



Emotional Intelligence Structure and Its Relationship with Life Satisfaction and Happiness: New Findings from the Bifactor Model

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Abstract

Emotional intelligence (EI) has been found to generally predict subjective wellbeing (SWB) indicators such as life satisfaction and happiness. Concerning the specific abilities of trait EI, i.e., mood attention, emotional clarity and mood repair, research has largely demonstrated that emotional clarity and mood repair are the strongest predictors of SWB indicators, whereas mood attention has been relegated to a secondary role. To clarify previous inconsistencies, we tested EI by means of the bifactor model because it allows for a better comprehension of the complex nature of EI. The current paper was composed of two studies: Study 1 examined the prediction of SWB indicators by EI and its dimensions in the bifactor model; and Study 2 analysed the differences in EI and SWB indicators across university students and employees. Results of Study 1 demonstrated that the structure of EI is best represented by the bifactor model with a general *e*(motional)-factor and three specific emotional abilities. Mood attention was a negative predictor of SWB indicators, whereas mood repair was a positive predictor, and emotional clarity was non-significant. Study 2 showed that employees and university students did not differed in how EI predicted SWB indicators. These findings evidenced a shift in the study and measurement of EI. Further implications of this paper are discussed.

Keywords Emotional intelligence · Subjective wellbeing · Happiness · Life satisfaction · Bifactor model · Measurement

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1 Introduction

Emotional intelligence (EI) is recognised as an influential construct in personality and social psychology (Extremera et al. 2011). It has produced increasing research in the field of wellbeing, especially because of its predictive influence on several cognitive, affective and behavioural outcomes (Mayer and Salovey 1997). Decades of study have demonstrated the relationship between emotional intelligence (EI) and subjective wellbeing (SWB). However, a limiting factor of all this research lies in the approach used to measure the structure of EI; although largely claimed to be multidimensional, EI has been measured as a unidimensional construct. This fact may have caused the inconsistencies found in the literature regarding the relation of EI facets to SWB. A possible solution for elucidating these discrepancies might be to analyse the structure of EI using the bifactor model, which allows one to differentiate between a general EI factor and three different EI facets. Thus, the current study aims to test how EI relates to SWB indicators (e.g., life satisfaction and happiness) using the bifactor model, and to compare this relationship between employees and university students.

1.1 Defining the Construct of EI

Overall, EI is defined as a set of abilities, that can be trained (Hodzic et al. 2018), whereby people obtain information from their emotions and use it to guide their thinking and actions for optimal adaptation (Salovey and Mayer 1990). An on-going academic discussion concerns the conceptualization of EI, which can vary across distinct theoretical approaches. To note, the two most extended theories in this discipline are trait EI and ability EI. Trait EI approaches consider EI a compound of stable emotion-related dispositions stemming from personality that guide people's behavior for adaptive coping (Petrides et al. 2007). In a different way, ability EI approaches describe EI as a broad intelligence that involve a set of abilities to process emotion-related information (Mayer et al. 2016; Salovey and Mayer 1990). More comprehensively, ability EI is viewed as a mental ability that helps reasoning about and using emotions to guide and improve our thinking and, contrary to trait EI, it does not account for any other personal disposition rather than intelligence and emotions. Under this scope, Mayer and Salovey (1997) developed a model that described EI as the ability to (1) perceive emotions (mood attention), (2) use emotions to facilitate thought (emotional facilitation), (3) understand emotions (emotional clarity), and (4) regulate emotions (mood repair). Notwithstanding, structural analyses did not support the facilitation domain (Fan et al. 2010), therefore we understand EI as comprised of three main facets: attending ones' and others' affective responses (mood attention), identifying and understanding those emotional patterns (emotional clarity), and being able to regulate ones' and others' emotions so as to cope with situational demands (mood repair).

Other scholars have employed the so-called mixed models of EI, which add into the EI definition different non-cognitive components such as motivations, socio-affective competences and empathy, among others (e.g., Bar-On 2006), and integrative EI models, which try to unite common features from the described approaches. As an example of this, contemporary approaches recently proposed two complementary frameworks to describe EI: Mestre et al. (2016) suggested integration between ability EI models and cognitive abilities models based on appraisal theories. Besides, Fontaine (2016) proposed to extend this conceptualization and, according to the componential emotional

approach, to redefine the construct of EI by introduction of five components: appraisals, action tendencies, bodily reactions, expressions, and feelings.

Concerning the conceptual meaning of the EI construct, the division between trait EI and ability EI has been deemed as controversial—while trait EI self-reports are criticised for measuring EI as a personality trait rather than intelligence and thus causing misleading with the term “*intelligence*” (Roberts et al. 2008), ability EI performance-tests (e.g., the MSCEIT; Mayer Salovey Caruso Emotional Intelligence Test) are subject to measure limitations and report problems in capturing comprehensively and objectively the sampling domain of ability EI (Petrides et al. 2007), showed low measurement precision (Fiori et al. 2014), and questionable validity (Maul 2012). Given this challenging scenario, some scholars have suggested studying trait EI facets instead of global trait EI and to include personality constructs in its measurement (Hughes and Batey 2017), although self-report measures do not assess EI performance abilities but rather self-perceptions of EI ability (Roberts et al. 2008). Therefore, in the present study we employed a trait-EI self-report to capture general EI and its three facets; that is, we assessed self-perceived EI. The results presented will shed light on the EI domain understood as an approximation to a personality construct rather than a form of intelligence.

