BRIEF REPORT

The moderating role of emotional intelligence in the link between self-esteem and symptoms of eating disorders

María Angeles Peláez-Fernández PhD[1] | **Juana Romero-Mesa MA**[1] |
Karina Franco-Paredes PhD[2] | **Natalio Extremera PhD**[1]

[1]Department of Social Psychology, Social Work, Social Anthropology and East Asian Studies, University of Málaga, Spain

[2]Behavior, Health and Quality of Life Research Group, Research Center on Risks and Quality of Life, University of Guadalajara, Ciudad Guzmán, Mexico

Correspondence
María Angeles Peláez-Fernández.
Email: mapelaez@uma.es.

Abstract

Objective: This research aimed to explore the moderating role of emotional intelligence (EI) in the relationship between self-esteem and eating disorders (ED) symptomatology.

Method: A battery of online questionnaires was administered to a sample of 516 adults including university students and a community population. The sample, age range of 18–77 years ($X = 38.90$; $SD = 14.76$), was made up of 63% women and 32% men.

Results: EI moderated the association between self-esteem and ED symptomatology for the total sample. However, a gender-specific analysis showed that the moderation effect was only significant for women. Specifically, when women reported a low level of self-esteem, those with high scores in EI reported lower scores in ED symptoms than those with low EI.

Discussion: Our findings are discussed in terms of the need for future research to understand the different gender associations and to consider these differences in further intervention programs for reducing the risk of ED, in which training in emotional skills may be more beneficial for women than men.

KEYWORDS
eating disorders, emotional intelligence, moderation, self-esteem

1 | INTRODUCTION

Eating disorders (ED) cause significant impairments in psychosocial functioning and physical and mental health. ED can occur at any age and affect any gender, although they are more common in women than in men (APA, 2013). This gender gap in ED prevalence may be due in part to the main agents of socialization, such as the media, that promote, reinforce and perpetuate feminine beauty ideals that glorify ultrathin bodies, encouraging women to diet and lose weight (Thompson & Stice, 2001).

Previous studies have found a robust negative relationship between high self-esteem and ED symptomatology in both genders (Croll, Neumark-Sztainer, Story, & Ireland, 2002; Silvera et al., 1998; Silverstone, 1990; Silverstone, 1992) but a positive relationship between low self-esteem and ED symptoms only in female samples (Elgin & Pritchard, 2006; Mora, Fernández Rojo, Banzo, & Quintero, 2017). Women in Western societies have lower self-esteem than men, possibly due to the different beauty standards for both genders (Gentile et al., 2009). More research is needed to examine other factors involved in the relationship between ED symptoms and self-esteem, like emotional intelligence (EI), which is associated with low levels of self-esteem (Cheung, Cheung, & Hue, 2015; Kong, Zhao, & You, 2012).

From the ability model, EI is defined as the capacity to perceive, use, understand, and manage emotions (Mayer & Salovey, 1997).

Recent systematic reviews and meta-analytic research have consistently found a negative relationship between EI and ED symptoms (Giusti et al., 2021; Romero-Mesa, Peláez-Fernández, & Extremera, 2021; Zhang, J., Wang, Wu, & He, 2022), with the majority of the studies included being conducted with women. These findings suggest that emotions play an important role in dysfunctional eating attitudes and behaviors among women.

According to the transdiagnostic cognitive-behavioral model for ED (Fairburn, Cooper, & Shafran, 2003), low self-esteem and mood intolerance are key factors that act independently in the maintenance and relapse of ED symptoms. Low self-esteem leads to ED symptomatology indirectly through both perfectionism and over-evaluation of eating, weight, shape, and their control; whereas mood intolerance leads directly to ED symptomatology (Fairburn et al., 2003). Although this theory was developed almost two decades ago, it has not yet been examined whether EI could moderate the relationship between self-esteem and ED symptomatology.

Prior studies have found an association between EI and ED symptoms, but no study has tested whether EI moderates the relationship between low self-esteem and ED symptoms, and whether this moderating role would apply both to women and men. Therefore, the purpose of this study was to explore the moderating role of EI in the relationship between self-esteem and ED symptomatology. Because women are significantly more likely to report ED symptoms than men, and EI and self-esteem are inversely associated with ED symptomatology among women, the following hypotheses were proposed:

> **Hypothesis 1.** *EI would significantly moderate the relationship between self-esteem and ED symptomatology, adjusting for the potential confounding effects of age.*

> **Hypothesis 2.** *Gender would have a differential pattern in the moderating role of EI between self-esteem and ED symptomatology, that is, EI would play a moderating role between self-esteem and ED symptomatology among women, but not men.*

2 | MATERIALS AND METHODS

2.1 | Participants

To calculate the minimum size of the sample, the following formula of Rumeau-Rouquette, Breart, and Pardieu (1985) was applied: $n = z^2 p (1 – p) / e^2$. Considering an ED prevalence in Spain of 0.844%, (with about 400,000 persons with ED), then it would be necessary to recruit at least 321 participants for the sample to be representative. Final sample consisted of 516 Spanish adults, including university students (152; 29.5%) and a community population (364; 70.5%), from southern Spain (319 women, 197 men). Ages ranged from 18 to 77 years ($X = 38.90$ years; SD = 14.76).

