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Temperament and Psychological Well-Being in Emerging Adulthood: The Mediating Role of Perceived Social Support

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The university period is a stage of life often associated with lower levels of psychological well-being and life satisfaction, highlighting the need to investigate factors contributing to this decline. This study aimed to examine the relationship between temperament and psychological well-being, and the potential mediating role of perceived social support, in a sample of Spanish university students (N = 332; M = 19.28). Participants completed a set of self-report instruments, including the Adult Temperament Questionnaire, the Multidimensional Scale of Perceived Social Support, and the Scales of Psychological Well-Being. Results showed that high levels of negative emotionality, and low levels of effortful control and surgency, significantly predicted poorer outcomes across multiple psychological well-being dimensions. Perceived social support, particularly from family and friends, also contributed significantly to higher well-being, more so than support from other significant individuals. Furthermore, complementary and indirect-only mediation effects of perceived social support were identified between temperament constructs and well-being dimensions. Overall, these findings enhance our understanding of the interplay between temperament, social support, and psychological well-being during emerging adulthood, within the Spanish cultural context.

Key words: temperament, psychological well-being, perceived social support, emerging adulthood, Spanish culture

Introduction

Although human interest in well-being dates back to ancient times, recent decades have seen increased attention toward identifying factors linked to a fuller and happier life (Dolan et al., 2008; Koydemir et al., 2021; Oishi & Westgate., 2022). In psychology, this interest is reflected in the rise of positive psychology, which emphasizes behaviors and processes that promote optimal functioning (Waters et al., 2022), offering a scientific framework for the study of well-being (Park & Peterson, 2009). This study draws on two philosophical traditions that define well-be-

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ing differently (for a more detailed review, see Ryan & Deci, 2001). The hedonic tradition gives rise to subjective well-being, defined by the predominance of positive emotions and general life satisfaction (Diener, 2000). In contrast, the eudaimonic tradition emphasizes psychological well-being, which involves realizing personal potential and finding a purpose in life (Deci & Ryan, 2008; Ryff & Keyes, 1995). Although both forms are linked to better physical (Boehm & Kubzansky, 2012; Steptoe et al., 2015) and mental health (Arslan, 2023; Huppert, 2009), psychological well-being is particularly relevant today amid a growing critique of hedonism in Western societies, where many are questioning whether pleasure alone is sufficient for happiness.

Currently, a range of studies address psychological well-being from the perspective of Ryff (1989), whose multidimensional approach to the concept receives broad support from the scientific community. The Scales of Psychological Wellbeing (PWB; Ryff, 1989) is a 120-item questionnaire (equally distributed among 6 dimensions) used as a measuring instrument for psychological well-being and its various dimensions (self-acceptance, positive relationships with other people, autonomy, environmental mastery, purpose in life, and personal growth), from which shorter versions have been designed (van Dierendok, 2004). An advantage of these versions is that they solve some problems of factorial validity of the original instrument, by eliminating items whose content overlapped in more than one scale (van Dierendok et al., 2008).

The period of higher education is a life moment which correlates with lower levels of psychological well-being, as students face an increase in academic pressure and adaptation to new forms of learning (Morales et al., 2020), and developmental challenges linked to emerging adulthood (Arnett, 2000). Moreover, the transition to university life brings about profound changes in students' social relationships. Many students move away from their families and long-standing friends and must establish new peer networks within the university context. This reconfiguration of social ties can affect the availability and perceived quality of social support, ultimately affecting students' psychological well-being (Farrer et al., 2024; Holliman et al., 2022). Although they value happiness highly (Kim-Prieto et al., 2005), the stress of this life stage may impact their psychological balance more than in other groups. Thus, identifying the protective and risk factors is key for effective interventions.

Among these factors, personality traits like conscientiousness, extraversion, agreeableness, and openness are positively related to well-being, while neuroticism is negatively related (Jackman et al., 2020; Joshanlo; 2023; Kokko et al., 2013; Ryff, 2013; Slobodskaya et al., 2020). Despite temperament being the biological basis of personality and more stable in early life, few studies have explored its influence on psychological well-being (García & Siddiqui, 2009). According to Rothbart's psychobiological model (Rothbart & Derryberry, 1981), temperament comprises four traits: surgency/extraversion (SE), negative affect (NA), effortful control (EC), and orienting sensitivity (OS) (Evans & Rothbart, 2007). This model distinguishes motivational and attentional processes, enriching the analysis of emotional and cognitive functioning.