1.2 The Relationship Between EI and SWB Indicators

The study of EI and SWB may provide insight about the mechanisms by which people use emotional information to engage in a more satisfied and happier life (Diener et al. 2003). SWB entails a predominance of positive affective states combined with high levels of life satisfaction (Diener 1984). According to prior research, EI accounts for an indicator of individual differences that influences life satisfaction and happiness (Mayer and Stevens 1994). For instance, differences in the acknowledgement and discrimination of emotions yielded differences in SWB (Lischetzke et al. 2012), suggesting that the way people handle EI plays a crucial role in the promotion of wellbeing. All in all, the literature supports the positive relationship between EI and SWB indicators (e.g., Koydemir et al. 2013; Szczygieł and Mikolajczak 2017).

Looking further into the relationship between EI and SWB, a recent meta-analysis revealed a strong association of EI with SWB, showing a larger relationship with the cognitive component than with the affective component and a stronger overall relationship in trait-EI studies (Sánchez-Álvarez et al. 2015). The results overall suggest that people with high EI, especially emotional clarity and mood repair, are more likely to experience higher levels of life satisfaction and happiness than people who are less emotionally intelligent (Extremera et al. 2011). The results regarding mood attention are more difficult to interpret, since the literature contains conflicting findings on this (Augusto-Landa et al. 2011).

Goldman et al. (1996) first suggested the underpinning basis of these results: it is believed that individuals who acknowledge their emotions and are able to repair their negative emotional states experience greater life satisfaction (Salovey et al. 2002); however, the ability to attend mood may trigger a sensitivity to perceive more stress and symptomatology and, hence, to experience lower levels of life satisfaction and happiness. On the basis of the significant effect of emotional clarity and mood repair on SWB, research has drawn more attention to these facets, leaving a gap with respect to the study of mood attention in relation to SWB indicators.

1.3 Relationship Between EI and SWB Among Employees and University Students

Emotion-related skills and SWB can fluctuate and improve during life (Carstensen et al. 2000) due to factors such as age, education background or employment status (Keyes and Waterman 2003). To achieve SWB people need to attain satisfaction in different life domains, including leisure, finances and work (Van Praag et al. 2003). It is therefore conceivable that occupational factors (e.g., studies or work) are determinative for happiness.

At this point, we know the outcomes of EI and SWB separately concerning occupational factors: employees reporting high SWB experienced less perceived stress (Augusto-Landa et al. 2006) and put more thought and effort into their working activities (Keyes and Grzywacz 2005); whereas higher education students with high SWB reported more academic engagement and achievement (Nickerson et al. 2011). Further, employees with high EI perceived their jobs as more satisfying and rewarding (Thoresen et al. 2003); whereas university students with high EI reported better academic success (Parker et al. 2004) and less perceived stress (Urquijo et al. 2016). On the basis of these results, we assume that emotionally intelligent people are more willing to deal with stressful situations and bounce back from negative feelings, what subsequently may trigger satisfaction across different domains, including occupational activities (Miao et al. 2017).

While the study of the relationship between EI and SWB has mainly been addressed with university students (see Sánchez-Álvarez et al. 2015), the study of this association within the workforce has drawn lesser attention. As a matter of concern, there is a gap in examining the differences or similarities provided by university students and employees in regard to the predictive nature of EI on SWB, therefore the current study endeavoured to provide further information that leads to more representative conclusions.

1.4 The Bifactor Approach to Studying EI

Although many studies have shown that EI is not a one-dimensional construct (e.g., Chen et al. 2016; Delhom et al. 2017; Mayer et al. 2016), it is still interpreted and studied as though it were (Gutiérrez-Cobo et al. 2017; Koydemir et al. 2013; Szczygieł and Mikolajczak 2017). Regardless of scientific efforts to measure and integrate EI as a category of intelligence, it is not yet considered an independent form of intelligence per se (Mestre et al. 2016). Nonetheless, intelligence and EI could be compared in their structural organisation: like general intelligence, EI might be expected to have an *e*(motional)-factor (as compared with intelligence *g*(eneral)-factor; Carroll 1996; Spearman 1923) describing the general ability to comprehend and use one's own and others' emotions; and one could also distinguish more specific and independent abilities of mood attention, emotional clarity and mood repair (as compared with intelligence's comprehension knowledge, fluid reasoning, short-term memory and processing speed; Wechsler 1997).

