

Trait emotional intelligence and subjective well-being in adolescents: The moderating role of feelings

Vicente Prado Gascó¹, Lidón Villanueva Badenes² and Ana Górriz Plumed²

¹ Universitat de Valencia and ² Universitat Jaume I (Castellón)

Abstract

Background: Trait emotional intelligence (EI) is a key concept related to different well-being indicators. These relationships, mediated by affective variables, have mainly been found in adults. However, little is known about these associations with moderating effects of feelings in adolescents and certain indicators of well-being. This study examined the moderating role of feelings in the relation between trait emotional intelligence and several indicators of well-being (life satisfaction, self-perceived stress and somatic complaints) in adolescents. **Methods:** The sample was composed of 1,273 pupils from 10 high schools, aged between 12 and 16 ($M=13.63$ years; $SD=1.22$) 666 (52.7%) were girls. **Results:** The results supported different pathways between trait emotional intelligence (especially attention and clarity) and well-being indicators. **Conclusions:** No moderating role of feelings could be found in this relationship. This data supports the direct influence of EI on the improvement of adolescent well-being.

Keywords: Emotional intelligence, well-being, feelings, adolescents.

Resumen

Inteligencia emocional rasgo y bienestar subjetivo en adolescentes: papel moderador de los sentimientos. **Antecedentes:** la inteligencia emocional (IE) rasgo es un concepto clave relacionado con diferentes indicadores de bienestar. Estas relaciones, mediadas por variables afectivas, han sido encontradas principalmente en adultos. Sin embargo, poco es sabido sobre estas relaciones con los sentimientos como moderadores en adolescentes e incluyendo varios indicadores de bienestar. Este estudio examinó el rol moderador de los sentimientos en la relación entre inteligencia emocional rasgo y satisfacción con la vida, estrés autopercebido y quejas somáticas, en adolescentes. **Método:** la muestra estaba compuesta por 1.273 alumnos de 10 institutos, entre 12 y 16 años ($M=13.63$ años; $SD=1.22$), de los cuales 666 (52,7%) eran chicas. **Resultados:** los resultados apoyaron diferentes vías de relación entre la inteligencia emocional rasgo (especialmente la atención y la claridad) y los indicadores de bienestar. **Conclusiones:** no se pudo encontrar un papel moderador de los sentimientos en esta relación. Los datos apuntan a una influencia directa de la IE en la mejora del bienestar adolescente.

Palabras clave: inteligencia emocional, bienestar, sentimientos, adolescentes.

Within the construct of EI, Petrides, Frederickson, & Furnham (2004) proposed a clear distinction between ability and trait emotional intelligence (EI). When measured as a trait, EI has been even more strongly associated with health and mental health than when measured as an ability (García del Castillo-López, Marzo, & García del Castillo, 2015; Martins, Ramalho, & Morin 2010; Petrides et al., 2016; Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007). In this sense, trait EI has been associated with very different indicators of subjective well-being, including happiness (Chamorro-Premuzic, Bennett, & Furnham, 2007; Furnham & Petrides 2003), life satisfaction (Austin, Saklofske, & Egan, 2005; Di Fabio & Kenny 2016; Fernández-Berrocal, Extremera, & Ramos, 2004), depressive thoughts, somatic complaints (Mavroveli, Petrides, Rieffe, &

Bakker, 2007), and perceived stress (Mikolajczak, Roy, Luminet, Fillée, & de Timary, 2007).

In this study, we attempt to provide more comprehensive evidence by investigating well-being as a multidimensional construct encompassing negative and positive indicators, namely, perceived stress, life satisfaction and somatic complaints. In this context, some studies have even found specific relations between different trait EI components and well-being indicators (Di Fabio & Kenny, 2016; Fernández-Berrocal et al., 2004; Sánchez-Álvarez, Extremera, & Fernández-Berrocal, 2016). For example, Fernández-Berrocal et al. (2004), using the 'Trait Emotional Meta-Mood Scale' (TMMS-24) in adults, found that emotional clarity and repair were positively correlated with life satisfaction and negatively associated with maladaptive indicators, such as depression and ruminative responses. In contrast, attention was positively correlated with ruminative responses. Palmer, Donaldson, & Stough (2002) also demonstrated that emotional clarity in adults was found to add a statistically significant increase (approximately .5%) in the prediction of life satisfaction over and above both positive and negative affect. Similarly, Salovey, Mayer, Goldman, Turvey, & Palfai (1995) concluded that emotional

clarity (versus attention and repair) may buffer the impact of stressful events and may therefore be a required precondition for the adaptive monitoring and managing of moods and emotions.

