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What variables predict subjective well-being in adulthood?☆

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ABSTRACT

This study examines the relationship between cultural dimensions, emotional intelligence (EI), resilience and subjective well-being. The sample was composed of 3419 participants. Two models were compared and the standardized estimated parameters and gender invariance were analyzed. Overall speaking, results indicated that: (1) The cultural dimension long-term orientation demonstrated the strongest relationship on EI dimensions; likewise, power distance and collectivisms positively predicted emotional repair; and power distance negatively predicted emotional attention; (2) Resilience was negatively predicted by uncertainty avoidance, while collectivism and long-term orientation emerged as positive predictors; (3) All three dimensions of EI predicted resilience; (4) Emotional attention emerged as a predictor of negative affect and life satisfaction, while emotional clarity and repair demonstrated predictive capacity for both positive and negative affect; (5) None of the indirect effects from EI dimensions to life satisfaction through resilience were statistically significant; (6) Individuals with high resilience tend to experience enhanced positive affect and life satisfaction, concomitant with diminished negative affect; (5) Individuals experiencing more positive affects report higher life satisfaction, whereas those experiencing more negative affects report lower life satisfaction; and (6) the structural relationships between EI, resilience, affect, and life satisfaction operate similarly for both genders.

1. Introduction

Subjective well-being (SWB), essential for psychological health and adaptive functioning (Suldo & Huebner, 2006), encompasses both affective and cognitive evaluations of one's life. On the one hand, *affective balance* represents the equilibrium between positive and negative emotional experiences, while on the other hand, *life satisfaction* refers to an individual's global cognitive evaluation of their life circumstances (Diener et al., 1985). Life satisfaction plays a pivotal role in societal functioning, as widespread discontent can lead to social instability (Tov & Diener, 2009), and it serves as a key indicator of psychological well-being (Seligman & Csikszentmihalyi, 2000). Thus, elucidating the determinants of SWB (such us cultural values, emotional intelligence and resilience), with a particular focus on life satisfaction, is crucial for fostering both personal thriving and societal prosperity. Although moderately correlated, these two components (affective and cognitive) exhibit distinct predictors, antecedents, and health effects (Diener et al., 2003; Luhmann et al., 2012). Consequently, this study treats them as independent constructs, focusing on life satisfaction as the target variable.

This study's theoretical framework integrates two seminal theories: Oyserman et al.'s (2002) *socially contextualized model of cultural influences* on psychology, which posits culture as an external influence shaping individual construal of situations, and Hofstede's (1980, 2001) conceptualization of culture as the "collective programming of the mind" (Hofstede, 1980, p. 25). Hofstede developed a multidimensional measure of cultural values, defining value as "a broad tendency to prefer certain states of affairs over others" (Hofstede, 2001, p. 5), which initially comprised five dimensions: *power distance*, *individualism-collectivism*, *masculinity-femininity*, *uncertainty avoidance*, and *long-term*

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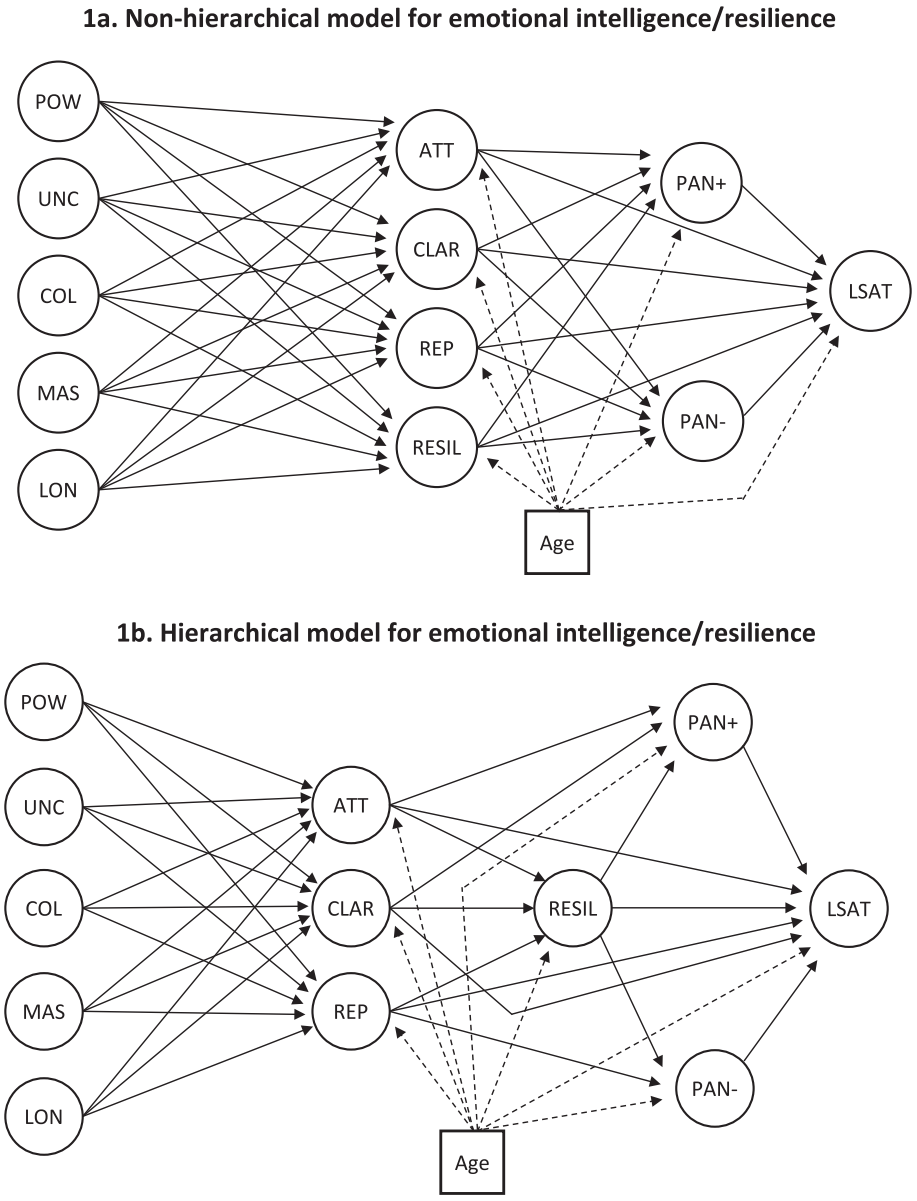
orientation versus *short-term orientation*, with a sixth dimension (*indulgence-restraint*) added later. These cultural dimensions offer a comprehensive framework for elucidating the impact of cultural factors on cognitive processes (Gunkel et al., 2014) and, by extension, on various psychological constructs such us emotional intelligence (model 1a and 1b) and resilience (model 1a).

Emotional intelligence (EI), as defined by Mayer and Salovey (1997), encompasses the abilities to accurately perceive, appraise, and express emotion; access and generate feelings to facilitate thought; understand emotion and emotional knowledge; and regulate emotions to promote emotional and intellectual growth. EI has proven to be a significant predictor of SWB (Sánchez-Álvarez et al., 2016). Zeidner et al. (2012) posited that the ability to perceive, express, understand, and regulate emotions plays a crucial role in promoting well-being and positive emotions. They proposed an *affective mediation model* wherein positive and negative affect mediate the relationship between EI and life satisfaction. This model suggests that individuals with high EI experience more positive affect and less negative affect, consequently leading to higher life satisfaction. Building on this framework, the present study aims to analyze the mediational influence of positive and negative affect (model 1a and 1b) in the relationship between EI and life satisfaction.

