and Mas+. For Repair ($F(3,226) = 15.78$; $p < .0001$) the model included Mas+, Fem + and gender. Therefore, in general our Hyp 5 was confirmed; gendered self-concept had more predictive power than gender. Unlike that predicted by Hyp 5.2. negative dimensions of gendered self-concept were positive predictors of Attention in all age groups.

Discussion of Study 2

This study shows that men scored higher on both positive and negative masculinity scales, and women higher on both positive and negative femininity scales. Therefore, men and women showed a gendered self-concept linked to gender stereotype but which included positive and negative dimensions. This result confirms Hyp 1, showing stability of gender stereotypes, in line with another study affirming gender stereotypes have remained relatively unchanged over the last 30 years (Haines et al. 2016). As regards women, adolescent girls´ gendered self-concept was more stereotyped than the other women's groups. Our results are consistent with those stating that gender stereotyping becomes less flexible during adolescence (Alfieri et al. 1996). In addition, young men maintain a more positive gendered self-concept than young women., There is wide research stating that men are perceived more favorably than women (i.e. Mora et al. 2014).

Gender also had an effect on EI (Hyp 3) and as other studies have shown women scored higher in attention than men. For example, adult women scored higher than men in Attention (Delgado-Gómez et al. 2019), and girls report paying more attention to their emotions than boys (Pena-Garrido et al. 2011).

Table 6 Stepwise multiple regression by age group

	Adolescents (Mage = 19)					Young people (Mage = 24)					Middle-age (Mage = 40)				
		Predictor	β	R^2	ΔR^2		Predictor	β	R^2	ΔR^2		Predictor	β	R^2	ΔR^2
Attention	Step 1	Fem-	.61***	.37		Step 1	Fem-	.65***	.43		Step 1	Fem-	.60***	.36	
						Step 2			.45	.02	Step 2			.38	.03
							Fem-	.66***				Fem-	.52***		
							Mas-	.14***				Fem+	.18**		
						Step 3			.46	.01					
							Fem-	.60***							
							Mas-	.14**							
							Fem+	.02*							
Clarity	Step 1	Mas+	.28***	.08		Step 1	Mas+	.24***	.06		Step 1	Fem+	.29***	.08	
	Step 2			.10	.02	Step 2			.09	.03	Step 2			.12	.04
		Mas+	.27***				Mas+	.25***				Fem+	.27***		
		Fem+	.13*				Fem+	.18***				Mas+	.20**		
Repair	Step 1	Fem+	.32***	.10		Step 1	Mas+	.34***	.11		Step 1	Mas+	.31***	.09	
	Step 2			.16	.06						Step 2			.14	.05
		Fem+	.30***									Mas+	.29***		
		Mas+	.24***									Fem+	.22**		
											Step 3			.18	.04
												Mas+	.34***		
												Fem+	.20**		
												Gender	.20**		

***p < .0001; **p < .001; *p < .05

Mas + dimension correlates with Clarity and Repair in the three age groups confirming that masculine or agentic characteristics correlate more strongly with the intrapersonal dimension of EI (Keener et al. 2012; Siegling et al. 2012). Thus, differentiating between age group and considering the dimensions of gendered self-concept is important in gaining more knowledge about EI and how to ameliorate it. Age also had an effect on gendered self-concept (Hyp 2), which becomes more positive with age. Similarly, EI increased with age. Clarity and Repair increased in the middle-aged group, but Attention did not. Our research supports the results of Gardner and Qualter (2011), who found improvement in EI with age.

As for prediction, it was found that gendered self-concept is more relevant in the explanation of EI subscales than gender (Hyp 5). Clarity and Repair are specifically predicted in the three age groups by positive dimensions of gendered self-concept. Only Attention is related to the feminine dimension, and by negative feminine dimension in adolescents. This finding can explain controversial results in the relationship between gender and EI, as the masculine and feminine dimensions of gendered self-concept are important in prediction of different EI dimensions.

General Discussion

The main aim of this study was to determine the predictive capacity of gendered self-concept and gender on EI in different age groups. As a previous step, study 1 established the adequacy of the Spanish version (PN-SRI-SP20) as a measure of gendered self-concept that considers inclusion of positive and negative facets of masculine and feminine gendered self-concept. Results indicate that the four-dimensional model, similar to the original instrument (PN-SRI; Berger and Krahé 2013), is most suitable for the Spanish population. Confirmation of the model of invariance through gender, as well as the values of internal consistency and divergent validity allow us to state that PN-SRI-SP20 has adequate psychometric properties. Given the shortness of the scale, we consider it a very useful instrument in research and it could be a convenient measurement of gendered self-concept. Comparison of the original instrument with results obtained with the Spanish population show minor differences among scales. Four dimensions were found, related to positive and negative facets of masculine and feminine dimensions. This conceptualization, considering both positive and negative aspects of the subject was also confirmed in the adolescent population (Martínez-Marín and Martinez 2018). Our finding of no change in gendered self-concept coincided with other studies which find little evidence of change over the past 30 years (Haines et al. 2016). This is further supported by the cultural lag hypothesis (Diekman et al. 2010), arguing that gender attitudes and beliefs are likely to lag behind societal changes as well as by models emphasizing the essentialism of gender categories (Croft et al. 2015).