2.2 | Procedure

A battery of questionnaires was designed and administered in an online format. The students -enrolled on a psychology course at university- were asked to recruit at least two adults over the age of 30 from their social network and then deliver the online version of the questionnaires to them. Using non-probability convenience sampling techniques, the web link was distributed among university students. All study participants gave their informed consent in accordance with the Declaration of Helsinki.

2.3 | Instruments

The Wong and Law Emotional Intelligence Scale (WLEIS) (Wong & Law, 2002), in its Spanish version (WLEIS-S) (Extremera, Rey, & Sánchez-Álvarez, 2019), based on the theoretical framework of Mayer and Salovey (1997), was selected as a self-reported EI ability measure.

The Spanish version of the *Eating Attitudes Test* (EAT-26) (Garner, Olmsted, Bohr, & Garfinkel, 1982; Rivas, Bersabé, Jiménez, & Berrocal, 2010) was used as a measure of risk of ED and the presence of disordered eating attitudes.

The *Rosenberg Self-Esteem Scale* (RSE) (Rosenberg, 1965), in its Spanish version (Martín-Albo, Núñez, Navarro, & Grijalvo, 2007), was used to measure self-esteem.

2.4 | Analytical strategy

Descriptive statistics for all study variables and correlation analyses of ED symptoms, self-esteem, and EI were calculated for the total sample and for men and women. Gender differences were analyzed separately in men and women. A moderation analysis was conducted adjusting for the potential confounding effects of age. Analyses were implemented in SPSS 24.0, using the publicly available SPSS macro PROCESS (Hayes, 2013).

3 | RESULTS

Descriptive statistics showed that women (compared to men) scored lower in self-esteem and higher in ED symptoms. Cohen's d effect sizes for gender differences on self-esteem and ED symptoms were found to be small (see Table 1).

Correlation analysis revealed that EI and self-esteem only correlated significantly and negatively with ED symptoms among women ($r = -.25$ and $- .35$, $p < .001$, respectively). EI and self-esteem correlated significantly and positive among women and men ($r = .54$ and .45, $p < .001$, respectively).

Moderation analyses indicated that the full prediction model was significant ($F[4,511] = 24.03$, $p < .01$) with respect to total sample, and accounted for 15% of variance. Age effects were found to be significant. Also, main effects of self-esteem and EI were significant.

TABLE 1 Gender differences in study variables

	Total sample $N = 516$ M (SD)	Women $N = 319$ M (SD)	Men $N = 197$ M (SD)	F	Cohen d	α
ED symptomatology	6.24 (7.11)	6.91 (7.66)	5.17 (5.97)	7.37**	0.246	0.82
Self-esteem	2.33 (0.16)	2.28 (0.47)	2.40 (0.44)	8.12**	0.262	0.78
Emotional intelligence	5.15 (0.93)	5.14 (0.95)	5.17 (0.90)	0.13	0.032	0.91

Notes:
*$p < .05$;
**$p < .01$; α: Cronbach's alpha.

TABLE 2 Tested moderation models with self-esteem and EI on ED symptomatology for total, women, and men sample

	Total sample				Women sample				Men sample			
	b	SE b	R^2	95% CI	b	SE b	R^2	95% CI	b	SE b	R^2	95% CI
ED symptomatology			0.15**				0.24**				0.02	
Constant	6.84**	0.98		4.92 to 8.77	8.54**	1.17		6.23 to 10.85	1.62	1.70		−1.73 to 4.99
Age	−0.00**	0.00		−0.01 to 0.00	−0.00*	0.00		−0.01 to −0.00	−0.00	0.00		−1.63 to 1.29
Self-esteem	−2.13**	0.43		−2.99 to −1.27	−2.77**	0.53		−3.81 to −1.72	−0.17	0.74		−0.69 to 0.64
EI	−0.81**	0.19		−1.20 to −0.42	−1.05**	0.23		−1.53 to −0.58	−0.02	0.33		−0.27 to 0.27
Self-esteem X EI	0.30**	0.00		0.14 to 0.47	0.39**	0.10		0.19 to 0.59	0.00	0.14		−0.01 to 0.00

Note: b = unstandardized beta; SE b = standard error of beta; CI = confidence Intervals.
*$p < .05$;
**$p < .01$.

The interaction term of self-esteem x EI was found to contribute to explaining ED symptomology ($\Delta R^2 = 0.02$, $p < .01$).