Research also demonstrates that *resilience*, conceptualized as a



POW = Power distance index; UNC = Uncertainty avoidance index; COL = Collectivism; MAS = Masculinity; LON = Long-term orientation; ATT = Emotional attention; CLAR = Emotional clarity; REP = Emotional repair; RESIL = Resilience; PAN+ = Positive affect; PAN- = Negative affect; LSAT = Satisfaction with life.

Note. Covariances among exogenous latent variables, as well as between exogenous latent variables and PAN+, PAN-, and LSAT (Model 1a), and between exogenous latent variables and RESIL, PAN+, PAN-, and LSAT (Model 1b), are not depicted to avoid cluttering the figure.

Fig. 1. Competing SEM models for the prediction of subjective well-being by cultural values, emotional intelligence, and resilience.

constellation of personal attributes enabling individuals to flourish in the face of adversity (Masten, 2014), is correlated with both EI and SWB (Yang et al., 2022). Indeed, research has shown that resilience plays a significant role in predicting various aspects of well-being and mediating the relationship between EI and SWB (Liu et al., 2013; Miranda & Cruz, 2022; Zeidner et al., 2012). However, the precise dynamics of resilience when examined in conjunction with these variables, particularly within the framework proposed by Zeidner et al. (2012), remain unclear. Ungar (2012) advocated for a social ecological perspective, arguing that resilience should be understood as an interactional process between individuals and their environments, rather than as fixed individual-level attributes. Therefore, model 1b examines the mediating function of resilience in the relationship between EI and affective balance, whereas in model 1a, resilience is positioned as a parallel construct alongside EI.

Drawing from the aforementioned theoretical background, this study aims to identify the best-fitting model for predicting life satisfaction using cultural values, EI, resilience, and positive and negative affect as predictor variables. Two competing Structural Equation Models (SEM) with latent variables are proposed to represent these relationships (Fig. 1). In model 1a, resilience is positioned as a parallel construct alongside EI, whereas model 1b examines the indirect effects of resilience in the relationship between EI and affective balance. Both models incorporate age as a control variable, represented by a square with emanating dashed arrows in Fig. 1. This comparative approach seeks to elucidate the complex interplay between cultural, emotional, and psychological factors in determining SWB.

The specific objectives are to: (1) identify the best-fitting model predicting life satisfaction (both models); (2) analyze the influence of cultural dimensions on EI (both models); (3) examine the impact of cultural dimensions on resilience (Model 1a); (4) investigate the effect of EI on resilience (Model 1b); (5) determine the influence of EI on SWB (Models 1a and 1b); (6) explore the indirect effects of resilience between EI and SWB (Model 1b); (7) assess the direct impact of resilience on SWB (both models); (8) examine the indirect effects of positive and negative affect in the relationships between EI, resilience, and life satisfaction (Model 1b); (9) analyze the direct effects of positive and negative affect on life satisfaction (both models); and (10) investigate potential gender differences in the structural models.

2. Method

2.1. Participants

The sample comprises 3419 Spanish adult participants, with 56.1 % female and 43.9 % male (M_{age} = 31.90 years, *SD* = 13.35, range = 17.70–80.93). Age distribution includes 66.6 % young adults, 25.1 % middle-aged adults, and 7 % in late adulthood. Socioeconomic status is predominantly medium (85.1 %), with 11.3 % low and 3.5 % high and regarding the level of studies completed, university studies are the most common (54.3 %), followed by vocational training (20.1 %), secondary school (18.8 %) and primary studies (6.9 %).

2.2. Instruments

Besides demographics variables (age, gender, socioeconomic status, civil status, etc.), the following questionnaires were administered:

The *Individual Cultural Values Scale* (CVSCALE; Schumann et al., 2010) comprises 26 items measuring Hofstede's five cultural dimensions at the individual level: *power distance* (ω = 0.79), *collectivism* (ω = 0.83), *masculinity* (ω = 0.76), *uncertainty avoidance* (ω = 0.80), and *long-term orientation* (ω = 0.71). Items are rated on a 7-point Likert scale (1 = *totally disagree*, 7 = *totally agree*).

The *Trait Meta Mood Scale* (TMMS; Fernández-Berrocal et al., 2004) is a 24-item self-report measure assessing three dimensions of EI: *attention* (ω = 0.84), *clarity* (ω = 0.88), and *repair* (ω = 0.86). Items are rated on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).

The *Connor-Davidson Resilience Scale* (CD-RISC-10; Notario-Pacheco et al., 2011) is a 10-item abbreviated version that measures *resilience* (ω = 0.83) using a 5-point Likert scale (0 = *not true at all*, 4 = *true nearly all the time*).

The *Satisfaction With Life Scale* (SWLS; Atienza et al., 2000) is a 5-item questionnaire that measures *life satisfaction* (ω = 0.85) through a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*).

The *International Positive and Negative Affect Schedule Short-Form* (PANAS-SF; Joiner Jr. et al., 1997) is a 10-item measure of *positive* (ω = 0.70) and negative affect (ω = 0.74). Items are rated on a 5-point scale (1 = *very slightly or not at all*, 5 = *extremely*).

2.3. Procedure

Participants completed an online questionnaire package using Google Forms technology. The hyperlink was distributed to relatives, university students, friends, colleagues, and teachers; and participants were encouraged to invite others, employing snowball sampling (Etikan et al., 2016). The study followed the Checklist for Reporting Results of Internet *E*-Surveys (CHERRIES) (Eysenbach, 2004). Informed consent was required at the beginning of the questionnaire. The study was approved by the Committee on Ethics of Research and Teaching (CEID) from the University of the Basque Country.

2.4. Data analysis

Data processing included error depuration and multivariate normality checks using the MVN package (Korkmaz et al., 2014) in R. The robust maximum likelihood (MLR) method was employed for model fitting. Model fit was assessed using Hu and Bentler's (1999) criteria: non-significant χ^2, CFI $\geq$ 0.95, RMSEA $\leq$0.05, SRMR $\leq$0.08, and lower AIC and BIC values. Nested models were compared using the Satorra-Bentler scaled difference test. Analytical fit regarding model parameters was evaluated using a significance level of $p < .05$, and 95 % confidence intervals were provided for each parameter estimate. Parameters corresponding to indirect effects were explicitly specified within the model and estimated through bootstrapping procedures with 1000 resamples, allowing for robust inference of indirect effects and the calculation of their respective confidence intervals.

Gender invariance (from configural to means equality, plus regressions) of the best-fitted model(s) was tested following the considerations of Leitgöb et al. (2023) and Rutkowski and Svetina (2014). We used $\Delta\chi^2$, ΔCFI, and ΔRMSEA criteria (Cheung & Rensvold, 2002) to compare fit across invariance levels. Non-significant $\Delta\chi^2$ or ΔCFI <0.01 and ΔRMSEA <0.015 indicated no significant differences between subsequent models (Chen, 2007). Analyses were conducted using R (R Core Team, 2022) with *'lavaan'* (Rosseel, 2012) and *'semTools'* (Jorgensen et al., 2022) packages. Data are available at https://figshare.com/s/6b18aee0dc7b59f924ed.