Although the direct pathway between trait EI and different well-being indicators has previously been supported, other studies in adults have shown that this relation might be mediated by cognitive variables (such as self-efficacy, Vergara, Alonso-Alberca, San Juan, Aldás, & Vozmediano, 2015) or affective variables, such as moods (Panno, Donati, Chiesi, & Primi, 2015) or affects (Kong & Zhao, 2013; Kong, Zhao, & You, 2012). The few existing studies with adolescents have shown that positive and negative affect mediate the relationships between EI and life satisfaction. Students with high trait EI tended to have more positive experiences and fewer negative experiences, which contributed to their greater life satisfaction (Sánchez-Alvarez, Extremera, & Fernández-Berrocal, 2015). However, studies with adolescents and including moderating effects have received less attention. As shown, adolescence is the life period when most well-being indicators begin to change (decreasing of life satisfaction and increasing of somatic complaints with age), (Burger & Samuel, 2017; Strózik, Strózik, & Szwarc, 2016).

In this study, we were interested in the moderating role of feelings in the relationship between trait EI and well-being in adolescents. Feelings can be viewed as being similar to affect (as both are less specific terms than moods and sentiments) (Thoits, 1989). In this way, emotions are linked to different outcomes (well-being, adaptation, and others) that are influenced by the subjective experience of affective feelings (Clore & Gasper, 2000). The results of these and other studies have suggested that feelings have a role as a moderator of EI influences.

Objective and Hypotheses

In sum, the main objective of this study was to investigate the role of feelings as possible moderators of associations between trait EI and well-being in adolescents. The analysis of this hypothesized mechanism, including the study of the specific effects of positive and negative affect, is the main contribution of the study. Moreover, as observed above, the research supporting an indirect pathway through affective variables between trait EI and well-being in adults is extensive. However, research with adolescents and moderating effects in this area is still scarce. Therefore, the

objective of this study of those in the age range of 12-16 years old, with a large sample size, is a worthwhile contribution to the empirical knowledge of trait EI and well-being.

Based on the research described above, a positive association between emotional Clarity and Repair, and positive well-being outcomes (Life satisfaction) and negative association with negative well-being outcomes (Somatic complaints, Perceived Stress), and the opposite pattern for emotional Attention and well-being outcomes, were expected (H₁). Finally, it was postulated that positive and negative feelings would moderate the relationship between trait EI (Attention, Clarity and Repair) and well-being (H₂).

Method

Participants

The sample was composed of 1273 pupils aged between 12 and 16 years (M = 13.63 years; SD = 1.22; 12 years old = 292, 13 years old = 314, 14 years old = 316, 15 years old = 275; 16 years old = 76). This age range covers the complete compulsory high school period in Spain. Of them, 666 were girls, accounting for 52.7% of the total. Participants on the study were all the children that attended to 10 high schools in the Valencian Community (Spain), and their parents gave their consent. These schools were selected by a convenience sampling method, and were located across a range of working to upper-middle class areas. Regarding the parents' educational levels, the distribution was as follows: university degree (30%), high school (32%), primary studies (32%), and no studies (5%).

Instruments

Trait EI was evaluated using the TMMS-24 'Trait Emotional Meta-Mood Scale', which was adapted and validated in Spain by Fernández-Berrocal et al. (2004) based on the Trait Meta-Mood Scale by Salovey et al. (1995). The scale assesses meta-knowledge of three elements constructing EI: (1) Emotional attention (8 items), which is the extent to which people tend to observe and think about their feelings and moods; (2) Emotional clarity (8 items), which evaluates the understanding of one's emotional states; and (3) Emotional repair (8 items), which involves the individual's beliefs about the ability to regulate his or her feelings. All 24 items are scored on a scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). The TMMS subscales have been reported to have adequate psychometric properties (Attention, $\alpha = .90$; Clarity, $\alpha = .90$; Repair, $\alpha = .86$; Fernández-Berrocal et al., 2004). In this study, the reliability was $\alpha = .87$ for Attention and Clarity and $\alpha = .83$ for Repair.