Such a theoretical structure might be empirically verified by means of the bifactor model. Previous studies have provided evidence of the suitability of and preference for the bifactor model to represent the structure of intelligence (Beaujean 2015; Frisby and Beaujean 2015), including one that synthesised 31 mental ability test batteries (Cucina and Byle 2017). The bifactor approach has also proven its utility in research on SWB and its indicators (Jovanović 2015; Lauriola and Iani 2017; Rogoza et al. 2018), affect (Chen et al. 2016), intelligence (Luo et al. 1994) and even in the assessment of meaning in life (Damasio et al. 2016). By applying the bifactor model in EI we predict that all items will

contain some elements of the *e*-factor (the bifactor: general EI construct) and, simultaneously, information about more specific and independent emotional abilities (EI facets: mood attention, emotional clarity and mood repair). Put differently, through the bifactor model each of the assessed facets explains something unique and different but, at the same time, they share a common element between them, and that is general EI.

2 Research Aims

The goals of the present study are twofold. In Study 1 we aim to test the structure of EI and its relations to SWB indicators, i.e., life satisfaction and happiness. We (H1) hypothesise that the bifactorial structure with an *e*-factor and specific emotional facets would best represent the structure of EI. Furthermore, we (H2) expect that the *e*-factor, as well as the specific facets of emotional clarity and mood repair, should be more linked to increased life satisfaction and happiness than mood attention. In Study 2 we aim to compare two different groups: undergraduate university students and employees of a social organisation, in terms of their EI and SWB indicators. Owing to the lack of literature with regard to this approach, our study will serve as a preliminary exploration to fill this gap.

3 Method

3.1 Participants

Study 1 was carried out with 749 participants (77% females) and the mean age was 24.22 ($SD=10.74$), ranging from 17 to 73 years old. Study 2 was carried out on an independent sample with 400 participants including 200 undergraduate university students (69% females) with a mean age of 21.04 ($SD=6.26$), and 200 employees (79% females) with a mean age of 41.24 ($SD=10.29$). All individuals were Spanish native speakers who participated voluntarily in the studies.

3.2 Measures

Trait Meta-Mood Scale (TMMS-24; Salovey et al. 1995; Spanish version: Fernández-Berrocá et al. 2004). This instrument comprises 24-items assessing perceived EI that provides scores for three dimensions: mood attention, emotional clarity and mood repair. It uses a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). A sample item for each of the facets is: “*I think about my mood constantly*” (mood attention), “*I am usually very clear about my feelings*” (emotional clarity), and “*Although I am sometimes sad, I have a mostly optimistic outlook*” (mood repair).

Satisfaction with Life Scale (SWLS; Diener et al. 1985; Spanish version: Atienza et al. 2000). This is a 5-item questionnaire that evaluates the degree of satisfaction with life as a whole. Participants are asked to rate their satisfaction with life on a 7-point Likert-scale (1 = *strongly disagree* to 7 = *strongly agree*). A sample item is “*So far I have gotten the important things I want in life*”.

Subjective Happiness Scale (SHS; Lyubomirsky and Lepper 1999; Spanish version of Extremera and Fernández-Berrocá 2014). This is a 4-item (one reversed) survey in which participants must rate to what extent they feel characterized by happiness statements using

absolute ratings, peer-relative ratings and brief happiness descriptions on a 7-point Likert scale. A sample item is “*Compared with most of my peers, I consider myself...(less happy/more happy)*”.

3.3 Procedure

Participants were engaged in a volunteer training programme on personal development offered by a public university; their data were obtained as the assessment part of the programme. This programme was conducted within the framework of healthy organisations, its aim being to identify and enhance students’ and workers’ strengths in order to improve the wellbeing of their respective organisations. The participants completed the measures of EI, life satisfaction and happiness via an online platform. They obtained an individualised report with their results at the end of the programme. In the survey, we provided an explanation of the study’s aims as well as the terms of confidentiality and anonymity. All participants were given extensive information about the procedure and signed an informed consent prior to enrolment in the programme; only those who completed the whole protocol were accepted into the study. No missing data were registered because respondents were required to answer all the items. The mean time spent completing the survey was around 15 min. The procedure was the same in Study 1 and Study 2, although separate independent samples differentiated on the basis of specific characteristics took part in each.

3.4 Data Analysis

All of the data and syntaxes necessary to replicate the results of the presented analyses are available to download in an open repository at: https://osf.io/zntm9/?view_only=529be6469cfa493d9f5ff4dc98504c5a (the link was blinded for peer review purposes). All of the analyses were carried out in Mplus v. 7.2 (Muthén and Muthén 2012). Due to the lack of the multivariate normality all of the analyses were conducted using maximum likelihood estimation with robust standard errors. No correlations between residuals were allowed in any of the analysed measurement models.

To test the first hypothesis, we assessed whether the bifactor model represents the EI structure well. The bifactor allows to study the role of domain specific factors that are independent of the general factor (Chen et al. 2013), because the overall score is not the result of the specific scales’ common variance, but it is the result of the items’ shared variance being hypothesized to have something in common. The bifactor model enables not only to analyse the general variance explained by the bifactor, but also to analyse the additional common variance among cluster of items with highly similar content (Reise et al. 2010). In such terms, the bifactor can be understood as a result of what is common between the items (general variance), which is an addition to the item domain specificity (group variance; Rodriguez et al. 2016) and each of these are hypothesised to introduce a new quality leading to better understanding the analysed constructs. Chen et al. (2013, p. 1036) listed two central advantages of the bifactor model: (1) it permits simultaneous tests of the association of an outcome variable with the general latent factor and the unique contributions of the specific factors that are distinct from the general construct (i.e., in regard to the current study, this would allow to test the associations of the *e*-factor and specific emotional facets with SWB indicators); and (2) it can be used to identify a factor which no longer remains as the unique contributor when the common variance is taken into account.