3. Results

3.1. Models predicting subjective well-being

The Pearson correlation matrix between all latent variables (including age as a control variable) is presented in Table 1 to facilitate reproducibility. Model fit indices for Model 1a and Model 1b were virtually identical and indicated an acceptable fit. Specifically, both models yielded a scaled chi-square value of approximately 15,175 (*df* = 2640; scaling factor = 1.128), with a root mean square error of approximation (RMSEA) of 0.038 and a 90 % confidence interval ranging from 0.037 to 0.039. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were 651,338 and 653,064, respectively, for both models, and the standardized root mean square residual (SRMR) was 0.055. The comparative fit index (CFI) for both models was 0.862, which, while somewhat below conventional

Table 1
Pearson correlation matrix between the main variables of the SEM models (and age), and basic descriptives.

Variables	Age	Power	Uncert	Collect	Mascul	Longt	Attent	Clarity	Repair	Resil	PosAf	NegAf	Lifesat
Power	0.21*** (0.17, 0.24)												
Uncert	0.04* (0.01, 0.08)	0.10*** (0.06, 0.13)											
Colect	0.03 (−0.00, 0.06)	0.02 (−0.02, 0.05)	0.14*** (0.11, 0.18)										
Mascul	0.19*** (0.15, 0.22)	0.40*** (0.37, 0.43)	0.04* (0.00, 0.07)	−0.03 (−0.06, 0.00)									
Longt	−0.05** (−0.08, −0.01)	−0.08*** (−0.11, −0.05)	0.25*** (0.22, 0.29)	0.09*** (0.06, 0.13)	−0.09*** (−0.12, −0.05)								
Attent	−0.30*** (−0.33, −0.27)	−0.18*** (−0.21, −0.15)	0.01 (−0.02, 0.04)	0.02 (−0.01, 0.05)	−0.14*** (−0.18, −0.11)	0.12*** (0.08, 0.15)							
Clarity	0.07*** (0.04, 0.11)	0.04* (−0.07, −0.00)	0.10*** (0.06, 0.13)	0.04* (0.01, 0.07)	−0.02 (−0.05, 0.02)	0.18*** (0.15, 0.22)	0.27*** (0.24, 0.30)						
Repair	0.03 (−0.00, 0.07)	−0.01 (−0.04, 0.02)	0.07*** (0.04, 0.11)	0.11*** (0.07, 0.14)	−0.03 (−0.06, 0.01)	0.17*** (0.13, 0.20)	0.10*** (0.07, 0.14)	0.45*** (0.42, 0.48)					
Resil	0.01 (−0.02, 0.04)	−0.04* (−0.08, −0.01)	0.07*** (0.04, 0.10)	0.13*** (0.09, 0.16)	−0.05** (−0.08, −0.01)	0.23*** (0.20, 0.26)	−0.06*** (−0.09, −0.03)	0.37*** (0.34, 0.40)	0.55*** (0.53, 0.58)				
PosAf	−0.01 (−0.04, 0.03)	−0.00 (−0.04, 0.03)	0.05** (0.02, 0.08)	0.05** (0.01, 0.08)	0.01 (−0.02, 0.04)	0.18*** (0.15, 0.21)	0.07*** (0.04, 0.11)	0.30*** (0.27, 0.33)	0.36*** (0.33, 0.39)	0.41*** (0.38, 0.44)			
NegAf	−0.20*** (−0.23, −0.16)	−0.02 (−0.05, 0.01)	−0.03 (−0.06, 0.01)	−0.05** (−0.09, −0.02)	0.01 (−0.02, 0.04)	−0.02 (−0.05, 0.01)	0.26*** (0.23, 0.29)	−0.19*** (−0.22, −0.16)	−0.24*** (−0.27, −0.21)	−0.31*** (−0.34, −0.28)	−0.00 (−0.04, 0.03)		
Lifesat	−0.04* (−0.07, −0.01)	−0.08*** (−0.11, −0.05)	0.04* (0.01, 0.08)	0.09*** (0.06, 0.12)	−0.08*** (−0.12, −0.05)	0.12*** (0.09, 0.16)	−0.00 (−0.04, 0.03)	0.27*** (0.24, 0.31)	0.33*** (0.30, 0.36)	0.39*** (0.36, 0.42)	0.30*** (0.27, 0.33)	−0.33*** (−0.36, −0.30)	
M	31.90	10.22	24.87	27.77	7.61	27.45	25.19	24.50	25.25	27.48	14.86	9.34	23.99
SD	13.35	4.44	4.66	6.36	4.14	3.55	6.96	6.34	6.33	5.58	3.36	3.23	5.70

Note. Power = Power distance; Uncert = uncertainty avoidance; Collect = collectivism; Mascul = Masculinity; Longt = Long-term orientation; Attent = emotional attention; Clarity = Emotional clarity; Repair = emotional repair; Resil = resilience; PosAf = positive affect; NegAf = negative affect; Lifesat = life satisfaction.

thresholds for good fit, may be attributable to the complexity of the models. Overall, these results indicate that the two models demonstrated equivalent and acceptable fit to the data, and both are presented to allow for a comprehensive exploration of their parameter estimates.

3.2. The influence of cultural dimensions on EI and resilience

Figs. 2 and 3 illustrate standardized parameters for Models 1a and 1b, respectively. Both models yield similar significance, magnitude, and direction. Cultural dimensions show different relationships on EI and resilience in models 1a and 1b, with model 1a showing more significant coefficients and stronger associations. In particular, *power distance* is related to *emotional repair* in both models [1a: $\beta = 0.06$, CI95% = (0.002; 0.106), $p < .05$; 1b: $\beta = 0.06$, CI95% = (0.003; 0.110), $p < .05$] and also *emotional attention* [1a: $\beta = -0.09$, CI95% = (−0.160; 0.106), $p < .01$; 1b: $\beta = -0.08$, CI95% = (0.003; 0.110), $p < .01$]. *Uncertainty avoidance* is negatively related to *resilience* [$\beta = -0.06$, CI95% = (−0.113; −0.010), $p < .05$) in Model 1a, but shows no significant relationships in Model 1b. *Collectivism* has weak but significant effects on *emotional repair* and *resilience* in Model 1a [both $\beta = 0.09$, CI95% ≈ (0.06; 0.14), $p < .01$] and a similar association on *emotional repair* in Model 1b [$\beta = 0.10$, CI95% = (0.051; 0.136), $p < .01$]. *Long-term orientation* demonstrates the strongest relationship on EI, with differential patterns across models but all significant; in Model 1a [*attention:* $\beta = 0.14$, CI95% = (0.088; 0.193), $p < .01$; *clarity*: $\beta = 0.23$, CI95% = (0.180; 0.282), $p < .01$; *repair*: $\beta = 0.22$, CI95% = (0.176; 0.281), $p < .01$], and in Model 1b [*attention*: $\beta = 0.13$, CI95% = (0.091; 0.197), $p < .01$; *clarity*: $\beta = 0.22$, CI95% = (0.181; 0.283), $p < .01$; *repair*: $\beta = 0.22$, CI95% = (0.175; 0.280), $p < .01$]. When comparing the models, the variance explained by both models on EI dimensions is identical, with percentages of 11 % for *attention*, 7 % for *clarity*, and 6 % for *repair*. In addition, *long-term orientation* has a positive association with *resilience* in Model 1a [$\beta = 0.40$, CI95% = (0.366; 0.508), $p < .01$].