Existing research linking temperament and well-being is mostly hedonic (e.g., Galián & Ato, 2023; Satici, 2019). From a eudaimonic perspective, García and Siddiqui (2009) found that adolescents with high positive emotionality and low negative emotionality scored higher in psychological well-being, especially in self-acceptance and environmental mastery. Given that temperament underlies Big Five personality traits (Evans & Rothbart,

2007), similar associations are expected. For example, NA should relate negatively to well-being, while SE, EC, and OS – linked to extraversion, conscientiousness, agreeableness, and openness – should relate positively (Joshanlo; 2023; Kokko et al., 2013; Ryff, 2013; Slobodskaya et al., 2020). Also, the ways in which temperament constructs affect psychological well-being may be influenced by cultural factors. For example, extraversion may be more relevant in cultural contexts where social life is particularly valued, while high levels of negative reactivity may be more or less penalized depending on the constraints derived from the cultural context (Boiger et al., 2013). Still, research is needed to explore the distinct contribution of each trait to specific dimensions of well-being, and whether temperament affects well-being directly or through mediating variables.

Social support may be one such mediator. It plays a crucial role in mitigating the effects of stress and enhancing mental health (Dambi et al., 2018). Social support includes both received and perceived support. Interestingly, studies show only weak associations between them (Eagle et al., 2019; Haber et al., 2007), and perceived support tends to better predict mental health outcomes (Hellfeldt et al., 2020; Wilson et al., 2020). An explanation for this weak association is offered by Uchino (2009), who believes there are differences in one's ability to positively interpret any sign of social support received. Thus, people who interpret support more positively – often those with traits like optimism or extraversion – tend to report higher perceived support (Uchino, 2009; Uchino et al., 2008). Thus, temperamental traits such as low NA and high SE, EC, and OS may promote a "positive psychosocial profile" that enhances perceived support and, in turn, psychological well-being (Han et al., 2021; Swickert et al., 2002; Swickert el al., 2010; Uchino et al., 2008; Udayar et al., 2020).

No prior studies have examined perceived social support as a mediator between temperament and psychological well-being. Exploring this relationship could enhance the development of tailored support programs for university students. Furthermore, the study by Lyon et al. (1988) confirms the importance of discriminating between various sources of perceived social support, understanding that these can contribute differently to individuals' mental health depending on factors such as age or cultural context. In our case, when studying subjects in emerging adulthood, we might expect a more significant explanation of well-being when support is from friends and other significant people, as with previous studies (Aydin et al., 2017). However, cultural context can affect expected distribution regarding the relevance of each source on well-being. Thus, as Spanish culture is considered to be collectivistic (Goodwin et al., 2000; Gouveia et al., 2003), and family is paramount even in early adulthood, it is possible that social support from this source has greater significance than expected, compared to other cultures. On the other hand, marriage or cohabitation has been significantly delayed in Spain (Tobío, 2001), which could affect the importance of the effect that perceived social support from other significant people has on psychological well-being within Spanish culture.

In sum, this study aims to examine the relationship between temperament and psychological well-being in Spanish university students, and the mediating role of perceived social support. Specifically, we hypothesize: 1) surgency, effortful control, and orienting sensitivity will positively predict well-being, while negative affect will predict it negatively; 2) perceived social support – particularly from family and friends – will positively predict well-being; and 3) perceived support will mediate the relationship between temperament and psychological well-being.

Materials and Method

Participants

The sample consisted of undergraduate students enrolled in Education degrees in Murcia University. Researchers visited classes to explain the objectives of the research and invited students to participate voluntarily. This group was accessible to the researchers and provided an appropriate context for examining the phenomena under investigation. After excluding 17 participants (15 due to age being outside the specified age range and 2 due to missing responses), approximately 0.5% of missing data were identified and imputed using the *cart* imputation method implemented in the R *mice* package (van Buuren & Groothuis-Oudshoorn, 2011). The final sample comprised 332 students (M = 19.38, SD = 1.17); 22.53% were male and 77.47% female.