In the bifactor model each item was allowed to load on the bifactor and just on one group factor. All other loadings were fixed to zero and all factors, including the bifactor, were specified to be orthogonal (Reise et al. 2013). In interpretation of the results, if the strength of the factor loading is high on both the bifactor and the group factors then it is plausible to interpret both, as each of them adds something unique from itself. If the strength of the factor loadings is high on the bifactor but low on the specific factors—only the overall score should be interpreted since the specific factors do not yield any added value. Finally, if the strength of the factor loadings on the bifactor is low and is high on the specific factors—only the latter are justified to interpret. In the current study we expected the strength of the factor loadings to be high on both, the bifactor and group factors, and thus—this would allow interpreting the results of both to see what the specific factors add beyond the overall score.

To verify the H1, we analysed competitive measurement models of EI: (1) the three-correlated factors, (2) the one-factor, (3) the higher-order factor, and (4) the bifactor model. In respect to the measurement models of the SWLS and SHS, we only tested whether the one-factorial structure fits the data well. A graphical representation of exemplary measurement models compared in the current study is illustrated in Fig. 1.

In the assessment of the tested models we relied on the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Residual (SRMR), which values should be above .95 for CFI and below .05 for RMSEA and .08 for SRMR for good or above .90 and below .08 for acceptable fit respectively (Byrne

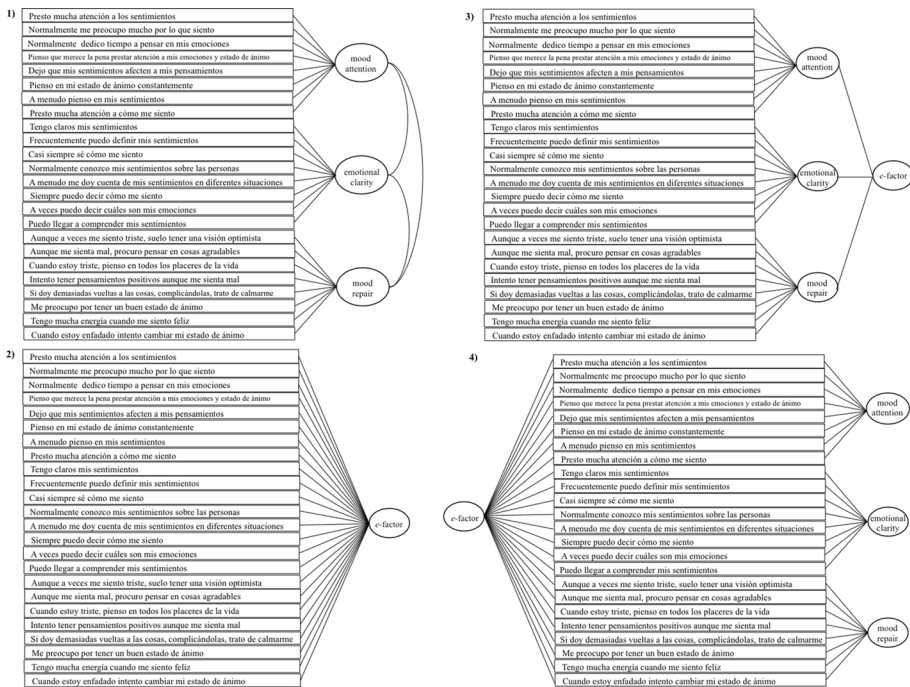


Fig. 1 Graphical representation of the compared measurement models: (1) three-correlated factors; (2) one-factor; (3) higher-order factor; (4) bifactor. *Note.* Rectangles include the TMMS-24 items from the Spanish adaptation used within the current study

1994; Kline 2011). In addition to the approximate fit indices, we also analysed the Bayesian Information Criterion (BIC), which compares the information explained by the nested models—the lower its value, the preferred should be the model (Kline 2011). In interpretation, we also took into account an effect for the models with low number of degrees of freedom, in which RMSEA tends to produce artificially high results (Kenny et al. 2015).