Age, included as a control variable, demonstrates significant direct relationships ($p < .01$) with EI dimensions in both models, with identical path coefficients for *attention* [$\beta = -0.27$, CI95% = (−0.31; −0.24)], *clarity* [$\beta = 0.11$, CI95% = (0.062; 0.134)], and *repair* [$\beta = 0.08$, CI95% = (0.051; 0.114)]. Regarding the path coefficient from age to *resilience*, it is non-significant in model 1a but significant in model 1b [$\beta = -0.08$, CI95% = (−0.114; −0.051)]. The paths from age to *positive affect* (non-significant) and *negative affect* [$\beta = -0.10$, CI95% = (−0.13; −0.074), $p < .01$] are identical in both models. Finally, the relationship between age and *life satisfaction* is negative in both models, and with magnitude slightly different: model 1a [$\beta = -0.09$, CI95% = (−0.136; −0.068), $p < .01$] and model 1b [$\beta = -0.08$, CI95% = (−0.129; −0.073), $p < .01$].

3.3. The relationships between EI, resilience, and SWB

Model 1b reveals significant relationships between EI and various outcomes. *Emotional attention* significantly predicts *resilience* [$\beta = -0.20$, CI95% = (−0.267; −0.149), $p < .01$], *negative affect* [$\beta = 0.31$, CI95% = (0.281; 0.392), $p < .01$], and *life satisfaction* [$\beta = 0.08$, CI95% = (0.052; 0.116), $p < .01$]. *Emotional clarity* shows significant paths to *positive affect* [$\beta = 0.18$, CI95% = (0.144; 0.275), $p < .01$], *resilience* [$\beta = 0.23$,

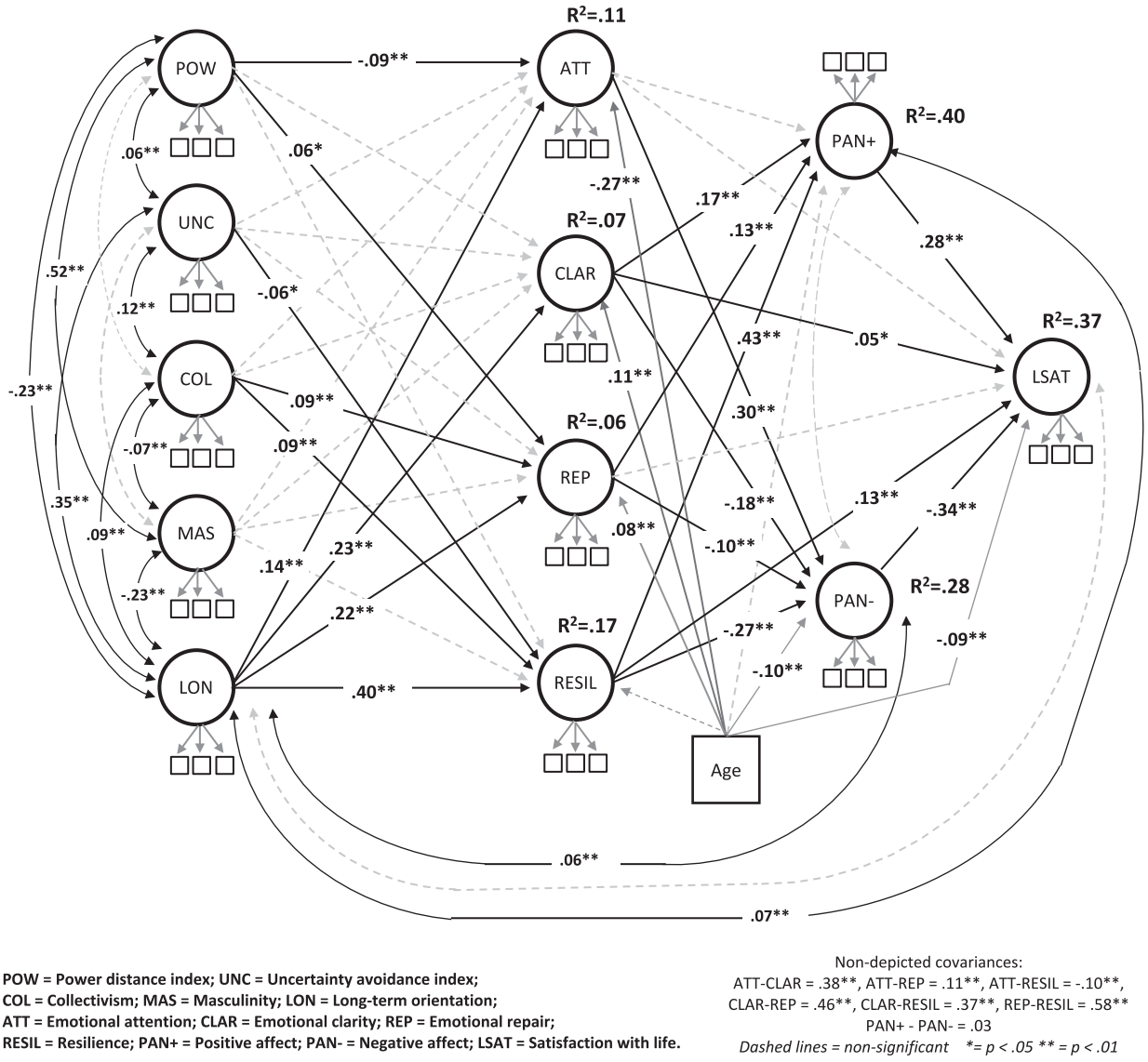


Fig. 2. Standardized parameters of the Model 1a (non-hierarchical model for emotional intelligence/resilience).

CI95% = (0.210; 0.272), $p < .01$], and *negative affect* [$\beta = -0.19$, CI95% = (−0.242; −0.161), $p < .01$], while *emotional repair* significantly predicts *negative affect* [$\beta = -0.11$, CI95% = (−0.181; −0.072), $p < .01$], *positive affect* [$\beta = 0.12$, CI95% = (0.077; 0.213), $p < .01$], and *resilience* [$\beta = 0.47$, CI95% = (0.423; 0.526), $p < .01$]. The model includes *resilience* as a variable that partially accounts for the associations between EI and the target variables, with significant statistical links to *positive affect* [$\beta = 0.45$, CI95% = (0.383; 0.502), $p < .01$], *negative affect* [$\beta = -0.25$, CI95% = (−0.281; −0.160), $p < .01$], and *life satisfaction* [$\beta = 0.14$, CI95% = (0.072; 0.207), $p < .01$]. EI dimensions collectively explain 41 % of *resilience* variance, while *resilience*, *positive affect*, and *negative affect* account for 37 % of *life satisfaction* variance. However, the role of *resilience* in partially accounting for these associations remains unclear, as no significant differences in overall fit emerged compared to Model 1a. Comparing Models 1a and 1b reveals notable similarities in path coefficients and explained variances across EI, *resilience*, and SWB, with the exception of a strong positive path from *emotional repair* to *resilience* in Model 1b ($\beta = 0.47$). Anyway, correlations between EI and *resilience* in Model 1a are strong for *clarity* [$\beta = 0.37$, CI95% = (0.332; 0.410), $p < .01$] and *repair* [$\beta = 0.58$, CI95% = (0.545; 0.611), $p < .01$], and negative and weak for *attention* [$\beta = -0.10$, CI95% = (−0.146; −0.056), $p < .01$].

