



Original

The long-term effects of emotional competencies and self-esteem on adolescents' internalizing symptoms[☆]

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ABSTRACT

Internalizing symptoms such as depressive mood, somatic complaints and anxiety among adolescents are a major and global concern for parents, educators and professionals. Empirical research suggests that high level of self-esteem during adolescents is associated with psychological adjustment and emotional well-being. This study examines self-esteem as a potential mediator in the interplay between emotional competencies and internalizing symptoms during adolescence. Self-report data from 855 Spanish adolescents ($M_{age} = 13.6$, $SD = 1.09$, 52% girls) were collected in two waves, using a longitudinal design. The mediation model was estimated using structural equation modelling (SEM). Results show that girls perceive and understand emotions better than boys, but they also perceive higher amounts of emotional distress, while boys showed higher levels of self-esteem. Results of structural equation modeling indicated that positive self-esteem function as a mediator between emotional competencies and long-term internalizing symptoms. Poor emotional competencies and low self-esteem are strongly associated with internalizing symptoms in adolescents. These findings have implications for future research and positive youth development considering that emotional abilities and self-esteem can protect adolescents from experiencing symptoms of depression and anxiety.

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Los efectos a largo plazo de las competencias emocionales y la autoestima sobre los síntomas internalizantes de los adolescentes

RESUMEN

Los síntomas internalizantes como el estado de ánimo depresivo, las quejas somáticas y la ansiedad de los adolescentes son una preocupación importante y global para los padres, los educadores y los profesionales. Las investigaciones empíricas indican que una elevada autoestima está asociada con la adaptación psicológica y el bienestar emocional en la adolescencia. En el presente estudio se ha examinado la autoestima como posible mediador en la relación entre las competencias emocionales y los síntomas internalizantes durante la adolescencia. Los datos de auto-informes de 855 adolescentes españoles ($M_{edad} = 13.6$, $DT = 1.09$, 52% chicas) se han recogido en dos momentos, utilizando un diseño longitudinal. El modelo de mediación se ha estimado utilizando modelos de ecuaciones estructurales (SEM). Los resultados han mostrado que las chicas perciben y entienden las emociones mejor que los chicos, pero también experimentan con mayor frecuencia angustia emocional, mientras que los chicos muestran mayores niveles de autoestima. Los resultados del modelo de ecuaciones estructurales indican que la autoestima positiva funciona como mediadora entre las competencias emocionales y los síntomas internalizantes a largo plazo. Las competencias emocionales deficientes y la baja autoestima están fuertemente asociadas con los síntomas internalizantes en los adolescentes. Estos resultados tienen implicaciones para las investigaciones futuras y el desarrollo positivo de los jóvenes, teniendo en cuenta que las competencias emocionales y la autoestima pueden proteger a los adolescentes de experimentar síntomas de depresión y ansiedad.

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Introduction

In the last few decades, determinants of emotional maladjustment have been extensively examined and documented, highlighting the importance of identifying factors promoting positive youth development (Lau & Wu, 2013; Ordóñez-López et al., 2016). It is well-established that adolescence is a challenging period in the context of internalizing problems, due to the multitude of biological, psychological, social, and cognitive changes occurring during this developmental phase (Goldbeck et al., 2007). Theory and research support the importance of promoting emotional competence – an umbrella concept that considers different emotional skills or abilities – for adolescent development and psychological adjustment (Palomera et al., 2012). Emotional competence plays a protective role by empowering youth to gain awareness and control of feelings and emotional reactions, in oneself and others (Aldao et al., 2016; Buckley & Saarni, 2014; Mayer et al., 2016). In addition to emotional competence, global self-esteem can also have an impact on how adolescents face and manage these challenges, with consequences for the outcome of adolescents' development (Golan et al., 2013; Steiger et al., 2014). The multiplicity of variables that influence youth's mental health is a sign of their psychological vulnerability during adolescence; thus, it has become essential in research on psychology to identify and address these factors from a young age; one of the most influential being emotional competence (De la Barrera et al., 2019).

Emotional competence derives from Mayer and Salovey's emotional intelligence model, in which this construct is conceptualized as an ability that involves personal skills or abilities such as: (a) perception and expression, (b) use emotions to facilitate thought, (c) understanding and reasoning with emotions, and (d) management of emotion in oneself and others to solve problems and regulate behaviour (Brackett & Salovey, 2006; Mayer & Salovey, 1997). Some of the emotional competence measures do not include the facilitation dimension, due to its weak factorial structure, resulting in a three-dimensional scale (MacCann et al., 2003). The study of emotional intelligence has focused on two different perspectives on this construct, whether it is considered as a trait – emotional intelligence as an innate and stable part of the individual's personality (Petrides, 2016) – or as an ability – from which the concept of emotional competence was derived (Mayer et al., 2016). In contrast to trait EI, which depicts an attribute that is present since birth, emotional abilities can be developed and trained during childhood and early adolescence (Zeidner et al., 2002). Thus, the development of emotional competence depends on children's acquisition of multiple skills for processing and managing emotion information and experiences (Saarni, 2010). Studying emotional competence in a longitudinal setting allows to observe its progression throughout development in adolescence and how its association with other variables changes with time (Costa & Faria, 2016; Qualter et al., 2012). Demographic variables, including sex, in most cases, appear to play a modest role in relation to emotional competence in children and adolescents (Esnaola et al., 2017). However, it has been shown that girls score higher on perceiving and understanding emotions than boys (Chaplin & Aldao, 2013; Panjwani et al., 2016; Schoeps et al., 2017), while expressing and managing emotions are mainly unaffected by sex influence (Donahue et al., 2014; Gomez-Baya et al., 2017). Traditionally, literature on sex differences has focused on self-report measures, which indicate adolescents' perception of their own emotional competence, rather than objective, performance-based sex differences (Kokkinos & Vlavianou, 2019).