SPANE, the Scale of Positive and Negative Experiences (Diener et al., 2010), assesses positive and negative feelings. It is a brief 12-item scale, with six items devoted to positive experiences (SPANE-P) and six items designed to assess negative experiences (SPANE-N) in the past 4 weeks. Each SPANE item is scored on a scale ranging from 1 to 5, where 1 represents "very rarely or never" and 5 represents "very often or always". The two scores can be combined by subtracting the negative score from the positive score, obtaining the hedonic balanced score (SPANE-B). The scale has been shown to have good validity and reliability (SPANE-P $\alpha = .87$; SPANE-N $\alpha = .81$; SPANE-B $\alpha = .89$), (Diener et

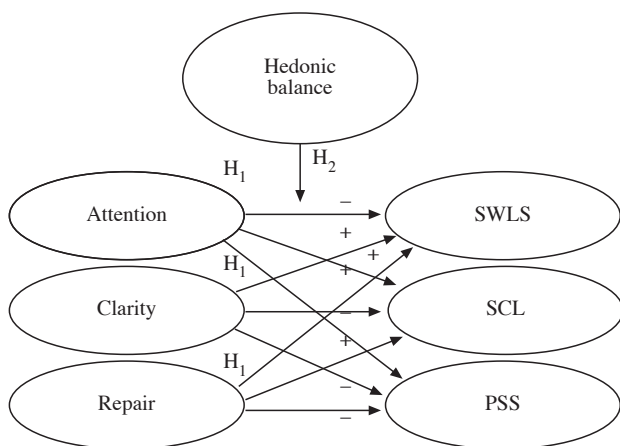


Figure 1. Theoretical model and hypothesis

al., 2010), which were also found in this study (SPANE-P $\alpha=.88$; SPANE-N $\alpha=.82$; SPANE-B $\alpha=.85$).

The Somatic Complaint List (SCL; Rieffe, Oosterveld, & Meerum Terwogt, 2006; Rieffe et al., 2007) has been validated by Górriz, Prado-Gascó, Villanueva, & González (2015). This list consists of 11 items and identifies the frequency with which children have experienced and felt pain in the past four weeks, such as stomach aches, headaches, and so on. It has a three-point response scale, for example: “I never/sometimes/often feel dizzy” or “I never/sometimes/often have pain in my chest”. Again, a higher score indicates a greater presence of somatic complaints. Previous studies have shown this list to be very reliable and valid, $\alpha = .78$ (Górriz et al., 2015). This was also the case in the present study ($\alpha=.81$).

The Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985) measures the cognitive evaluation or judgment of one’s overall life and consists of five items. Each item is answered on a 7-point Likert-type scale ranging from 1 = strongly disagree to 7 = strongly agree. It includes items such as, “I am satisfied with my life” and “In most ways, my life is close to my ideal”. The items are summed to form a general score of life satisfaction. Previous studies (Diener et al., 1985) have shown this scale to have adequate psychometric properties ($\alpha = .87$), which was also the case in this study ($\alpha = .88$).

The PSS-4 Perceived Stress Scale (Cohen & Williamson, 1988; Spanish version of Herrero & Meneses, 2006) is a brief version of the Perceived Stress Scale (PSS) (Cohen, Kamarch, & Mermelstein, 1983). This self-reported questionnaire is composed of four items that evaluate the degree to which individuals believe their life has been unpredictable, uncontrollable, and overloaded in the previous month. It has a four-point response scale, for example: “I never/sometimes/often/always felt that I was unable to control the important things in my life”. A higher score indicates a greater presence of perceived stress. Previous research has shown this scale to be reliable and valid ($\alpha = .68$), (Herrero & Meneses, 2006). In this study, the α was .68.