Results indicate that *positive* and *negative affect* statistically account for the associations between EI (except for *attention,* which is linked to *life satisfaction* only through *negative affect*) and *life satisfaction*, as well as between *resilience* and *life satisfaction* in both models (Table 2). The results indicate that none of the indirect effects from EI (*attention, clarity*, and *repair*) to *life satisfaction* through *resilience* were statistically significant. Each estimate was accompanied by a bootstrapped 95 % confidence interval based on 1000 resamples, and all intervals included zero (e.g., for *attention*: 95 % CI [0.000, 0.014]; for *clarity*: 95 % CI [−0.001, 0.017]; and *repair*: 95 % CI [−0.003, 0.011]). Given that both the hierarchical (1b) and non-hierarchical (1a) models demonstrated virtually identical fit, these findings support the non-hierarchical model (1a), suggesting that *resilience* does not function as a significant intermediary between EI and *life satisfaction* in this sample. Thus, the more parsimonious non-hierarchical structure is better supported by the data.

3.4. Are both models invariant across gender?

Given the non-significant differences in overall fit between the competing models, we conducted an invariance study across gender using both structural equation models. We employed the classic measurement invariance scheme, progressing from configural to strict levels

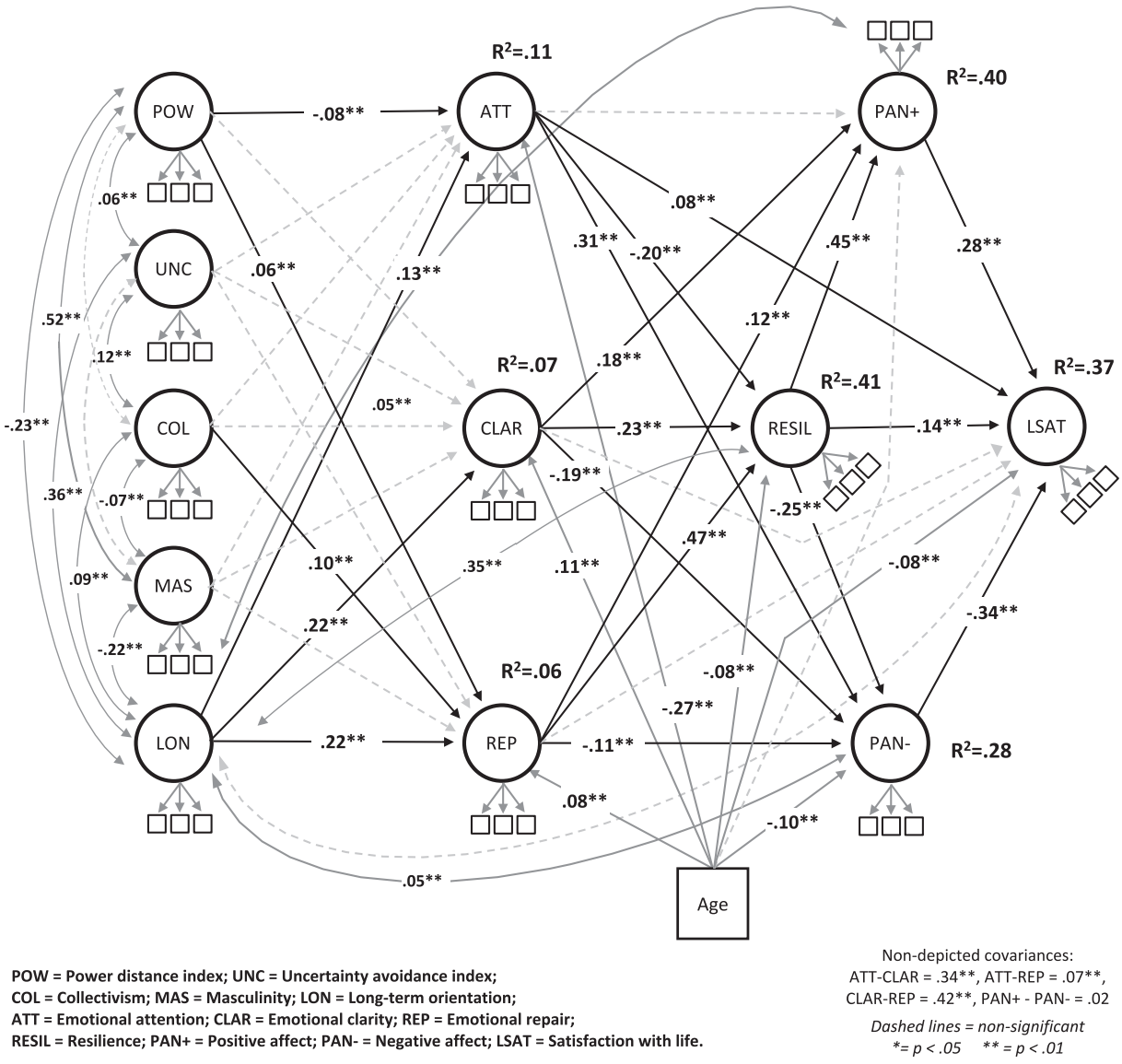


Fig. 3. Standardized parameters of Model 1b (hierarchical model with emotional intelligence/resilience structure).

plus mean equality. Additionally, we tested a model constraining path coefficients across groups (regressions). Table 3 presents the overall goodness-of-fit indices for all tested levels and model comparisons for Models 1a and 1b.

Despite statistically significant scaled chi-square fit comparison tests at all levels, each model maintains excellent fit (RMSEA <0.05). The gradual deterioration in fit indices with increasing parameter restrictions is minimal, with RMSEA only worsening from 0.038 to 0.040 in both models; no significant differences were observed across all invariance levels for both models. Given the large sample size and high power (1-beta = 0.999), we can reasonably assume complete invariance of Models 1a and 1b, including regression coefficients, across gender subsamples.

4. Discussion

Given the pervasive global concern regarding citizens' mental health and the pivotal role of SWB in human functioning, it is of paramount importance to elucidate the factors that augment individual well-being. This study endeavors to investigate the predictive capacity of cultural values, EI, and resilience on SWB. To address this aim, we conducted an empirical comparison of two models grounded in extant literature, seeking to ascertain the more plausible framework (objective 1). However, the high degree of similarity between the models precludes a definitive preference for one over the other based on the available empirical evidence. Therefore, the results of both models have been analyzed.