Emotional competence is considered to be a central construct in relation to emotional, social and behavioural maladjustment, promoting a positive development in adolescents (Alonso-Tapia & Nieto, 2019; Brackett et al., 2006; Davis & Humphrey, 2012). Internalizing symptoms may lead to major social and personal problems

that may interfere with youth development (Gomez-Baya et al., 2017; Ortuño-Sierra et al., 2015) by presenting emotional problems (e.g., fears and concerns) and somatic complaints (e.g., headache and stomach-ache) (Plenty et al., 2014). The trend of research findings shows that girls tend to present more internalizing symptoms than boys (Nivard et al., 2017). Moreover, adolescents of over 15 show poorer adjustment than younger adolescents (Ansary et al., 2017; Fonseca-Pedrero et al., 2011).

Another personal characteristic that may have an impact on adolescents' internalizing symptoms is self-esteem. Rosenberg defined self-esteem as an individual's set of thoughts and feelings about his or her own worth and importance (Rosenberg, 1965). Self-esteem reflects adolescents' self-belief and is susceptible to internal and external changes during adolescence (Erol & Orth, 2011). Decades of empirical research have highlighted the importance of self-esteem, supporting its positive association with psychological adjustment and well-being during adolescence (Martín-Albo et al., 2007; Rodríguez-Fernández et al., 2016). Conversely, low self-esteem may entail an important risk to adolescents' psychological and emotional health (Boden et al., 2008; Schönfeld et al., 2016; von Soest et al., 2016). Self-esteem plays a critical role in the way adolescents interact with their environment and adapt to its changes; hence individuals with low self-esteem are expected to show poorer adaptive coping and more internalizing symptoms in relation to stressful life events (Álvarez-García et al., 2015; Babore et al., 2017; Thompson et al., 2016). There is no clear evidence whether this association differs according to sex and age during adolescence (Martín-Albo et al., 2007). The results of a study by Orth et al. (2018) indicated no significant sex differences regarding self-esteem. However, more recent studies showed that boys tend to show higher levels of self-esteem than girls (Gardner & Lambert, 2019; Sprecher et al., 2013), increasing with age (Baldwin & Hoffmann, 2002; Bleidorn et al., 2016). Longitudinal studies show self-esteem development through adolescence, accounting for cohort differences (Scherrer & Preckel, 2018; von Soest et al., 2016).

Adolescents are particularly vulnerable during this stage; thus, the compound effect of these variables at this age might pose a greater risk for youth's mental health (García & Serra, 2019). From this framework, the "storm and stress" viewpoint emerged to explain the acute prevalence of low self-esteem, internalizing problems and antisocial behaviour in adolescence (Göllner et al., 2017). According to this theoretical position, higher levels of emotional symptoms and adjustment problems might be normative during adolescence – it requires a special focus to better understand the full extent of their coping experience and how risk and protective factors are associated (Perez-Gramaje et al., 2020). A systematic study of this interplay is essential for understanding the psychological mechanisms that underlie the association between emotional competence and emotional distress in order to design effective intervention programs that promote optimal youth development (El-Daw & Hammoud, 2015; Ruiz-Aranda et al., 2012). Additionally, it is necessary to investigate the progression of the association with time, by using a longitudinal setting to observe its changes during adolescence (Gomez-Baya et al., 2017; Scherrer & Preckel, 2018).

As previously described, research supports the link between emotional competence, self-esteem, and internalizing symptoms, but how this relation varies depending on the adolescent's sex and age is not clear. Thus, research indicates that emotional competence predicts self-esteem (Cheung et al., 2015; Reina Flores & Oliva Delgado, 2015), and both constructs have an important impact on emotional symptoms (Gomez-Baya et al., 2017; Ju & Lee, 2018; Keane & Loades, 2016). Furthermore, self-esteem has shown to be a mediator of the relationship between emotional competence and life satisfaction (Rey et al., 2011), and it also mediates in

the association between adolescents' social abilities and internalizing problems (Thompson et al., 2016). These findings suggest that self-esteem could mediate in the association between emotional competence and internalizing symptoms (Schoeps et al., 2019a). Most of the studies discussed above were cross-sectional and do not provide evidence about causality (Kong et al., 2012). Only longitudinal data may determine the directions of causal relationships, filling the gap that would otherwise remain lacking. Thus, research with such long-term design has a number of advantages over cross-sectional or experimental research design: (1) allow the use of time as a research variable; (2) enable the appraisal of intra-individual variance at different points in time; and (3) provide information about changes in the relationship between variables over time (Sánchez-Álvarez et al., 2016).

This study aims to examine the long-term association between emotional competencies and internalizing symptoms in boys and girls and how self-esteem acts as a mediator in this interplay (Figure 1). Based on the theoretical and empirical research approaches above-mentioned, we hypothesized that (1) girls are more competent at perceiving emotional states and understanding transitions among emotions; they might experience more internalizing symptoms than boys, whereas boys report higher self-esteem than girls; as well as the fact that younger adolescents might be less self-confident, but better adjusted to their environment than the older ones. In addition, we hypothesized that (2) self-esteem mediates in the relationship between emotional competence and internalizing symptoms.