Procedure

Ethical approval was obtained from the Murcia University Ethics Committee. All participants provided written informed consent. Data collection was conducted through supervised questionnaires, with trained researchers available to resolve queries. All statistical analyses were run with R *lavaan* (version 0.6.19, Rosseel, 2012), R *semtools* (version 0.5.7, Jorgensen et al., 2022), and R *psych* (version 2.4.3; Revelle, 2024).

Instruments

Temperament. Temperament was measured using the short form of the *Adult Temperament Questionnaire* (ATQ; Evans & Rothbart, 2007), comprising 77 items on a 7-point Likert scale. This questionnaire measures four broad temperament dimensions: *negative affectivity* (fear, frustration, sadness, and discomfort subscales), *effortful control* (activation, attentional, and inhibitory control subscales), *surgency/extraversion* (sociability, high intensity pleasure, and positive affect subscales), and *orienting sensitivity* (neutral perceptual, affective perceptual, and associative sensitivity subscales). Confirmatory factor analysis (CFA) using the lavaan package (Rosseel, 2012) with Robust Maximum Likelihood estimation showed a modest fit (CFI = .91, TLI = .90, SRMR = 0.07, RMSEA = 0.026). Alpha and omega scale reliabilities ranged from .79 to .63.

Perceived Social Support. Perceived social support was assessed using the Spanish version of the *Multidimensional Scale of Perceived Social Support* (PSS; Zimet et al., 1990), which includes 12 items divided into family, friends, and significant others subscales. CFA revealed excellent fit (CFI = .99, TLI = .99, SRMR = 0.034, RMSEA = 0.027). Alpha and omega reliabilities ranged between .91 and .87.

Psychological Well-Being. Psychological well-being was measured using the Spanish version of the 29-item *Ryff Scales* (Díaz et al., 2006; van Dierendonck, 2004), covering six dimensions: 1) *self-acceptance*, or positive attitudes towards oneself, including awareness of one's own limitations; 2) *positive relationships with other people*, understood as the development of lasting, warm and rewarding social relationships; 3) *autonomy*, referring to the individual capacity to maintain independence and personal authority in decision-making; 4) *environmental mastery*, or personal ability to choose or create environments aligned with one's own needs and capabilities; 5) *purpose in life*, understood as the ability to set goals which provide meaning to one's own existence; and 6) *personal growth*, which refers to the development of personal potential, and capabilities throughout life. CFA showed

good fit (CFI = .97, TLI = .96, SRMR = 0.068, RMSEA = 0.028), with alpha and omega reliabilities between .78 and .59.

Data Analysis

Structural relationships among temperament (ATQ), psychological well-being (PWB), and perceived social support (PSS) were examined using the Structural After Measurement (SAM) approach to Structural Equation Modeling (SEM; Rosseel & Loh, 2024) with R lavaan.

Unlike traditional SEM, which estimates measurement and structural models simultaneously, SAM first estimates measurement parameters and then structural relations using corrected standard errors. This reduces sensitivity to minor misspecifications and bias found in factor score regression (Croon, 2002; Devlieger et al., 2016).

Measurement models were assessed according to established fit indices (Hu & Bentler, 1999; Hooper et al., 2008): CFI ≥ .95, RMSEA ≤ .06, and SRMR ≤ .08. Only models meeting acceptable fit criteria were used for structural analysis.

The structural model included four ATQ dimensions, three PSS sources, and six PWB scales, resulting in 24 combinations analyzed via path models (see Figure 1).

Mediation effects were tested using the R *manymemo* package (Cheung & Cheung, 2023), computing two-sided 95% asymmetric confidence intervals for indirect effects using 25,000 Monte Carlo repetitions, following Preacher and Selig (2012).

Findings

Descriptive statistics (means, standard deviations, Pearson correlations) for composite indicators are shown in Table 1.