4.1. Do cultural dimensions predict EI and resilience?

Results revealed diverse relationships of cultural variables on EI (objective 2), with model 1a showing more significant coefficients and stronger associations. Power distance negatively predicted attention and positively repair in both models, aligning with Gunkel et al.'s (2014) findings for the Chinese subsample regarding emotional appraisal and Spanish/Russian subsamples regarding regulation. Collectivism positively predicted repair in both models, in line with Gunkel et al.'s (2014) findings for the Turkish, U.S. and the pooled sample. Finally, long-term orientation positively predicted attention, clarity and repair in both models, in accordance with Gunkel et al.'s (2014, 2016) findings. These authors found that long-term orientation predicted EI (Gunkel et al., 2016); emotional appraisal in Chinese, German, Indian, Russian, Spanish, Turkish and the pooled samples (Gunkel et al., 2014); and regulation in Chinese, Russian, Turkish and the pooled samples. To sum up, our

Table 2
Parameters, bootstrapped standard errors, and significance levels of indirect effects in both Model 1a and Model 1b involving EI, Resilience, positive and negative affect, and life satisfaction.

Model 1a

Effect	Estimate	SE	z-value	*p*	Bootstrapped CI95%	Standard value
ATT → PAN+ → LSAT	−0.006	0.008	−0.737	0.461	−0.021; 0.010	−0.005
ATT → PAN- → LSAT	−0.122	0.015	−8.297	<0.0001	−0.152; −0.093	−0.102
CLAR → PAN+ → LSAT	0.057	0.011	5.186	<0.0001	0.038; 0.081	0.047
CLAR → PAN- → LSAT	0.075	0.013	5.932	<0.0001	0.051; 0.099	0.062
REP → PAN+ → LSAT	0.040	0.010	3.981	<0.0001	0.020; 0.061	0.033
REP → PAN- → LSAT	0.043	0.012	3.504	<0.0001	0.021; 0.069	0.035
RESIL → PAN+ → LSAT	0.122	0.016	7.680	<0.0001	0.091; 0.155	0.126
RESIL → PAN- → LSAT	0.079	0.012	−0.737	<0.0001	0.057; 0.105	0.082

Model 1b

Effect	Estimate	SE	z-value	*p*	Bootstrapped CI95%	Standard value
ATT → PAN+ → LSAT	−0.006	0.007	−0.773	0.439	−0.020; 0.009	−0.005
ATT → PAN- → LSAT	−0.122	0.015	−8.344	<0.001	−0.153; −0.095	−0.102
ATT → RESIL → LSAT	**0.006**	**0.004**	**1.688**	**0.091**	**0.000; 0.014**	**0.006**
CLAR → PAN+ → LSAT	0.057	0.011	5.210	<0.001	0.038; 0.081	0.047
CLAR → PAN- → LSAT	0.075	0.013	5.979	<0.001	0.053; 0.102	0.062
CLAR → RESIL → LSAT	**0.007**	**0.005**	**1.552**	**0.121**	**−0.001; 0.017**	**0.006**
REP → PAN+ → LSAT	0.040	0.010	4.006	<0.001	0.022; 0.061	0.033
REP → PAN- → LSAT	0.043	0.012	3.467	<0.001	0.019; 0.067	0.035
REP → RESIL → LSAT	**0.005**	**0.004**	**1.244**	**0.214**	**−0.003; 0.011**	**0.004**
RESIL → PAN+ → LSAT	0.122	0.015	7.906	<0.001	0.092; 0.154	0.126
RESIL → PAN- → LSAT	0.079	0.013	6.198	<0.001	0.054; 0.107	0.082

Table 3
Invariance analysis of models 1a and 1b across self-reported gender (females/males) from the configural to the regression coefficients constrained levels.

Model 1a	Scaled χ^2	*df*	Scaling factor	RMSEA (CI90%)	AIC	BIC	SRMR	CFI	Scaled $\Delta\chi^2$	ΔRMSEA	ΔCFI
Configural	17,896	5280	1.116	0.038 (0.038–0.039)	649,372	652,823	0.056	0.859	–	–	–
Weak	18,033	5342	1.117	0.038 (0.037–0.039)	649,413	652,486	0.057	0.858	109.6**	0.000 ns	0.001 ns
Strong	18,699	5404	1.116	0.039 (0.038–0.039)	650,009	652,704	0.057	0.852	629.0**	0.001 ns	0.006 ns
Strict	19,233	5478	1.125	0.039 (0.039–0.040)	650,626	652,870	0.058	0.846	300.1**	0.000 ns	0.006 ns
Strict+Means	19,580	5490	1.124	0.040 (0.039–0.040)	650,988	653,158	0.059	0.843	519.9**	0.001 ns	0.003 ns
Regressions	19,758	5531	1.124	0.040 (0.039–0.040)	651,099	653,019	0.061	0.841	148.7**	0.000 ns	0.002 ns

Model 1b	Scaled χ^2	*df*	Scaling factor	RMSEA (CI90%)	AIC	BIC	SRMR	CFI	Scaled $\Delta\chi^2$	ΔRMSEA	ΔCFI
Configural	17,897	5280	1.116	0.038 (0.038–0.039)	649,373	652,824	0.056	0.859	–	–	–
Weak	18,034	5342	1.117	0.038 (0.037–0.039)	649,415	652,487	0.057	0.858	109.5**	0.000 ns	0.001 ns
Strong	18,699	5404	1.116	0.039 (0.038–0.039)	650,009	652,704	0.057	0.852	627.4**	0.001 ns	0.006 ns
Strict	19,234	5478	1.125	0.039 (0.039–0.040)	650,628	652,871	0.058	0.846	300.3**	0.000 ns	0.006 ns
Strict+Means	19,582	5490	1.124	0.041 (0.040–0.041)	650,989	653,159	0.059	0.843	641.7**	0.002 ns	0.003 ns
Regressions	19,760	5529	1.124	0.040 (0.039–0.040)	651,105	653,037	0.061	0.841	141.4**	0.001 ns	0.002 ns

* = $p < .05$. ** = $p < .01$. ns = non-significant.

results showed that long-term orientation demonstrated the strongest relationship on EI, and despite methodological differences in EI measurement (WLEIS vs. TMMS), our findings largely align with Gunkel et al.'s results, with some notable exceptions.

Resilience was negatively predicted by uncertainty avoidance, while collectivism and long-term orientation emerged as positive predictors (objective 3), with the latter having the strongest effect. These findings suggest that individuals from collectivistic societies who are comfortable with uncertainty and ambiguity, and who value future-oriented virtues such as perseverance and thrift, tend to be more resilient. These results align with the ecological interpretation of resilience proposed by Panter-Brick and Eggerman (2012) and Ungar (2012), emphasizing the significance of cultural dimensions in explaining how individuals navigate adverse environments.

4.2. Does resilience help explain the association between EI and SWB?

The analysis of both models elucidated distinct predictive patterns among EI components and SWB dimensions (objective 5). Emotional attention emerged as a predictor of negative affect (in both models) and life satisfaction (only in Model 1b), while emotional clarity and repair demonstrated predictive capacity for both positive and negative affect (in both models). Emotional attention (in Model 1b) and clarity (in Model 1a) directly predicted life satisfaction, a finding that diverges from extant literature in the first case, which typically identifies emotional clarity and repair as robust predictors of life satisfaction (Delhom et al., 2017;Palmer et al., 2002 ; Palomera & Brackett, 2006). Furthermore, resilience exhibited consistent predictive relationships across both models (objective 7), positively predicting positive affect and life satisfaction, while negatively predicting negative affect. These results suggest that individuals with elevated resilience scores tend to

experience enhanced positive affect and life satisfaction, concomitant with diminished negative affect (Liu et al., 2013; Miranda & Cruz, 2022; Yang et al., 2022; Zeidner et al., 2012).