Method

Participants

Survey data from 855 students aged 12 to 15 years (*Mage* = 13.6, *SD* = 1.09, 52% girls) were collected at two different moments within a six months time frame (beginning of the trimester = T1; end of the trimester = T2). The participants attended 7th to 10th grade of public and private secondary schools in the metropolitan area of Valencia, Spain (7th grade: 28%, 8th grade: 28%, 9th grade: 28%, 10th grade: 16%). Given the total population of approximate 200.000 secondary school students in Valencia (Spain), a sample of 384 subjects is needed to obtain a confidence interval of 95% with a real value within +/- 5% of the measured value, therefore, the current sample can be considered representative.

Instruments

Self-report measures, adapted and validated for Spanish adolescents were used in this study. The reliability values Cronbach's α , McDonald's ω , Average Variance Extracted (AVE) and Composite Reliability Coefficient (CRC) are based on the sample from this study at T1. In general, a CRC value greater than .70 is considered to be adequate and AVE value greater than .50 are recommended (Hair et al., 2006), although some authors have considered values greater than .40 as acceptable (Aldás, 2000).

Emotional Skills and Competence

Adolescents' emotional skills and competence were assessed with the self-report measure *Emotional Skills and Competences Questionnaire* (ESQ) developed originally by Takšić et al. (2009). We utilized the 21-item version adapted and validated in Spanish adolescents (ESQ-21; Schoeps et al., 2019b). The measure is based on the ability model of emotional intelligence (Mayer & Salovey, 1997) and comprises three subscales with 5-point Likert scales (1 = never, 5 = always): *perceive and understand* emotion (7 items; e.g., "I am able to detect my friend's mood changes."), *express and label* emotion (7 items; e.g., "I am able to express how I feel.")

and *manage and regulate* emotion (7 items; e.g., "I try to control unpleasant emotions, and strengthen positive ones."). The good psychometric properties have been confirmed by adaptation and validation studies carried out in several cultural contexts (Faria & Lima-Santos, 2012). The reliability obtained with the data from this study was satisfactory: *perceive and understand* emotion ($\alpha = .84$, $\omega = .85$, AVE = .57, CRC = .91), *express and label* emotion ($\alpha = .90$, $\omega = .90$, AVE = .68, CRC = .96), *manage and regulate* emotion ($\alpha = .79$, $\omega = .78$, AVE = .45, CRC = .87).

Self-esteem

Self-esteem was measured with the *Rosenberg Self-Esteem Scale* (RSE; Rosenberg, 1965), adapted for Spanish population by Atienza et al. (2000). The 10-item scale measures global self-worth by assessing both positive and negative feelings about oneself (e.g., "I feel I do not have much to be proud of") using a 4-point Likert scale (1 = strongly disagree, 4 = strongly agree). The reliability corresponding to the data was acceptable: *positive self-esteem* ($\alpha = .77$, $\omega = .75$, AVE = .48, CRC = .78), *negative self-esteem* ($\alpha = .74$, $\omega = .79$, AVE = .49, CRC = .81).

Internalizing symptoms

To assess adolescents' internalizing symptoms, the Spanish adaptation (Ortuño-Sierra et al., 2015) of the *Strengths and Difficulties Questionnaire* (SDQ) developed by Goodman (1997, 2001) was used. The instrument measures different social, emotional and behavioural situations, which might diminish mental health in children and adolescents, but for the purpose of this study we only used the 5-item subscale *Internalizing symptoms*. Participants were asked how things have been for them over the last six months (e.g., "I am often unhappy, down-hearted or tearful"), answering on a 5-point Likert scale (0 = totally disagree, 4 = totally agree). With data from this sample the reliability was rather acceptable: $\alpha = .67$, $\omega = .68$, AVE = .39, CRC = .72.

Design and procedure

We used a 2-wave longitudinal design (beginning of the trimester = T1; end of the trimester = T2), with six months between the assessments. Our longitudinal study also includes the indirect effect of *self-esteem* (mediating variable) in the relationship between *emotional competence* (independent variable) and *internalizing problems* (dependent variable). All variables were measured in the first wave (T1) and the dependent variable also was measured in the second wave (T2). We followed the ethical code of the Helsinki Declaration during all procedures (World Medical Association, 2013). Previous to our study, we received the permission from the Department of Education, Culture and Sport of Valencia, the approval of the Ethics Committee for Research with Human Beings of the University of Valencia, as well as a written consent from parents of participating students. We explicitly informed school staff, parents and students about the aim and the confidentiality of our study, and that their participation was voluntary. Paper and pen data were collected in groups during regular school time in the classrooms and took approximately one hour.