To test the second hypothesis, we analysed the Structural Equation Model (SEM) in which EI predicted SWB indicators. We used the same model fit evaluation criteria as described above. To test the third hypothesis, we compared whether the regression estimates of EI on SWB indicators are equal across students and employees. This procedure is defined as the assessment of the structural equivalence. A necessary prerequisite for this analysis is verification of the metric level of invariance across the compared samples (Kline 2011), which is a part of the multigroup confirmatory factor analysis (MGCFA) assessment. There are three basic levels of measurement invariance: configural—which assesses the possible differences in the basic factorial structure across compared groups; metric, which assesses (through constraining factor loadings to be equal across compared groups) whether participants understand the construct in the same manner; and scalar, which assesses (through additional constraining of the item intercepts to be equal across compared groups) whether participants understand all of the test items in the same manner (Meredith 1993; Van de Schoot et al. 2012). Establishing metric invariance allows to test for structural equivalence, which is the main objective of the current paper, while establishing scalar invariance allows to compare scores in the latent means of the compared groups. In the evaluation of the MGCFA models we used criteria proposed by Chen (2007), which suggests that: the evaluation of the configural model should be well fitted to the data (i.e., at least CFI > .90; RMSEA/SRMR < .08); the differences in fit indices between configural and metric model should not exceed .010 for CFI, .015 for RMSEA and .030 in SRMR; and finally, the difference in fit indices between metric and scalar models should not exceed .010 in CFI, .015 in RMSEA and .010 in SRMR.

4 Results

4.1 Study 1

4.1.1 Descriptives, Reliability Estimates and Assessment of the Measurement Models

The descriptive statistics and reliability estimates of the analysed variables, as well as the model fit indices of the analysed measurement models in Study 1 are presented in Table 1.

Across compared measurement models, the SWLS and SHS scales were both well fitted to the data. Among the competitive models of the TMMS-24, only the bifactor model represented an acceptable fit to the data and explained most information, which confirmed our first hypothesis.

4.1.2 Test of the Hypothesis Regarding Predictions of SWB Indicators by EI

The standardised regression coefficients of the structural part of the tested model are presented in Fig. 2. The analysed model showed an acceptable fit ($\chi^2_{(462)} = 1164.72$; $p < .001$; CFI = .927; RMSEA = .045[.042–.048]; SRMR = .056). The *e*-factor turned out to be a positive predictor of both life satisfaction and happiness; whereas across specific emotional

Table 1 Descriptive statistics, reliability estimates and model fit indices of the measurement models of the used scales in Study 1

Measure	Scale	<i>M</i> (<i>SD</i>)	α	Model	$\chi^2_{(df)}$	<i>p</i>	CFI	RMSEA [90%CI]	SRMR	BIC
TMMS-24	<i>e</i> -factor	3.70(0.51)	.86	Bifactor	747.34 ₍₂₂₉₎	.001	.917	.055[.051–.060]	.066	43,785
	Mood attention	3.68(0.72)	.86							
	Emotional clarity	3.69(0.69)	.87							
	Mood repair	3.74(0.72)	.85							
SWLS	Life satisfaction	4.93(1.14)	.86	Three-factors	1085.61 ₍₂₄₉₎	.001	.866	.067[.063–.071]	.086	44,093
				One-factor	3835.7 ₍₂₅₂₎	.001	.426	.138[.134–.142]	.147	47,440.9
				Higher-order	1137.5 ₍₂₅₁₎	.001	.858	.069[.065–.073]	.102	44,140.6
				One-factor	22.47 ₍₅₎	.001	.985	.068[.041–.078]	.020	9336.6
SHS	Happiness	5.00(1.03)	.68	One-factor	6.55 ₍₂₎	.038	.992	.055[.011–.105]	.017	7134.7

The standardised factor loadings of each scale are presented in the “Appendix.”

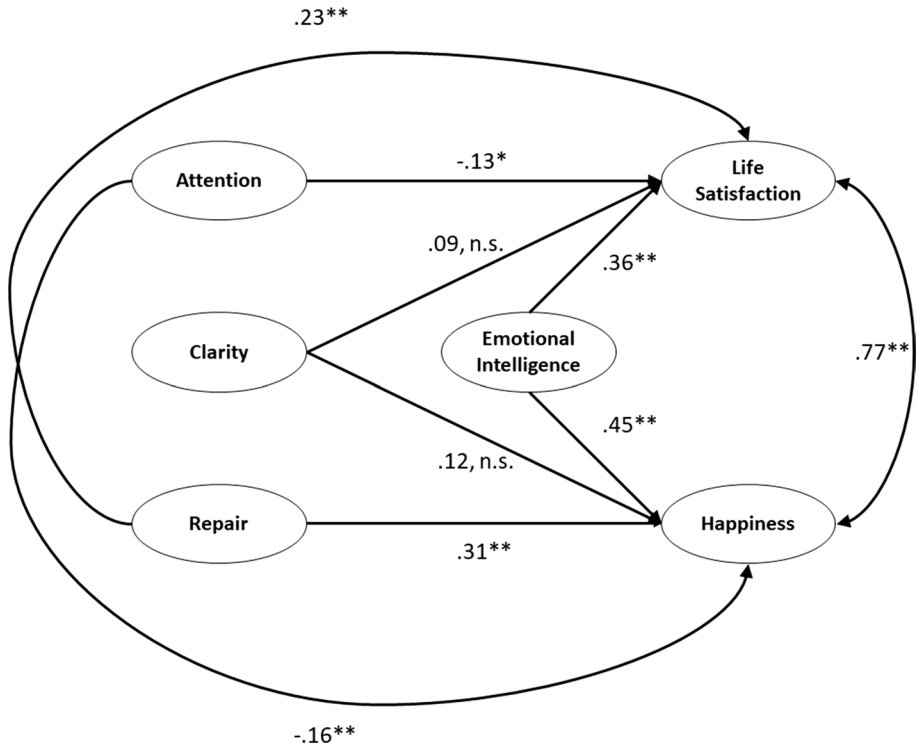


Fig. 2 Structural model of EI (*e*-factor and specific emotional abilities) predicting life satisfaction and happiness. *Note.* Tested structural equation model comprises both measurement and structural part of the model. To improve the readability we present results only of the structural portion

facets, mood attention was a negative predictor. Mood repair was a positive predictor of life satisfaction and happiness; whereas emotional clarity was an insignificant predictor. Based on the presented results, our second hypothesis was confirmed only partially.