Procedure

This study is only a part of a main research being performed by the authors in emotional intelligence. The data collection was carried out collectively, during regular class time in 2-3 different sessions lasting approximately 1 hour each. The necessary consents from the country government, schools, parents and ethical university commission were obtained, through an inform

consent form, before recruiting the children. The effect of the question order in the questionnaires was controlled.

Data analysis

First, descriptive statistics for the whole sample were performed. Then, path analyses examining the relationships between constructs using structural equation modeling (SEM) were conducted. Then, the effect of hedonic balance was evaluated on other constructs first by means of descriptive and t-tests considering two groups Positive (all students with a hedonic balance score greater than 0; N = 1086) and Negative (all students with a hedonic balance score equal or under 0; N = 187). Finally, the moderating effect of feelings on the path model was analyzed by two different approaches, studying the invariance of the model in the two different groups using SEM and by means of the PROCESS macro (Hayes, 2013) (with N = 5,000 bootstrap re-samples). All models used a maximum likelihood estimator with robust correction to account for non-normality in the data. The statistical analysis was conducted using SPSS 22 and EQS 6.3.

Results

The means, standard deviations, and minimum and maximum scores for each variable are presented in Table 1. The highest means were those corresponding to Repair (from TMMS-24) and Positive feelings (SPANE-P).

Then, according to hypothesis one, associations between trait EI and well-being indicators (SCL, PSS and SWLS) were tested using SEM. The empirical estimates of the main-effects model are shown, along with the direct effects. The results indicated that the data fit our conceptual model acceptably ($\chi^2(df)= 2368.59(582)$; S-B $\chi^2(df)= 2067.28(582)$, $p<.01$; CFI =.91; NNFI =.90; RMSEA =.05). Trait EI predicted Somatic complaints ($R^2 =.36$, $p\leq.05$; Attention: $\beta =.24$, $p\leq.05$; Clarity: $\beta =-.44$, $p\leq.05$; Repair: $\beta =-.30$, $p\leq.05$), Perceived stress ($R^2 =.46$, $p\leq.05$; Attention: $\beta =.36$, $p\leq.05$; Clarity: $\beta =-.60$, $p\leq.05$; Repair: $\beta =-.22$, $p\leq.05$), and Life satisfaction ($R^2 =.35$, $p\leq.05$; Attention: $\beta =-.14$, $p\leq.05$; Clarity: $\beta =.43$, $p\leq.05$; Repair: $\beta =.31$, $p\leq.05$). In general, the Clarity dimension seemed to be the best predictor in all cases.

Next, we proceeded to analyse the influence of feelings on the relationship between EI and well-being. The effects of Positive and Negative Hedonic balance were compared by t-tests. There were significant differences in SWLS ($t = 14.21$; Negative: $\chi = 20.01$, $DT=7.11$; Positive: $\chi = 26.85$, $DT=5.67$; $p \leq .001$; Cohen’s

Table 1
Descriptive statistics of the variables in the study

	SWLS	SPANE			TMMS-24			PSS	SCL
		Positive feelings	Negative feelings	Hedonic balance	Attention	Clarity	Repair		
Mean	25.49	22.21	13.08	9.12	24.53	25.10	27.14	8.37	1.48
SD	6.54	4.96	4.67	7.90	6.90	6.93	6.99	2.22	0.34
Minimum	2	6	3	-20	4	5	5	4	1
Maximum	35	31	30	25	40	40	40	16	2.91