When collecting self-report psychological data, participants sometimes respond to items without regard to their content, which is referred to as *careless or insufficient effort responding* (Huang et al., 2012). This kind of bias constitutes significant problems for data quality, leading to a drastic deterioration in the fit of the theoretical model and producing large amounts of spurious variance (Arias et al., 2020). Before conducting any statistical data analysis and testing our hypothesis, we screened the collected data for careless responses by calculating some of the indices proposed in the literature, including long-string, even-odd consistency, psychometric synonyms/antonyms, Mahalanobis distance, and intra-individual

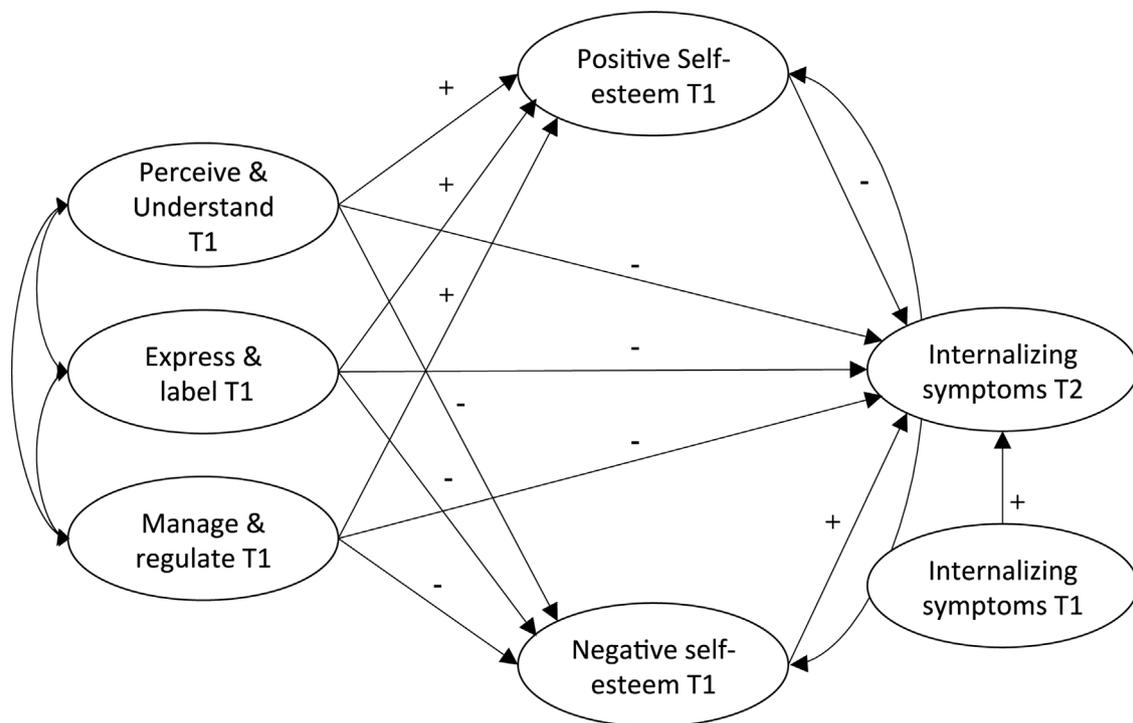


Figure 1. Theoretical research model.

Note. T1 = first wave. T2 = second wave.

response variability. As a result, 54 cases (6% of the total sample) were identified and eliminated from the working dataset.

Data analysis

Besides descriptive statistics, correlational analyses, and multivariate analyses of variance (MANOVA) using IBM SPSS Statistics 24, we conducted structural equation modeling (SEM) with longitudinal mediation analyses (Geiser et al., 2019). First, to ensure that the instruments are suitable for the sample under study, analysis of reliability using the Cronbach’s alpha (α), McDonald’s omega (ω), the Composite Reliability Coefficient (CRC), and the Average Variance Extracted (AVE) have been performed and reported above in the method section. Additionally, Confirmatory Factor Analysis (CFA) was conducted to test the adequacy of the measurements and structural portions of the model separately and address misspecifications before assessing the structure among latent variables (measurement model). The structural equation model included seven latent constructs that contained direct effects from *perceive and understand*, *express and label*, *manage and regulate* to *positive and negative self-esteem* at T1, as well as from *perceive and understand*, *express and label*, *manage and regulate* and *positive and negative self-esteem* at T1 to *internalizing symptoms* at T2, controlling the effect of repeated measurements from *internalizing symptoms* at T1. In addition, indirect effects from *perceive and understand*, *express and label*, *manage and regulate* at T1 on *internalizing symptoms* at T2 through *positive and negative self-esteem* at T1 were included, controlling for *internalizing symptoms* at T1. The longitudinal mediation model analysis was conducted with Mplus, version 7.0 (Muthén & Muthén, 2017) and maximum likelihood estimation (MLR) with robust standard errors and chi-square values. In addition, confidence intervals around the estimates have been constructed to assess the effects of mediators (MacKinnon, 2008; Preacher & Hayes, 2008), which reduced bias caused by the non-normality in the sampling distribution of indirect effects (Shrout & Bolger, 2002). Finally, we tested whether paths in the model for girls and boys were significantly different using the Wald

test (Wald chi-squared test). Model fit was estimated in Mplus using the following primary fit indices for the model fit as recommended by Hu and Bentler (1999): Chi-Square Test of Model Fit (χ^2), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Standardized Root Mean Square Residuals (SRMR). Generally, these authors suggest that a CFI/TLI $\geq .95$ together with a measure of amount of error such as the RMSEA $\leq .06$ and the SRMR $\leq .08$ indicate an adequate model fit, however for complex models such as the one tested in this study the combination of CFI/TLI $\geq .90$ and RMSEA $\leq .05$ (or $.06$) and the SRMR $\leq .06$ is considered acceptable (Hu & Bentler, 1999). To account for missing data the models were estimated with full information maximum likelihood (FIML).

Results

Descriptive analyses

Descriptive statistics analyses (Table 1) revealed significant sex differences, taking into account potential differences according to grade levels. Results indicated that girls from 9^o and 10^o grade reported higher levels of *perceive and understand* emotion, as well as and more *internalizing symptoms* among all grade levels, while boys from 9^o grade obtained higher scores on *positive self-esteem* and lower scores on *negative self-esteem*. The results of MANOVA analysis indicated no significant age differences for any of the studied variables (Wilks’s Lambda, $L = .97$, $F(18,1550) = 1.09$, $p = .35$, $\eta^2 = .01$).