4.2 Study 2

4.2.1 Descriptive Statistics and Reliability Estimates of the Analysed Variables

The descriptive statistics and reliability estimates of the variables analysed in Study 2 are presented in Table 2.

The reliability estimates turned out to be stable and almost perfectly correlated ($r = .99$; $p < .001$) across the two studies, which confirms the measurement quality of the used scales.

4.2.2 Test of the Hypothesis Regarding Differences Across Employees and Students in EI and SWB Indicators

The results of the MGCFA conducted for each measure separately are presented in Table 3.

Table 2 The descriptive statistics and reliability estimates of the variables analysed in Study 2

	<i>M</i>	<i>SD</i>	α
<i>e</i> -factor	3.61	0.52	.88
Mood attention	3.52	0.75	.88
Emotional clarity	3.67	0.70	.88
Mood repair	3.62	0.72	.85
Life satisfaction	4.90	1.01	.83
Happiness	4.91	0.90	.63

Table 3 Model fit indices of the compared models in the multi-group confirmatory factor analysis

Scale	TMMS-24			SWLS			SHS		
Model	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR
Configural	.915	.060	.073	.994	.036	.021	.975	.092	.034
Metric	.915	.057	.082	.997	.021	.051	.964	.083	.060
Scalar	.910	.058	.083	.987	.040	.058	.887	.124	.067
Δ Metric versus configural	.000	.003	.008	.003	.015	.030	.011	.009	.026
Δ Scalar versus metric	.005	.001	.001	.010	.019	.007	.077	.041	.007

Table 4 Comparison of the constrained beta weights from the structural model between employees and students

	Life satisfaction	$\chi^2_{(1)}$	<i>p</i>	Happiness	$\chi^2_{(1)}$	<i>p</i>
<i>e</i> -factor	.43**	0.22	.643	.51**	0.34	.559
Attention	-.25**	0.75	.387	-.25**	0.00	.950
Clarity	.22*	0.05	.819	.06	0.80	.371
Repair	.15*	0.92	.339	.32**	0.91	.340

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

We established full scalar invariance for the bifactor model of EI and for the life satisfaction (only RMSEA suggested lack of invariance; however, due to the small number of degrees of freedom, we relied on CFI and SRMR, which both suggested an acceptable model fit), but we failed to achieve scalar model for happiness. Thus, owing to the establishment of the metric level of invariance, the comparisons of the structural equivalence might be conducted.

To test the structural equivalence, we constrained the beta weight of the structural paths in the model to be equal across students and employees. We compared whether each beta weight across compared groups was equal using the Wald test of parameter constraints. The standardised estimates of the structural paths for employees and students as well as a test of their equality are presented in Table 4.

The analysed model was at the boundary of the acceptable fit to the data ($\chi^2_{(1014)} = 1589.91$; $p < .001$; CFI = .897; RMSEA = .053 [.048, .058]). The results of the Wald test for all constrained parameters revealed no significant differences between students and employees ($\chi^2_{(8)} = 4.77$; $p = .782$), therefore our exploratory indagation revealed no differences between the compared groups.

5 Discussion

The present study aimed to examine the bifactor structure of EI and its relationship with SWB indicators (i.e., life satisfaction and happiness). The results suggested that a bifactorial structure with an *e*-factor and specific emotional facets (mood attention, emotional clarity and mood repair) best represented the structure of EI. This finding represents an advance in the measurement of EI and related outcomes, and disentangles previous inconsistencies regarding the role of mood attention in SWB. The bifactor model showed that SWB indicators were predicted not only by mood repair but also by mood attention (negatively). Moreover, our results showed no differences in this relationship between university students and employees of a social organisation.

5.1 EI as a Predictor of Life Satisfaction and Happiness

The first goal of the present paper was to examine the role of EI and its dimensions in prediction of life satisfaction and happiness. Obtained results confirmed our general expectations, as EI analysed in both studies generally positively predicted life satisfaction and happiness, in agreement with previous research (Koydemir et al. 2013; Szczygiel and Mikolajczak 2017). Nonetheless, the results of the specific emotional facets were contradictory to the existing literature, presumably as a result of introducing the bifactor model in the study of EI, which showed better adjustment than other tested structures.