Correlation analysis revealed that negative emotionality was negatively associated with self-acceptance, autonomy, and environmental mastery, whereas effortful control and surgency were positively related to well-being scales. Orienting sensitivity was marginally associated with personal growth. All perceived social support scales, particularly from friends and family, showed posi-

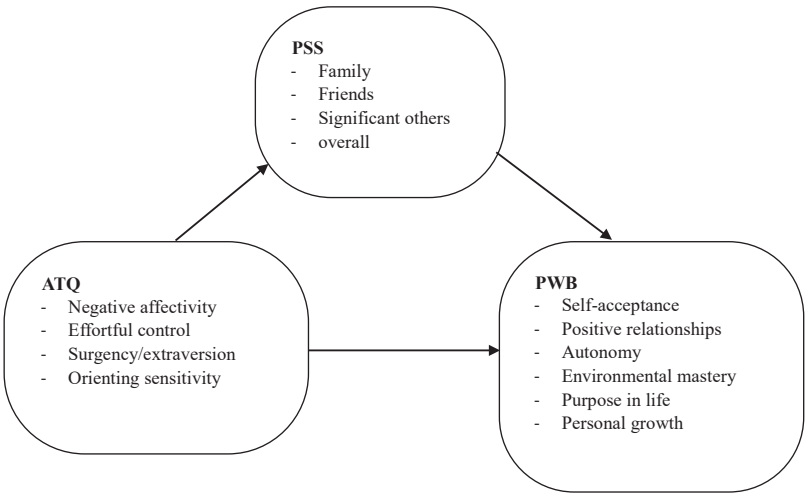

Figure 1 General structural model used in this research.

Table 1 *Descriptive measures (mean, standard deviation and Pearson correlation) from composite mean scores of latent variable indicators*

			ATQ1	**ATQ2**	**ATQ3**	**ATQ4**	**PSS1**	**PSS2**	**PSS3**	**PWB1**	**PWB2**	**PWB3**	**PWB4**	**PWB5**	**PWB6**
	mean	*SD*	Pearson correlation matrix (italics upper diagonal are Holm's corrected probabilities)												
ATQ1	4.34	0.75	1.00	*0.00*	*0.04*	*0.00*	*1.00*	*1.00*	*1.00*	*0.00*	*0.17*	*0.00*	*0.00*	*0.17*	*1.00*
ATQ2	4.10	0.65	-0.34	1.00	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.01*	*1.00*	*0.00*	*0.00*	*0.00*	*0.84*
ATQ3	5.07	0.76	-0.17	0.00	1.00	*0.05*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
ATQ4	4.88	0.67	0.30	0.01	0.17	1.00	*0.36*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.08*
PSS1	5.68	1.16	0.10	0.05	0.25	-0.13	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.62*	*0.00*	*0.00*	*0.00*
PSS2	5.89	1.11	-0.04	0.05	0.28	-0.01	0.22	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.02*
PSS3	6.11	1.03	0.00	0.09	0.26	0.07	0.35	0.28	1.00	*0.00*	*0.00*	*0.87*	*0.00*	*0.00*	*0.00*
PWB1	4.45	0.91	-0.32	0.20	0.36	-0.09	0.39	0.28	0.26	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
PWB2	4.58	1.00	-0.15	0.09	0.36	-0.01	0.30	0.67	0.29	0.41	1.00	*0.00*	*0.00*	*0.00*	*0.00*
PWB3	3.93	0.91	-0.28	0.24	0.21	0.00	0.12	0.24	0.11	0.41	0.37	1.00	*0.00*	*0.00*	*0.00*
PWB4	4.16	0.73	-0.31	0.25	0.32	-0.01	0.39	0.26	0.27	0.63	0.42	0.44	1.00	*0.00*	*0.00*
PWB5	4.53	0.84	-0.15	0.29	0.35	-0.01	0.32	0.27	0.32	0.68	0.31	0.27	0.60	1.00	*0.00*
PWB6	4.94	0.79	0.02	0.11	0.27	0.16	0.24	0.18	0.32	0.48	0.31	0.26	0.37	0.50	1.00

Note. Dimensions of ATQ (Temperament). 1: NA – Negative Affect, 2: EC – Effortful Control, 3: SE – Surgency/Extraversion, 4: OS – Orienting Sensitivity. Dimensions of PSS (Perceived social support). 1: Family, 2: Friends, 3: Others.

Dimensions of PWB (Psychological wellbeing). 1: Self-acceptance, 2: Positive relations with other people, 3: Autonomy, 4: Environmental mastery, 5: Purpose in life; 6: Personal growth

tive correlations with most well-being dimensions.

Measurement model fit indices and reliability data for each block (latent variable + indicators) are summarized in Table 2.

All measurement blocks had acceptable fit (p > .05) and reliability coefficients (ω = .70–.93), except for Environmental Mastery (ω = .56).