Correlations

The results of the correlation analyses (Table 2) indicated positive associations between the three subscales of emotional competence and *positive self-esteem*, while the relationship between emotional abilities and *negative self-esteem* was *negative*, high levels of *perceive and understand*, *express and label* and *manage and regulate* emotion were associated with low levels of *inter-*

Table 1
Descriptive statistics and sex differences according to grade level on studied variables

	Girls		Boys		F (df)	p	Cohen's d
	M	SD	M	SD			
Perceive & understand	4.63	0.73	4.37	0.88	21.69 (1)	.001	0.36
7 ^o grade	4.63	0.72	4.46	0.71	1.70 (1)	.19	0.13
8 ^o grade	4.57	0.70	4.35	0.91	3.01 (1)	.08	0.12
9 ^o grade	4.66	0.54	4.32	0.71	12.14 (1)	.001	0.55
10 ^o grade	4.56	0.43	4.21	0.79	7.17 (1)	.01	0.55
Express & label	4.11	1.07	4.18	1.05	0.77 (1)	.38	0.06
7 ^o grade	4.28	0.85	4.15	0.83	0.72 (1)	.39	0.01
8 ^o grade	4.22	0.88	4.33	0.96	0.53 (1)	.47	0.00
9 ^o grade	4.19	0.78	4.23	0.69	0.11 (1)	.74	0.00
10 ^o grade	4.31	0.68	4.01	0.78	3.74 (1)	.06	0.41
Manage & regulate	4.52	0.78	4.57	0.84	0.83 (1)	.36	0.06
7 ^o grade	4.72	0.60	4.57	0.74	1.83 (1)	.17	0.01
8 ^o grade	4.56	0.70	4.55	0.82	0.00 (1)	.95	0.00
9 ^o grade	4.62	0.48	4.57	0.51	0.43 (1)	.51	0.00
10 ^o grade	4.56	0.57	4.41	0.63	1.53 (1)	.22	0.01
Positive self-esteem	3.30	0.62	3.12	0.61	3.68 (1)	.05	0.29
7 ^o grade	2.95	0.54	3.08	0.68	1.61 (1)	.21	0.00
8 ^o grade	3.15	0.56	3.12	0.69	0.09 (1)	.76	0.00
9 ^o grade	2.99	0.70	3.17	0.52	3.69 (1)	.05	0.30
10 ^o grade	2.97	0.70	3.12	0.53	1.33 (1)	.25	0.01
Negative self-esteem	1.78	0.49	1.66	0.44	9.87 (1)	.002	0.26
7 ^o grade	1.69	0.51	1.64	0.43	0.43 (1)	.51	0.01
8 ^o grade	1.77	0.39	1.66	0.47	2.70 (1)	.12	0.01
9 ^o grade	1.82	0.47	1.62	0.43	8.12 (1)	.005	0.44
10 ^o grade	1.87	0.61	1.73	0.41	1.73 (1)	.19	0.01
Internalizing symptoms	3.40	2.28	2.66	2.09	22.81 (1)	.001	0.34
7 ^o grade	3.69	2.49	2.56	1.96	7.87 (1)	.003	0.49
8 ^o grade	3.28	2.21	2.18	1.78	10.95 (1)	.001	0.54
9 ^o grade	3.70	2.34	2.58	1.65	11.72 (1)	.001	0.55
10 ^o grade	3.85	2.13	2.72	2.12	6.59 (1)	.01	0.53

Note. M = Mean. SD = Standard Deviation. F (df) = statistical value F and degrees of freedom. p = value of significance. Cohen's d = effect size. N_{Girls} = 416, N_{Boys} = 385.

Table 2
Descriptive statistics, reliability coefficients and correlations between sex, age and studied variables

	1	2	3	4	5	6	7
1. Perceive & understand	–						
2. Express & label	.44**	–					
3. Manage & regulate	.48**	.54**	–				
4. Positive self-esteem	.15**	.36**	.36**	–			
5. Negative self-esteem	-.20**	-.38**	-.38**	-.53**	–		
6. Internalizing symptoms	-.07*	-.22**	-.28**	-.46**	.41**	–	
7. Age	-.00	-.03	-.06	-.02	.04	.03	–
M	4.52	4.14	4.54	3.07	1.73	0.47	13.69
SD	0.81	1.06	0.81	0.62	2.40	2.23	1.21

Note. N = 801. M = Mean. SD = Standard Deviation.

* p < .05.

** p < .01

nalizing symptoms, observing overall medium effect size. Positive self-esteem was negatively correlated with internalizing symptoms, while the association with negative self-esteem was positive, the observed effect size was medium to large. Positive intercorrelations between subscales of emotional intelligence with medium to large effect size were observed.

Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analyses (CFA) were conducted to test the adequacy of the measurements in the sample of this study (measurement model). In particular, Exploratory Factor Analysis (EFA) confirmed the factorial structure of the ESCQ comprising three factors defended by the authors. The CFA of the three-dimensional structure with this sample offers excellent fit indices: $\chi^2(186) = 348.21, p < .001, CFI = .96, TLI = .95, RMSEA = .04$ [90% CI 0.03–0.04], SRMR = 0.04. When the SDQ scale was submitted to a CFA in this sample, the results show a good fit to the data:

$\chi^2(5) = 25.660, p < .001, CFI = .95, TLI = .90, RMSEA = 0.08$ [90% CI 0.05–0.10], SRMR = 0.03. In order to replicate the original factors structure of the RSE with this sample, EFA and CFA were conducted, which tested the one-dimensional structure. However, the fit indices of the one-dimensional structure scale are inadequate: $\chi^2(35) = 285.73, p < .001, CFI = .84, TLI = .79, RMSEA = 0.11$ [90% CI 0.09–0.12], SRMR = 0.07. We proceeded to perform a second CFA of the two-dimension structure proposed by the authors, which provides the following fit indices: $\chi^2(34) = 153.380, p < .001, CFI = .93, TLI = .90, RMSEA = 0.07$ [90% CI 0.06–0.08], SRMR = 0.04, which are more satisfactory than the previous one.

Structural equation modeling with multiple group analysis (multi-group SEM)

In order to analyse the mediating role of self-esteem in the relationship between emotional competence and internalizing symptoms, we used longitudinal structural equation model-

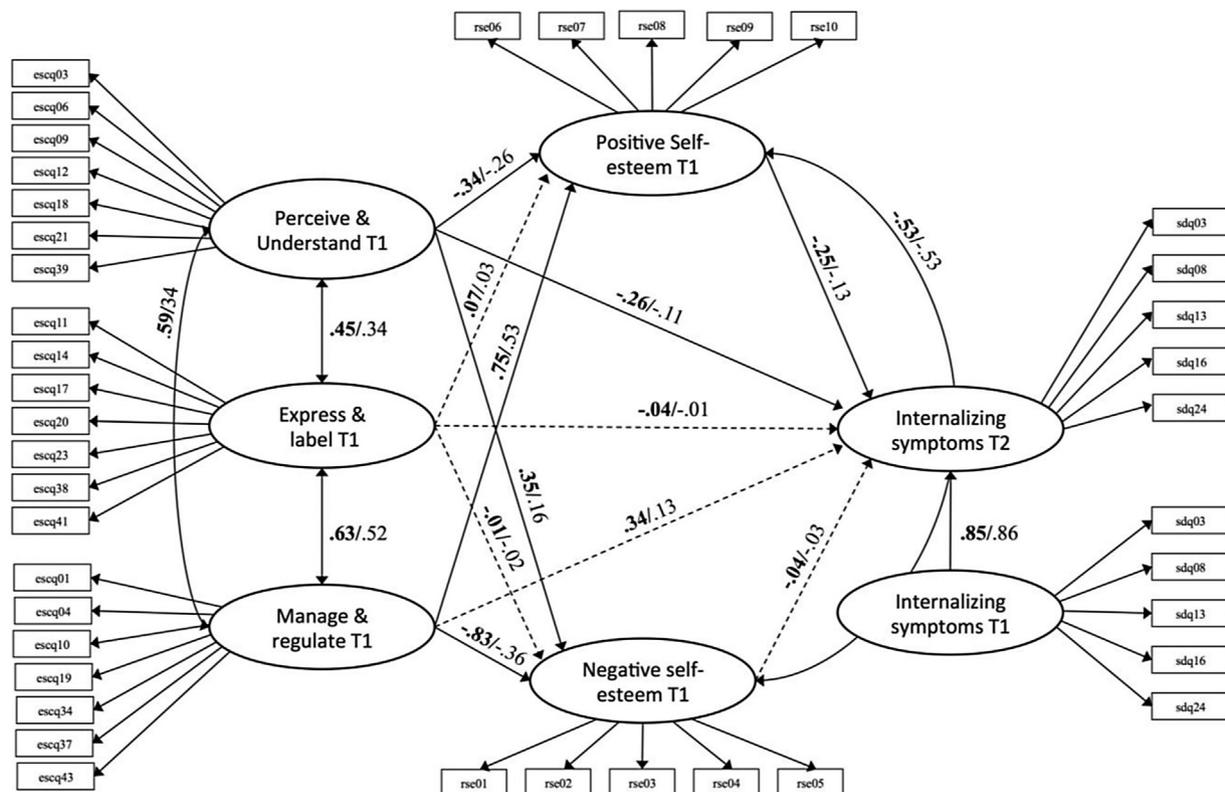


Figure 2. Structural equation modeling (SEM): the interplay between emotional and internalizing symptoms mediated by self-esteem
 Note. T1 = first wave. T2 = second wave. Significant effects shown as unstandardized coefficients (B) in first position and standardized coefficients (β) in second position, bold pathways are significant at $p < .01$, dotted pathways are not significant.

ing (Figure 2). The model showed an adequate model fit: $\chi^2(758) = 1363.930$, CFI = .92, TLI = .91, RMSEA = .04 [90% CI 0.03–0.04], SRMR = 0.4.

Direct effects

The association between *perceive and understand* emotion at T1 and *positive and negative self-esteem* at T1, and the association between *manage and regulate* emotion at T1 and *positive and negative self-esteem* at T1 were significant. In other words, adolescents who are excessively perceptive of their own feelings and those of others have lower *positive* and higher *negative self-esteem*, while those who manage their emotional states more accurately have higher *positive* and lower *negative self-esteem*. Furthermore, we observed a significant direct effect between *positive self-esteem* at T1 and *internalizing symptoms* at T2. Thus, students with low levels of *positive self-esteem* are more likely to present high levels of *internalizing symptoms* in the future. In addition, the direct effect of *perceive and understand* emotion at T1 on *internalizing symptoms* at T2 was significant, indicating partial mediation, while the direct effect of *manage and regulate* emotion at T1 on *internalizing symptoms* at T2 was not significant, indicating full mediation. *Internalizing symptoms* at T1 significantly predicted *internalizing symptoms* at T2.