However, the role of resilience in these relationship dynamics merits further examination. Results from Model 1b revealed that all three dimensions of EI significantly predicted resilience (objective 4), with emotional repair exhibiting the most robust effect. Individuals demonstrating high levels of emotional clarity and repair manifested enhanced resilience, whereas those with elevated emotional attention displayed diminished resilience scores (Palomera & Brackett, 2006; Trigueros et al., 2020). On the other hand, results indicated that none of the indirect effects from EI dimensions to life satisfaction through resilience (objective 6) were statistically significant. Given that both the hierarchical (1b) and non-hierarchical (1a) models demonstrated virtually identical fit, these findings support the non-hierarchical model (1a), suggesting that resilience does not function as a significant intermediary between EI and life satisfaction in this sample.

4.3. *Predictors of affective balance on life satisfaction: does it assume a statistical linking role?*

Results from both models demonstrated that positive affect positively predicted life satisfaction, whereas negative affect predicted life satisfaction negatively (objective 9). These findings indicate that individuals experiencing more positive affects report higher life satisfaction, whereas those experiencing more negative affects report lower life satisfaction. While these results align with previous studies (Palmer et al., 2002; Palomera & Brackett, 2006), our findings diverge in that negative affect exhibited a stronger predictive relationship with life satisfaction in both models, contrary to earlier research which found positive affect to be the stronger predictor.

Furthermore, the results indicate that positive and negative affect statistically account for the associations between emotional clarity and life satisfaction, as well as between emotional repair and life satisfaction (objective 8). Additionally, negative affect helps explain the association between emotional attention and life satisfaction. These findings are consistent with Kong et al.'s (2019) research, which identified independent statistical contributions of positive and negative affect in the relationship between EI and life satisfaction. Moreover, the results support Zeidner et al.'s (2012) *affective mediation model*, suggesting that positive and negative affect help explain the link between EI and life satisfaction. Notably, positive and negative affect also serve as connecting variables in the relationship between resilience and life satisfaction, highlighting the complex interplay among emotional competencies, resilience, affect, and life satisfaction. This complex network of relationships underscores the multifaceted nature of SWB and its determinants.

4.4. *Do the models exhibit gender invariance?*

Results demonstrated complete invariance across male and female subsamples (objective 10), consistent with findings from Kong and Zhao (2013). This suggests that the structural relationships between EI, resilience, and SWB operate similarly for both genders.

4.5. *Limitations*

This study's limitations include its focus on a Spanish sample, resulting in a relatively homogeneous cultural context. Future research should incorporate data from diverse cultural backgrounds, potentially utilizing Ronen and Shenkar's (2013) eleven cultural clusters. Likewise, it would have been interesting to include socioeconomic status as an exogenous covariate of latent factors, as it may restrict the generalizability of our findings to populations with broader socioeconomic status distributions. Additionally, the cross-sectional design may have introduced biases in estimating the direct and indirect relationships, necessitating cautious interpretation. Longitudinal designs in future studies would facilitate a more comprehensive exploration of the mediation processes proposed in the models.

5. Conclusions

Despite its limitations, this study offers several strengths. It utilizes a large adult sample, addressing a gap in literature predominantly focused on university students. The comprehensive approach to analyzing these relationships provides novel insights: (1) Long-term orientation most strongly influences EI and resilience; (2) EI dimensions differentially predict resilience and SWB components; (3) Resilience does not function as an explanatory variable in the relationships between EI and SWB; (4) Resilience predicts SWB dimensions; (5) Affects predict life satisfaction; (6) Positive affect helps explain the relationship between clarity/repair and life satisfaction, while negative affect plays a similar explanatory role between EI dimensions and life satisfaction; and (7) The models demonstrate gender invariance. To sum up, the findings showed that cultural values predict EI and resilience, and those constructs, in turn, exert both direct and indirect effects on adult life satisfaction. Therefore, these results provide valuable information that could be taken into account to design interventions to improve life satisfaction among adults.

CRediT authorship contribution statement

Albert Sesé: Writing – original draft, Methodology, Formal analysis, Conceptualization. **Igor Esnaola:** Writing – original draft, Project administration, Data curation, Conceptualization. **Pablo Fernández-Berrocal:** Writing – original draft, Data curation, Conceptualization. **Patxi Léon-Guereño** Writing – original draft, Data curation, Conceptualization. **Lorea Azpiazu:** Writing – original draft, Data curation, Conceptualization.

Ethics approval statement

The study adhered to the ethical standards of the Declaration of Helsinki and was approved by the Committee on Ethics of Research and Teaching (CEID) from the University of the Basque Country (UPV/EHU).

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Declaration of competing interest

Authors claim that the do not have any conflicts of interest.

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We did not preregister the research in an independent, institutional registry. We did not preregister the research with or without an analysis plan in an independent, institutional registry.

Data availability

Data from this study is shared at https://figshare.com/s/6b18aee0dc7b59f924ed.

References

Atienza, F. L., Pons, D., Balaguer, I., & García-Merita, M. (2000). Propiedades psicométricas de la Escala de Satisfacción con la Vida en Adolescentes. *Psicothema, 12*(2), 314–319.

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling, 14*, 464–504. https://doi.org/10.1080/10705510701301834

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*, 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Delhom, I., Gutierrez, M., Lucas-Molina, B., & Meléndez, J. (2017). Emotional intelligence in older adults: Psychometric properties of the TMMS-24 and relationship with psychological well-being and life satisfaction. *International Psychogeriatrics, 29*(8), 1327–1334. https://doi.org/10.1017/S1041610217000722

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology, 54*, 403–425. https://doi.org/10.1146/annurev.psych.54.101601.145056

Etikan, I., Alkassim, R., & Abubakar, S. (2016). Comparision of snowball sampling and sequential sampling technique. *Biometrics and Biostatistics International Journal, 3*(1), 55. https://doi.org/10.15406/bbij.2016.03.00055

Eysenbach, G. (2004). Improving the quality of web surveys: The checklist for reporting results of internet e-surveys (cherries). *Journal of Medical Internet Research, 6*(3), Article e34. https://doi.org/10.2196/jmir.6.3.e34

Fernández-Berrocal, P., Extremera, N., & Ramos, N. (2004). Validity and reliability of the Spanish modified version of the Trait Meta-Mood Scale. *Psychological Reports, 94*, 751–755. https://doi.org/10.2466/pr0.94.3.751-755

Gunkel, M., Schlägel, C., & Engle, R. L. (2014). Culture's influence on emotional intelligence: An empirical study of nine countries. *Journal of International Management, 20*(2), 256–274. https://doi.org/10.1016/j.intman.2013.10.002

Gunkel, M., Schlägel, C., & Taras, V. (2016). Cultural values, emotional intelligence, and conflict handling styles: A global study. *Journal of World Business, 51*(4), 568–585. https://doi.org/10.1016/j.jwb.2016.02.001

Hofstede, G. (1980). *Culture's consequences: International differences in work related values.* Sage.