SWLS = Satisfaction with Life Scale; SPANE = Scale of Positive and Negative Experiences; TMMS-24 = Trait Emotional Meta-Mood Scale; PSS = Perceived Stress Scale; SCL = Somatic Complaint List

d = -1.06; Effect size r=.47), PSS (t = 13.83; Negative: $\chi = 10.27$, DT=2.16; Positive: $\chi = 7.89$, DT=1.98; p ≤ .001; Cohen’s d =1.15; Effect size r=.50), SCL (t = 14.70; Negative: $\chi = 1.75$, DT=.38; Positive: $\chi = 1.41$, DT=.28; p ≤ .001; Cohen’s d =1.02; Effect size r=.45), Attention (t = 1.44; Negative: $\chi = 25.37$, DT=7.68; Positive: $\chi = 24.51$, DT=6.68; p ≤ .001; Cohen’s d =.12; Effect size r=.06), Clarity (t = 7.94; Negative: $\chi = 21.81$, DT=6.88; Positive: $\chi = 26.11$, DT=6.53; p ≤ .001; Cohen’s d =-.64; Effect size r=-.31) and Repair (t = 10.69; Negative: $\chi = 22.74$, DT=7.22; Positive: $\chi = 28.29$, DT=6.43; p ≤ .01; Cohen’s d =-.81; Effect size r=-.38).

Finally the moderating effect (H2) was analyzed by two different approaches, by means of SEM and with a moderation analysis through PROCESS. Regarding moderating analysis by SEM, first the conceptual model was analyzed considering the whole sample and the two groups (Positive and Negative Hedonic balance). Then we tested the moderating effect of Hedonic balance (Table 2).

Before proceeding with the moderating effect analysis, it was necessary to assume instrument invariance at least regarding “Equal form” and “Equal factor loadings” invariance. First, it was necessary to calculate a model for each of the sub-samples (Negative and Positive Hedonic balance); then, we proceeded with a multigroup analysis assuming equal variance for each of the factors as a restriction considering both samples. Afterwards, a new multigroup analysis including equal factor loadings on both samples as the new restriction was calculated (Aldás, 2013). Subsequently, a test assessing the significance of the change in X² comparing both multigroup models was performed (Satorra & Bentler, 2001). As the change in X² comparing the multigroup *Equal Form model* ($\chi^2(df) = 1853.62$ (789); S-B $\chi^2(df) = 1586.08$ (789); NNFI = .91, CFI = .92, IFI = .92, RMSEA = .045 (.042 - .048)) and that of *Equal Factor loadings* ($\chi^2(df) = 1878.80$ (813); S-B $\chi^2(df) = 1602.54$ (813); NNFI = .91, CFI = .92, IFI = .92, RMSEA = .04 (.041- .048) was not significant ($\Delta \chi^2$ (Δgl)=25.18 (24); p =.40), it was possible to assume metric invariance.

Then, a separate multigroup analysis including equal path loadings on both samples as the restriction was calculated, using the *Lagrange Multiplier test* (LM) to determine whether deleting some of those restrictions led to a significant change in χ^2 (Aldás, 2013). Observing the results, none of the restriction deletion leads to a significant change in χ^2 . Therefore, no moderating effect of feelings on the relation of IE on SCL, PSS nor SWLS was proved.

Finally to test the moderation we also performed a moderation analysis through PROCESS. Observing the results, no moderating effect was observed as in all cases the bias-corrected confidence interval (95%) of the indirect effect include zero (Hayes, 2013).

Discussion

The aim of this work was to explore the moderating effect of feelings on the relationship between trait EI and several indicators of children’s well-being: perceived stress, life satisfaction and somatic complaints. First, it was expected that an association would exist between trait EI components and well-being indicators in children aged 12-16 years. As expected, the first hypothesis of the study was supported by the results.

All the trait EI components were associated with perceived stress, life satisfaction and somatic complaints, although not all to the same extent and with the same valence. Emotional clarity and repair were related positively to life satisfaction and negatively to perceived stress and somatic complaints. However, emotional attention presented the opposite pattern, as posited in the hypothesis.

A certain level of emotional attention is required in adaptation; however, excessive attention to one’s emotions may be maladaptive. Another explanation for this association between attention and negative consequences may be the mediating role played by the TMMS dimensions, both among themselves and with subjective well-being (Vergara et al. 2015). When clarity levels are low, high attention may be harmful for emotional management, but when there is higher clarity, attention to feelings may be good for regulatory processes. In this sense, future studies must explore the mediating role of trait EI components, among themselves in adolescent populations.