On the basis of our results, we propose the presence of a general *e*-factor that contains shared information that explains the general self-perceived ability to reason about emotions, as well as three independent specific emotional facets that provide additional information beyond the *e*-factor (mood attention, emotional clarity and mood repair). By this means, we were able to separate each of the three emotional facets and examine their unique contribution to life satisfaction and happiness beyond the *e*-factor.

First, the specific facet of mood attention turned out to be a negative predictor of life satisfaction and happiness when factored out, suggesting that higher levels of emotional attention are related to a lower sense of SWB being measured by happiness and life satisfaction. Although the majority of the studies gathered null associations between these variables (see Sánchez-Álvarez et al. 2015), high mood attention was previously proposed to cause a predisposed sensitivity to track more stress and symptomatology and thus prompt discomfort (Goldman et al. 1996) and hinder engagement in efficient regulatory strategies (Boden and Thompson 2015)—from the perspective of the bifactor EI model, the role of mood attention might help explain the results of these previous studies. Second, the specific facet of emotional clarity was suggested to ease fluid thinking and adaptive action (Delhom et al. 2017) and therefore be a key predictor of life satisfaction and happiness (Sánchez-Álvarez et al. 2015; Extremera et al. 2011a, b); nonetheless, in our study it appeared as non-significant when the shared variance of the *e*-factor was accounted for, proposing a new understanding of the possible effects that discriminating emotions has on SWB indicators. Third, the specific facet of mood repair similarly appeared as a strong predictor of life satisfaction and happiness in the literature since it might contribute to select and exhibit appropriate regulatory strategies, such as positive reappraisal, expressing feelings, and social-support seeking behaviours (Boden and Thompson 2015; Extremera et al. 2011a, b). Based on the bifactor EI model, our results showed the positive unique contribution of mood repair to life satisfaction and happiness, which is in line with the cited studies.

Generally, it seems that high levels of EI result in greater SWB (Salovey et al. 2002), yet our study contributes to scrutinize more in detail this understanding. The introduction of the bifactor model enabled to examine the unique contribution of each of the specific emotional facets beyond the *e*-factor, and showed that the grain-level performance of mood attention may help address more complex tasks and direct our thinking and behavior for adaptive coping. Although general EI is overall associated with SWB indicators, our results suggest that the more we attend to our emotions, the less satisfied and happy we might be; if this was so, and according to functional perspectives (Lench et al. 2013), when we focus excessively on emotional content, the thinking and behavioral systems would be drained in a way that decrease our sense of wellbeing. It could be plausible that if we over-attend our emotions we may misguide the rest of our affective resources and the effectiveness to engage in adaptive strategies consistently drops. This line of reasoning is in accordance with previous research reporting that unhappy people are more likely to dwell on negative events and engage in ruminative thoughts that, in fact, “*may drain cognitive resources and thus bring to bear a variety of negative consequences, which could further reinforce unhappiness*” (Lyubomirsky 2001, p. 244).

Savouring strategies enhance the effect of positive emotions, whereas dampening strategies decrease the effect of positive emotions (Wood et al. 2003). The frequent use of savouring strategies and the infrequent use of dampening strategies may be the mechanism through which emotionally intelligent people are able to experience greater life satisfaction and happiness (Szczygieł and Mikołajczak 2017). Contrary to the view of mood repair as the essential specific facet to promote SWB, our results suggest that the specific emotional facet of mood attention may also be essential, for instance, to help identify in which situations and under what circumstances we need to engage in such strategies. Thus, an excessive attention could decrease the capacity to regulate them (Boden and Thompson 2015) and cause a feeling of confusion or overwhelm (Gohm 2003). Drawing on our findings, future research should investigate the relationship between EI and different outcomes from the lens of the bifactor EI model so as to clarify the effect of the *e*-factor and each specific emotional facet.

5.1.1 Comparing the Differences in EI and SWB Across University Students and Employees

The second goal of our study was to compare the differences in EI and SWB indicators across university students and employees. There was found to be a lack of literature devoted to this approach, therefore, our findings provided additional explanatory and in-depth evidence. The results reported no significant differences in how EI predicts SWB indicators across both groups, which may suggest that the mechanisms of EI are indeed adaptive to the corresponding evolutionary stage or occupational condition. Perhaps individuals are capable of capturing, understanding and using emotional information according to the surrounding demands—if it was not the case, we possibly might have found higher results in employees concerning EI and SWB indicators than in university students. It is nevertheless important to note that the *e*-factor and the specific emotional facets remained as significant predictors.

It is known that EI and SWB can vary across the lifespan (Carstensen et al. 2000), mostly due to evolving factors such as age and employment conditions (Keyes and Waterman 2003). The knowledge accumulated through lifelong experience allows us to gather more information about how we responded to major life events and thus to enhance our

emotional skills. However, the presented results demonstrated that this is not fully supported because a difference in age and work experience did not cause any significant variation in EI and SWB indicators. Wilson and Gilbert (2005) suggested that we need to understand our affective responses in front of life events; if we do not clearly establish explanations of the emotions that arise in the face of profound events, we may feel unpleased. It is precisely in high-emotional situations where we draw more attention to our moods (Boden and Thompson 2015); for instance, it would be easy to remember where we were on the September 11th terrorist attacks, or the weather on the day our children were born. For this reason, major life events become a proper scenario to refine the way we attend, understand and regulate our emotions (Boden and Thompson 2015).