Study 2 confirms that men and women maintain a traditional gendered self-concept. However, we found differences according to age. Young people in particular presented a more negative gendered self-concept than the other groups. This should orientate research and intervention programs to improve gendered self-concept in this stage of development.

Although gendered self-concept becomes more positive, there was more self attribution of Mas + in the middle-aged group, therefore more attention to young people will be required.

The relevance of gendered self-concept, but not gender, as an explanatory EI variable, is shared by Guastello and Guastello (2003). However, these authors only worked with a global measure of EI and without taking age of participants into account. Therefore, our study provides a comparison between age groups and also differentiates among three key dimensions of self-reported EI, something not previously addressed. Our work provides empirical evidence to the proposal of Fernández-Berrocal et al. (2012), stating that other variables should be considered when explaining gender differences in EI.

According to results, constructs providing relevant information to prediction of EI are the dimensions of gendered self-concept which could clarify differences found between men and women in EI in other research. Moreover, these findings could be a new line of research since other studies did not include positive and negative dimensions. Analysis of each EI dimension shows that femininity is the most explanatory variable in all age groups. This result is consistent with the idea that the communal dimension is linked to EI (Siegling et al. 2012). However, we wish to stress that this would be true only for one component of EI: Attention. This result could clarify evidence that women pay more attention to emotions, while men have higher levels of emotional self-regulation in stress situations (Martínez et al. 2011). Socialization in feminine aspects would imply the development of expressive features closely linked to EI competences, such as sensitivity, sociability or attention to the needs of others (Stewart and McDermot 2004). In this regard, it would be more appropriate to say that a feminine gendered self-concept (not necessarily women) predicts Attention.

As for Clarity, positive facets of gendered self-concept in all age groups would be more linked to adequate understanding of emotions. This result supports other Spanish studies which extended the value of self-assigning masculine and feminine attributes to emotional functioning (Gartzia et al. 2012). This finding means that for emotional control we must consider that both a logical and an instrumental dimension are required. Saklofske et al. (2007) in particular stated that Clarity is associated with personal fulfilment and instrumental coping strategies. In fact, high scores in Attention constitute an indicator of high emotional awareness, and low Clarity will affect inability to modify emotional states, determining mental and physical health and personal fulfilment (Extremera and Fernández-Berrocal 2006).

Some differences among age groups were found in Repair. This could indicate that this dimension is more linked to changes throughout development and therefore can be more complex than others. Although positive facets of gendered self-concept again predict EI, both in adolescents and the middle-aged, in young adults the prediction was made only through Mas + attributes.

It should be noted that gender appeared to have a certain explanatory power only in the middle-aged group. According to our results, women with masculine and feminine gendered self-concept showed best ability in Repair. This result is contrary to other studies in that women tend to repair worse than men as they are more inclined to rumination (Johnson and Whisman 2013). Therefore, although gender differences in EI appear to decrease with age (Fernández-Berrocal et al. 2012) our study advances a possible line of research for further studies on how women improve ability to repair over the years.

Although the presence of masculine and feminine gendered self-concept is decisive in explaining Clarity and Repair, dimensions linked to emotional regulation and adequate coping with stress (Velasco et al. 2006), we must bear in mind that the magnitude effect is smaller than for Attention. This implies these two dimensions are more complex and their study must be linked to other psychological variables, such as Big Five factors (Pérez-González and Sánchez-Ruiz 2014).

Differences in EI at different age groups were confirmed. Young people showed high levels of Attention though Clarity and Repair are increased in the middle-aged group. Both dimensions appear more important regarding well-being (Bhullar et al. 2012; Fernández-Berrocal and Extremera 2008). Therefore, our results coincide with research reporting EI improves with age (Cabello et al. 2016; Extremera et al. 2006; Gardner and Qualter 2011).

In summary, these findings show the relevance of gendered self-concept in development of EI and help clarify the existing controversy regarding differences between men and women in EI. They also stress the importance of differentiating between positive and negative aspects, in order to understand how these enhance our emotional intelligence. From a practical viewpoint this finding is relevant as it indicates that improvement of EI could occur by promoting positive aspects of gendered self-concept (feminine and masculine). It is likely that age nullifies the effect of gender on EI (Fernández-Berrocal et al. 2012) meaning that adults become less stereotyped and learn to conjugate the dimensions of masculinity and femininity.

This study has various limitations. One relates to participants. The greater percentage of women should be compensated in future research. In addition, the cross-sectional nature of the study does not allow definitive statements about the evolutionary aspects of EI. Longitudinal studies could provide very relevant results in this process. Furthermore, other types of measures must be used to include the interpersonal dimension as well as the use of EI skill measures. In this regard, similarities and/or differences that are established could be evaluated depending on type of measure used for EI. An improvement program in EI might consider gendered self-

concept and the role of negative dimensions in the process. Firstly, due to positive correlations found between EI and gendered self-concept. Secondly, as only the negative dimension of gendered self-concept was relevant in prediction of Attention. This means that the so-called negative dimension is important in predicting EI. The moral judgment that 'negative' implies might mean these attributes could be eliminated, when in fact they can actually fulfill a function.

Compliance with Ethical Standard

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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