Indirect effects

Supporting our hypotheses, the indirect effect of *perceive and understand* emotion at T1 on *internalizing symptoms* at T2 partially mediated by *positive self-esteem* at T1 was found to be significant (Table 3). The indirect effect of *express and label* emotions at T1 on *internalizing symptoms* at T2 mediated by *positive/negative self-esteem* at T1 was not significant. Furthermore, the indirect effect of

manage and regulate emotion at T1 on *internalizing symptoms* at T2 fully mediated by *positive self-esteem* at T1 was found to be significant. Overall, the combined effects for this mediation model explain about 61% of the variance of *internalizing symptoms* ($R^2 = .61$, $p < .001$). These results indicate that *positive self-esteem* functions as a mediator in the relationship between emotional competencies and *internalizing symptoms*.

Sex differences

To explore whether this SEM mediational model was equally applicable in both girls and boys, we estimated multi-group models according to sex, after testing successfully for scalar measurement invariance that enables comparison of relationships between latent variables between both groups (Brown, 2006). The results from our multi-group SEM suggest that the structure of the proposed model was invariant in both girls and boys (Table 4). Furthermore, Wald test of path differences showed that paths were not significantly different for girls and boys [Wald test of parameter constraints (5) = 11.14, $p < .04$]. Overall, these findings indicate that the mediation model shows no significant differences between male and female adolescents.

Discussion

The present study aimed to examine, based on the 4-branch ability model of emotional intelligence (Mayer & Salovey, 1997), the mediating role of self-esteem in the relationship between emotional competencies and internalizing symptoms in girls and boys by using a longitudinal research approach. The strong association between poor emotional abilities, low self-esteem and the development of emotional symptoms, such as depressive mood, fear and concerns, as well as somatic complaints, is usually pre-

Table 3
Path coefficients and confidence intervals of mediation analyses

IV	M	DV	Effect of IV on M	Effect of M on DV	Direct effect	Indirect effect	95% CI for indirect effect	Total effect
Perceive & understand	Positive self-esteem	Internalizing symptoms	-.34**	-.25**	-.26*	.08*	.01 to .14	.07*
Perceive & understand	Negative self-esteem	Internalizing symptoms	.35**	-.04	-.26*	-.01	-.08 to .06	.07*
Express & label	Positive self-esteem	Internalizing symptoms	.07	-.25**	-.05	-.02	-.06 to .03	-.02
Express & label	Negative self-esteem	Internalizing symptoms	.01	-.04	-.05	.00	-.01 to .01	-.02
Manage & regulate	Positive self-esteem	Internalizing symptoms	.75**	-.25**	.35	-.18**	-.32 to -.05	-.15*
Manage & regulate	Negative self-esteem	Internalizing symptoms	-.84**	-.04	.35	.03	-.13 to -.19	-.15*

Note. IV = Independent variable. M = Mediating variable. DV = Dependent variable. CI = Confidence interval.

* $p < .05$. ** $p < .01$.

Table 4
Goodness-of-fit indices for the multigroup SEM testing for scalar measurement invariance

	χ^2	df	p	χ^2/df	RMSEA (90% CI)	SRMR	CFI	TLI
Structural Equation Model (SEM)	1363.93	758	<.001	1.79	0.04 (0.03-0.04)	0.04	.92	.91
Multi-group SEM according to sex:								
SEM for Girls	1232.56	757	<.001	1.63	0.04 (0.04-0.05)	0.05	.90	.90
SEM for Boys	1043.04	757	<.001	1.38	0.04 (0.03-0.04)	0.05	.90	.89
1. Configural invariance (equal form)	2242.37	1514	<.001	1.48	0.04 (0.03-0.04)	0.06	.91	.90
2. Metric invariance (equal factor loadings)	2325.31	1555	<.001	1.49	0.04 (0.03-0.04)	0.07	.90	.90
3. Scalar invariance (equal intercepts)	2298.67	1544	<.001		0.04 (0.03-0.04)	0.06	.90	.90

Note. SEM = Structural Equation Model; χ^2 = chi-square; df = degrees of freedom; p = general model significance; χ^2/df = normed chi-square; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residuals; CFI = Comparative Fit Index; TLI = Tucker Lewis Index.

sumed in cross-sectional studies (Kong et al., 2012). However, a causal relationship can only be established by longitudinal research such as ours. Thus, this study provides evidence about the causal role of self-esteem that changes the link between emotional competence and internalizing symptoms over time (Sánchez-Álvarez et al., 2016). In line with our first hypothesis, girls have a stronger ability in perceive and understand emotion than boys (Takšić et al., 2009). Our results confirm previous research, where girls score higher than boys in basic emotional competence (Panjwani et al., 2016; Schoeps et al., 2017). Regarding internalizing symptoms, girls perceive higher amounts of emotional distress than boys. This finding supports previous research, which suggests that girls tend to present more internalized problems such as depressive mood, somatic complaints and anxiety (Nivard et al., 2017). Furthermore, boys showed higher positive and lower negative self-esteem than girls. This finding is consistent with studies, which have shown more negative thoughts and feelings about their own worth in girls than boys (Gardner & Lambert, 2019; Sprecher et al., 2013). Nonetheless, these findings should be interpreted with caution, since data indicates adolescents' perception of their emotional competence rather than a behavioural or objective measure of their performance on emotional tasks (Brackett et al., 2006; Kokkinos & Vlavianou, 2019). In contrast to hypothesis I, no age differences in all studied variables have been found. This disproves previous findings that emotional competence and self-esteem increase in later adolescence, while social and emotional adjustment decreases (Ansary et al., 2017; Bleidorn et al., 2016; Orth et al., 2018). We explain our unanticipated results, in part, by the fact that the fluctuation of emotional abilities, self-esteem and psychological adjustment during adolescence might be undetected due to age-specific domains of these factors. For instance, there exist individual differences in their psychological development, thus, individuals may increase, decrease, fluctuate or remain stable in one area or another (Tobin & Graziano, 2006).