Moreover, the items on the attention scale in the emotional intelligence trait may be assessing a type of attention that is mainly associated with maladaptive outcomes: hypervigilance, rumination, or catastrophization, as has been found by many authors (Fernández-Berrocal et al., 2004; Goldman Kraemer, & Salovey, 1996) and even for other related emotional constructs, for example, attention to bodily symptoms in emotional awareness (Lahaye, Van Broeck, Bodart, & Luminet, 2013; Villanueva, Górriz, Prado-Gascó, & González, 2015).

These results agree with previous research in adults, supporting the differential association between trait EI components and well-being indicators (Fernández-Berrocal et al., 2004; Vergara et

Table 2
Prediction of SCL, PSS and SWLS by TMMS-24 in the total sample and in the Positive and Negative hedonic balance samples

Model Fit Index: ML and S-B correction		At	Clar	Rep	R ²
		β	β	β	
Total: $\chi^2(df) = 1435.44$ (392); S-B $\chi^2(df) = 1234.87$ (392); NNFI = .91, CFI = .92, IFI = .92, RMSEA = .049 (.046- .052)	SCL	.24*	-.44*	-.30*	.36*
	PSS	.36*	-.60*	-.22*	.46*
	SWLS	-.14*	.43*	.31*	.35*
Negative hedonic balance: $\chi^2(df) = 665.28$ (392); S-B $\chi^2(df) = 570.10$ (392); NNFI = .90, CFI = .91, IFI = .91, RMSEA = .055 (.044-.064)	SCL	.29*	-.30*	-.15	.14*
	PSS	.55*	-.44*	-.21	.36*
	SWLS	-.14	.32*	.33*	.27*
Positive hedonic balance: $\chi^2(df) = 578.17$ (392); S-B $\chi^2(df) = 514.16$ (392); NNFI = .91, CFI = .92, IFI=.92, RMSEA = .043 (.03-.05)	SCL	.19	-.32*	.14	.09*
	PSS	.63*	-.47*	.16	.34*
	SWLS	-.12	.18	-.09	.03*

* p ≤ .05; At – Attention; Clar- Clarity; Rep- Repair

al., 2015). Among the trait EI components, clarity had stronger significant relationships with the well-being indicators, also supporting previous studies (Palmer et al., 2002; Salovey et al., 1995). Consistent with Vergara et al. (2015), and Petrides et al. (2016), this study provided evidence of the advantage of using the TMMS factors separately rather than as a general factor. Finally, of the well-being indicators, perceived stress yielded the highest model fit ($R^2 = .46^*$).

Second, it was postulated that positive and negative feelings would moderate the relation between trait EI and well-being (H_2). This hypothesis was not supported by the results. No moderating effect of hedonic balance was observed neither using SEM nor by means of PROCESS macro. Our findings in adolescents do not support previous studies exploring these relationships in adults (Kong & Zhao, 2013; Landa, López-Zafra, De Antoñana, & Pulido, 2006). The explanation for these conflicting results could be found in the differential nature of the studies conducted to date. In this study the adolescent period is the focus of the study, and feelings (instead of affect) as moderators (instead of mediators) are analysed. In sum, the results of this study support a pathway to improving well-being in adolescents: low attention to emotions, a high understanding of one's emotional states and a good regulation were associated with low perceived stress, few somatic complaints and high life satisfaction.

Finally, some limitations in the current study should be considered. As all the relationships between variables were

correlational, the causal direction remains unclear. Secondly, the data were collected through self-report measures only, which could be a threat to internal validity. Although children are the best and direct informants of their subjective well-being (Strózik, Strózik, & Szwarc, 2016), objective well-being and multiple sources of informants should be included in future research. Moreover, as the sampling was not probabilistic, was obtained in the Valencian community and was based on normal adolescents, the generalization of the results is limited. In this sense, it would be interesting to extend this study to other populations in Spain and Spanish-speaking countries.

Despite these limitations, there are important contributions of this study. The results of this study extend the previous literature by supporting the relationship between some trait EI components and different well-being indicators within an age bracket that has not been considered previously, and at the same time, no supporting the role of feelings as moderators in this relation. In this sense, if specific emotional intelligence components are not addressed in well-being promotion programs, individual's treatment needs will hardly be met.

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