The selection, optimisation, and compensation theory holds that life experience facilitates an adequate selection of life goals and the implementation of effective regulatory strategies to promote SWB (Baltes and Baltes 1990). Perhaps EI evolves in accordance with situational and contextual needs, which are less demanding at initial stages of early adulthood (university students) than latter stages (employee), and thus a possible escalation in EI may not result significant across age and work experience. Future research is nevertheless needed to disentangle these results.

6 Limitations

There are several limitations of the current study that should be considered. First, participant composition was imbalanced in terms of gender (female vs male). Gender differences might be influenced by factors such as personality, social context and gender roles (Lucas and Gohm 2000). More specifically, gender seems to be related to EI (Mikolajczak et al. 2007); so one must be cautious when interpreting the results. Second, the use of undergraduate students remains one of the current limitations in research. According to Cummins (2003), this group may not clearly represent the general population. However, this limitation was partially skipped as our study included a comparison between university students and employees, and subsequently, allowed us to examine whether the working condition exerted different results between these two specific groups. Third, the TMMS-24 is a self-report that assesses EI as a trait. Despite its good psychometric performance and spread usage, it would be beneficial to include performance-based ability EI measures to avoid the common method variance. Fourth, the cross-sectional design limited the interpretation of our results as cause-effect relationships over time were not explored. In this effort, longitudinal studies may warrant further consideration to analyse causal mechanisms existing between the EI facets and SWB.

6.1 General Findings of the Paper

The findings reported in the current paper represent a step forward in the study of EI and SWB indicators, in that no previous research has addressed this relationship using the bifactor EI model. It might appear that the common variance shared by the specific emotional facets was responsible for the discrepancies found in previous studies and obscured their direct effect on SWB indicators. When this was controlled for, the specific ability of mood attention was a negative predictor of life satisfaction and happiness, mood repair was a positive predictor and emotional clarity was weaker than previously reported (e.g., Sánchez-Álvarez et al. 2015). In addition, the *e*-factor remained positively related to life

satisfaction and happiness after partialling it out. We may thus assume that mood attention and mood repair influence our cognitive and affective evaluations of life. Indeed, it seems reasonable that a lack of ability to attend to and handle affective information would make it difficult to respond effectively to emotional demands. We found no variations in the *e*-factor nor the three specific facets between university students and employees, suggesting that age and work experience may not necessarily represent a source of advantage for EI in relation to SWB indicators (Keyes and Waterman 2003). Be that as it may, the findings of this research have consistent implications for research concerning the measurement of EI. Previous assumptions highlighting the importance of acknowledging emotion-related information to achieve SWB may warrant further consideration.

Appendix

Measurement part of the structural equation models presented on Figs. 1 and 2. The estimates from Study 1 and Study 2 are separated by brackets. Following tables present standardised factor loadings obtained from: the Trait Meta-Mood Scale-24 (Table 5); Satisfaction with Life Scale (Table 6); and Subjective Happiness Scale (Table 7).

Table 5 Standardised factor loadings of the trait meta-mood scale-24

Item	Emotional intelligence	Attention	Clarity	Repair
Attention1	.51 (.51)	.41 (.40)		
Attention2	.48 (.48)	.51 (.52)		
Attention3	.56 (.47)	.51 (.59)		
Attention4	.60 (.53)	.33 (.38)		
Attention5	.01 (.04)	.52 (.54)		
Attention6	.05 (.13)	.72 (.78)		
Attention7	.37 (.35)	.75 (.77)		
Attention8	.47 (.43)	.68 (.71)		
Clarity1	.38 (.39)		.54 (.59)	
Clarity2	.39 (.45)		.67 (.68)	
Clarity3	.39 (.47)		.66 (.68)	
Clarity4	.47 (.50)		.44 (.35)	
Clarity5	.50 (.61)		.48 (.22)	
Clarity6	.40 (.44)		.60 (.60)	
Clarity7	.48 (.43)		.41 (.39)	
Clarity8	.47 (.57)		.41 (.39)	
Repair1	.27 (.32)			.70 (.65)
Repair2	.31 (.36)			.83 (.80)
Repair3	.26 (.30)			.73 (.66)
Repair4	.33 (.39)			.80 (.79)
Repair5	.41 (.43)			.42 (.40)
Repair6	.45 (.52)			.28 (.24)
Repair7	.40 (.44)			.06 (.09)
Repair8	.38 (.38)			.32 (.42)

Table 6 Standardised factor loadings of the satisfaction with life scale

Item	Life satisfaction
SWLS1	.83 (.74)
SWLS2	.76 (.75)
SWLS3	.90 (.88)
SWLS4	.73 (.69)
SWLS5	.59 (.55)

Table 7 Standardised factor loadings of the subjective happiness scale

Item	Happiness
SHS1	.88 (.82)
SHS2	.77 (.77)
SHS3	.66 (.54)
SHS4	.24 (.32)

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