In line with the second hypothesis, it was observed that positive self-esteem mediates the association between emotional competencies and internalizing symptoms for girls and boys equally. On the one hand, the tendency to be unduly aware of one's own emotions and those of others diminishes adolescents' posi-

tive self-esteem, which in turn increases the risk of internalizing symptoms later on. On the other hand, the capacity of managing emotional events properly strengthens young people's positive self-esteem, protecting them from emotional distress over time. In other words, our results showed that self-esteem has an important impact on adolescents' emotional adjustment, by enhancing the positive influence of emotional competence on internalizing symptoms (Schoeps et al., 2019a). These findings enhance recent research, which suggested a strong association between emotional competence and psychological adjustment, including internalizing symptoms (Aldao et al., 2016; Cheung et al., 2015; Gomez-Baya et al., 2017; Keane & Loades, 2016). In addition, low levels of self-esteem are a risk factor that should not be underestimated because it might reduce the benefits of developing emotional competencies on positive health outcomes in adolescents who are especially vulnerable (Costa & Faria, 2016). For this reason and taking into consideration the long-term consequences of low self-esteem, researchers and educational psychologists have highlighted the need for implementing school-based emotional education programs (Golan et al., 2013; Ju & Lee, 2018).

Strengths and limitations

However, these findings contribute to the exciting literature on emotional competencies and self-esteem in relation to internalizing symptoms in adolescence, this study is not without limitations. The use of self-report measures only is one of the limitations, due to well-known restraints, such as bias of social desirability and increased probability of inflated relationships as a result of shared variance of common method (Brackett & Salovey, 2006). Consequently, results obtained from the self-report data in this study must be interpreted with caution. For instance, when measuring the convergence validity, fairly low AVE values in general were reached, indicating that, on average, the variance explained by the latent structure (factors) is not greater than the error that remains in the items representing the latent variable. Furthermore, the SDQ subscale that measures Internalizing symptoms showed a rather weak internal consistency in this sample, which means that this latent variable is measured in this sample without the necessary

precision, compromising the results and their reliability and validity.

Therefore, future research might include a combination of qualitative and quantitative methods, such as performance-based measures, as well as data from different informants such as teachers, parents and peers in order to improve the validity of our findings. Regarding the different role of positive and negative self-esteem in the mediation model, it should be noted that the response bias due to different item formulation could explain some of the differences found in the two dimensions – negative item wording can lead to ambiguous responses and thus influence analysis interpretation. In addition, participants from our sample range from 12 to 15 years; therefore, results on age differences should be interpreted with caution due to this limited age range. It is advised in future research to expand sample size and age distribution, to ensure scientific rigor in the interpretation of the conducted analyses. Furthermore, the sampling method that has been used in this research is another limitation. Thus, the sampling procedure based on convenience rather than probability, is not *per se* representative of the broader adolescent population in Spain. However, taking into account the large sample sizes, results obtained from this sample might be considered a valuable approximation to the psychological phenomenon studied.

Despite these limitations, this study has provided further evidence as to the relationship between adolescents' self-esteem, emotional competence and internalizing symptoms, by considering sex differences in a large sample of Spanish adolescents. Our results have shown that girls not only perceive emotional states and understand transitions among emotions better than boys, but they also experience higher amounts of emotional distress. Nevertheless, low self-esteem inhibits the positive effect of emotional competencies on emotional problems, which negatively affects adolescents' psychological adjustment. Future research might also pay more attention to environmental factors (e.g., family and peer relationships) by adapting a rather ecological approach to the study of young people's lives and positive developmental outcomes (Scherrer & Preckel, 2018).

Conclusions

This study has provided evidence that low self-esteem is a risk factor for internalizing problems and adolescent's maladjustment. During the transition from childhood to adolescence, young teenagers experience a drop of self-esteem and dissatisfaction with themselves, due to their desire of growth and acting older. The disengagement from former interests, activities and relationships that once provided self-esteem and are now childish and immature, which is related to depressive mood and symptoms of anxiety in adolescents (Babore et al., 2017). This highlights the importance of detecting the decrease of self-esteem in order to prevent severe psychological symptoms that might lead to depression and anxiety in young adults. Teachers and educators should be more prudent when they give negative feedback lightly to their students because it might affect their emotional well-being. Therefore, it is important to foster students' social-emotional competencies for creating a positive self-concept both academic and personal (Alonso-Tapia & Nieto, 2019). Furthermore, self-esteem prevention and intervention programs should be implemented in schools to build up their self-esteem. In conclusion, fostering a positive self-esteem, respect and tolerance, emotional regulation strategies during early adolescence might be most effective to prevent internalizing symptoms and overall maladjustment for young teenagers.

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