Hofstede, G. (2001). *Culture's consequences: comparing values, behaviors, institutions and organizations across nations.* Sage.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Joiner, T. E., Jr., Sandín, B., Chorot, P., Lostao, L., & Marquina, G. (1997). Development and factor analytic validation of the SPANAS among women in Spain: (more) cross-cultural convergence in the structure of mood. *Journal of Personality Assessment, 68*, 600–615. https://doi.org/10.1207/s15327752jpa6803_8

Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., & Rosseel, Y. (2022). SemTools: Useful tools for structural equation modeling. R package version 0.5-6. https://CRAN.R-project.org/package=semTools.

Kong, F., Gong, X., Sajjad, S., Yang, K., & Zhao, J. (2019). How is emotional intelligence linked to life satisfaction? The mediating role of social support, positive affect and negative affect. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being, 20*(8), 2733–2745. https://doi.org/10.1007/s10902-018-00069-4

Kong, F., & Zhao, J. (2013). Affective mediators of the relationship between trait emotional intelligence and life satisfaction in young adults. *Personality and Individual Differences, 54*, 197–201. https://doi.org/10.1016/j.paid.2012.08.028

Korkmaz, S., Goksuluk, D., & Zararsiz, G. (2014). MVN: An R package for assessing multivariate normality. *The R Journal, 6*(2), 151–162. https://doi.org/10.32614/RJ-2014-031

Leitgöb, H., Seddig, D., Asparouhov, T., Behr, D., Davidov, E., De Roover, K., Jak, S., Meitinger, K., Menold, N., Muthén, B., Rudnev, M., Schmidt, P., & van de Schoot, R. (2023). Measurement invariance in the social sciences: Historical development, methodological challenges, state of the art, and future perspectives. *Social Science Research, 110*, Article 102805. https://doi.org/10.1016/j.ssresearch.2022.102805

Liu, Y., Wang, Z., & Lü, W. (2013). Resilience and affect balance as mediators between trait emotional intelligence and life satisfaction. *Personality and Individual Differences, 54*(7), 850–855. https://doi.org/10.1016/j.paid.2012.12.010

Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjective well-being and adaptation to life events: A meta-analysis. *Journal of Personality and Social Psychology, 102*(3), 592–615. https://doi.org/10.1037/a0025948

Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child Development, 85*(1), 6–20. https://doi.org/10.1111/cdev.12205

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence. In P. Salovey, & D. J. Sluyter (Eds.), *3. Emotional development and emotional intelligence: Educational implications* (pp. 3–31). Basic Books.

Miranda, J. O., & Cruz, R. N. C. (2022). Resilience mediates the relationship between optimism and well-being among Filipino university students. *Current Psychology, 41*, 3185–3194. https://doi.org/10.1007/s12144-020-00806-0

Notario-Pacheco, B., Solera-Martínez, M., Serrano-Parra, M. D., Bartolomé-Gutiérrez, R., García-Campayo, J., & Martínez-Vizcaíno, V. (2011). Reliability and validity of the Spanish version of the 10 item Connor-Davidson Resilience Scale (10-item CD-RISC) in Young adults. *Health and Quality of Life Outcomes, 9*, 63–68. https://doi.org/10.1186/1477-7525-9-63

Oyserman, D., Kemmelmeier, M., & Coon, H. M. (2002). Cultural psychology, a new look: Reply to Bond (2002), Fiske (2002), Kitayama (2002), and Miller (2002). *Psychological Bulletin, 128*(1), 110–117. https://doi.org/10.1037/0033-2909.128.1.110

Palmer, B., Donaldson, C., & Stough, C. (2002). Emotional intelligence and life satisfaction. *Personality and Individual Differences, 33*(7), 1091–1100. https://doi.org/10.1016/S0191-8869(01)00215-X

Palomera, R., & Brackett, M. (2006). Frequency of positive affect as a possible mediator between perceived emotional intelligence and life satisfaction. *Ansiedad y Estrés, 12*(2–3), 231–239.

Panter-Brick, C., & Eggerman, M. (2012). Understanding culture, resilience and mental health: The production of hope. In M. Ungar (Ed.), *The social ecology of resilience: A handbook of theory and practice* (pp. 368–386). Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-0586-3.

R Core Team. (2022). *R: A language and environment for statistical computing.* Vienna, Austria: R Foundation for Statistical Computing. http://www.R-project.org/.

Ronen, S., & Shenkar, O. (2013). Mapping world cultures: Cluster formation, sources and implications. *Journal of International Business Studies, 44*(9), 867–897. https://doi.org/10.1057/jibs.2013.42

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1–36. https://doi.org/10.18637/jss.v048.i02

Rutkowski, L., & Svetina, D. (2014). Assessing the hypothesis of measurement invariance in the context of large-scale international surveys. *Educational and Psychological Measurement, 74*, 31–57. https://doi.org/10.1177/0013164413498257

Sánchez-Álvarez, N., Extremera, N., & Fernández-Berrocal, P. (2016). The relation between emotional intelligence and subjective well-being: A meta-analytic investigation. *The Journal of Positive Psychology, 11*(3), 276–285. https://doi.org/10.1080/17439760.2015.1058968

Schumann, J. H., Wangenheim, F. V., Stringfellow, A., Yang, Z., Blazevic, V., Praxmarer, S., … Jiménez, F. R. (2010). Cross-cultural differences in the effect of received word-of-mouth referral in relational service exchange. *Journal of International Marketing, 18*(3), 62–80. https://doi.org/10.1509/jimk.18.3.62

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology-an introduction. *The American Psychologist, 55*, 5–14. https://doi.org/10.1037/0003-066X.55.1.5

Suldo, S., & Huebner, E. S. (2006). Is extremely high life satisfaction during adolescence advantageous? *Social Indicators Research, 78*, 179–203. https://doi.org/10.1007/s11205-005-8208-2

Tov, W., & Diener, E. (2009). The well-being of nations: Linking together trust, cooperation, and democracy. In E. Diener (Ed.), *Social indicators research series: Vol. 37. The science of well-being: The collected works of Ed Diener* (pp. 155–173). Springer Science + Business Media. https://doi.org/10.1007/978-90-481-2350-6_7.

Trigueros, R., Padilla, A. M., Aguilar-Parra, J. M., Rocamora, P., Morales-Gázquez, M. J., & López-Liria, R. (2020). The influence of emotional intelligence on resilience, test anxiety, academic stress and the Mediterranean diet. A study with university students. *International Journal of Environmental Research and Public Health, 17*(6), Article 2071. https://doi.org/10.3390/ijerph17062071

Ungar, M. (Ed.). (2012). *The social ecology of resilience: A handbook of theory and practice.* Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-0586-3.

Yang, C., Xia, M., & Zhou, Y. (2022). How is perceived social support linked to life satisfaction for individuals with substance-use disorders? The mediating role of resilience and positive affect. *Current Psychology, 41*(5), 2719–2732. https://doi.org/10.1007/s12144-020-00783-4

Zeidner, M., Matthews, G., & Roberts, R. D. (2012). The emotional intelligence, health, and well-being nexus: What have we learned and what have we missed? *Applied Psychology. Health and Well-Being, 4*(1), 1–30. https://doi.org/10.1111/j.1758-0854.2011.01062.x