With regard to the women's sample, the full prediction model was also significant ($F[4,314] = 24.93$, $p < .01$) and accounted for 24% of variance. Age effects were found to be significant. Also, the main effects of self-esteem and EI were significant. Finally, the interaction term of self-esteem x EI was found to contribute to explaining ED symptomology ($\Delta R^2 = 0.04$, $p < .01$). However, regarding the men's sample, the full prediction model was not significant ($F[4,192] = 1.01$, $p = .39$). Neither the main effect of self-esteem nor the interactions involving EI were significant, showing that main effect of these dimensions and their interactions were not significant predictors of ED symptomatology for males (see Table 2).

Significant interactions were probed and plotted using PROCESS. Moderation analysis showed that the interaction between EI and self-esteem was a significant predictor of ED symptomatology ($b = .39$, t [319] = 3.91, $p < .01$) among women. Women low in both EI and self-esteem scored the highest ratings of ED symptoms ($b = −1.10$, $p < .01$).

3.1 | Supplementary analysis

Results showed that male participants were significantly older than female participants ($t = 3803$; $p < .001$). However, there were no significant differences on ED symptoms attributable to age ($F = 1,05$; $p = $ n.s.). Thus, when comparing men and women, the potentially confounding effect of age has been ruled out.

Compared with the university sample, the community sample scored significantly higher in EI ($t = −3303$; $p < .001$) and self-esteem ($t = −3856$; $p < .001$) and significantly lower in ED symptoms ($t = 2.116$; $p < .05$). These differences may be attributed to higher proportion of women in the university sample.

4 | DISCUSSION

The purpose of this study was to explore the moderating role of EI in the relationship between self-esteem and ED symptomatology, adjusting for the effects of age, and to test the possible differential role of gender in the moderating role of EI between self-esteem and ED symptomatology.

Gender-specific moderation analyses showed that age, self-esteem, and EI were negatively associated with ED symptoms among women. These findings are in line with previous studies showing negative associations between ED and self-esteem (Francisco et al., 2015; Silvera et al., 1998; Silverstone, 1990; Silverstone, 1992; Vohs et al., 2001). The findings also agree with previous research that found ED to be more prevalent among women during adolescence and early adulthood, decreasing in later developmental stages (Keel, Gravener, Joiner, & Haedt, 2010).

Moderating analysis confirmed that EI significantly moderated the relationship between self-esteem and ED symptoms among women. Specifically, among women low in self-esteem, those who scored higher in EI presented lower scores in ED symptoms. Thus, our

findings support the idea that self-esteem and EI show an interacting effect for explaining ED symptoms among women. These results are consistent with previous research (Giusti et al., 2021; Mora et al., 2017; Romero-Mesa et al., 2021). Prospective studies are needed to test whether self-esteem and emotional skills are factors in the development of ED symptoms among women.

These findings have theoretical and practical implications. At a theoretical level, they shed light on the potential protective role of indicators of psychological adjustment and socio-emotional resources in the prevention and reduction of ED symptoms. Self-esteem and emotional abilities of women from community and university populations could promote, jointly, the prevention and reduction of ED symptomatology. Specifically, these findings provide insightful information to the transdiagnostic cognitive-behavioral model for ED of Fairburn et al. (2003), suggesting that emotional competencies might contribute to buffer the effects of low self-esteem in women with ED symptoms. Therefore, theoretical approaches to the differential effects of ED symptoms in the general population could incorporate self-esteem and EI as potential independent and influential variables in women with ED symptoms or at risk of ED. Particularly, these approaches could include EI as a potentially relevant variable to reduce the risk of ED among women with low self-esteem.

Regarding practical implications, prevention and intervention programs might benefit from including assessment and training in emotional skills to reduce ED symptomatology, especially among women low in self-esteem.

As limitations, we note firstly, that the study design was cross-sectional, thus precluding causal inferences. Second, our study used self-reported measures, which may have been influenced by social desirability and other biases. Third, the small sample size of men limits our ability generalizability of and confidence in our findings. Finally, the amount of variance explained by the self-esteem X EI interaction was modest. However, small interactive effects should not be disregarded when the outcomes are important and explained by numerous main effects (Meyer et al., 2001). Notwithstanding these limitations, our study provides preliminary (and correlational rather than causal) evidence on the potential importance of emotional skills in understanding ED symptoms.

AUTHOR CONTRIBUTIONS

María Angeles Peláez-Fernández: Conceptualization; investigation; methodology; resources; software; supervision; validation; visualization. **Juana Romero-Mesa:** Conceptualization; investigation. **Karina Franco-Paredes:** Conceptualization; supervision. **Natalio Extremera:** Conceptualization; investigation; methodology; resources; software; supervision; validation; visualization.

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CONFLICT OF INTEREST STATEMENT

DATA AVAILABILITY STATEMENT

ETHICS STATEMENT

ORCID

María Angeles Peláez-Fernández https://orcid.org/0000-0001-9142-0139

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