Structural model fit statistics are shown in Table 3.

Table 2 *Latent variables, Chi-square overall fit of measurement blocks and model-based reliabilities*

Latent variables in measurement blocks (1) Exogenous; (2) Endogenous	Number of indicators	Chi-Square (degrees of freedom) and probabilities of global fitting		Model-based Reliabilities
(1) ATQ1 (Negative Affect)	21	128.328 (128); p = .475		0.867
(1) ATQ2 (Effortful control)	17	93.824 (93); p = .428		0.716
(1) ATQ3 (Surgency/Extraversion)	16	73.048 (74); p = .509		0.825
(1) ATQ4 (Orienting sensitivity)	14	67.669 (66); p = .420		0.707
(2) PWB1 (Self-acceptance)	4	0.123 (2); p = .940		0.784
(2) PWB2 (Positive relationships with others)	5	2.525 (2); p = .283		0.803
(2) PWB3 (Autonomy)	6	0.951 (3); p = .813		0.815
(2) PWB4 (Environmental mastery)	5	1.631 (3); p = .652		0.556
(2) PWB5 (Purpose in life)	5	0.272 (1); p = .602		0.795
(2) PWB6 (Personal growth & development)	4	0.004 (1); p = .950		0.697
(2) PSS1 (Family)	4	0.867 (1); p = .352		0.923
(2) PSS2 (Friends)	4	0.551 (2); p = .759	46.957 (46)	0.925
(2) PSS3 (Others)	4	0.123 (2); p = .940	p = .474	0.900

Note. Chi-squared was calculated separately for each dimension of PSS (1-3) but also for multiple (summed) scale.

Table 3 *SAM global fitting measures for the structural models tested*

ATQ	PWB1 *Self-acceptance*	PWB2 *Positive relations*	PWB3 *Autonomy*	PWB4 *Environment mastery*	PWB5 *Purpose in life*	PWB6 *Personal Growth*
1: Negative Affect						
CFI	0.95	0.94	0.94	0.95	0.96	0.96
RMSR	0.062	0.063	0.060	0.061	0.059	0.058
RMSEA CI 95%	.028 – .039	.034 – .044	.032 – .043	.028 – .039	.025 – .038	.024 – .037
2: Effortful Control						
CFI	0.95	0.94	0.95	0.94	0.94	0.94
RMSR	0.055	0.054	0.056	0.055	0.055	0.055
RMSEA CI 95%	.028 – .041	.032 – .044	.030 – .042	.028 – .041	.032 – .044	.031 – .044
3: Surgency/Extraversion						
CFI	0.95	0.94	0.94	0.95	0.95	0.95
RMSR	0.061	0.057	0.061	0.058	0.057	0.056
RMSEA CI 95%	.034 – .046	.035 – .047	.035 – .047	.029 – .042	.031 – .044	.030 – .043
4: Orienting sensitivity						
CFI	0.96	0.94	0.94	0.95	0.95	0.96
RMSR	0.056	0.060	0.061	0.061	0.057	0.056
RMSEA CI 95%	.027 – .041	.036 – .048	.033 – .045	.030 – .043	.029 – .042	.026 – .041

Note. CFI: Comparative Fix Index; SRMR: Standardized Root Mean Square Residual; RMSEA: Root Mean Square Error of Approximation.

All models met approximated SEM fit criteria (CFI ≥ .94, RMSEA ≤ .06, SRMR ≤ .08).

Standardized path coefficients for all 24 combinations of temperament and well-being dimensions are summarized in Table 4.

Significant indirect effects via perceived social support are shown in Table 5, distinguishing complementary (partial) mediation, indirect-only (full mediation), and direct-only effects (Zhao et al., 2010).

Complementary mediation effects were observed for perceived family support in the relationship between negative emotionality and self-acceptance, environmental mastery, and purpose in life. For surgency, mediation was found via all three support sources, affecting multiple well-be-

Table 4 *Estimators of structural models with ATQ and PSS on PWB latent variables*

ATQ		*PWB1: Self-acceptance*	*PWB2: Positive relations*	*PWB3: Autonomy*	*PWB4: Environmental mastery*	*PWB5: Purpose in life*	*PWB6: Personal Growth*
1:	NA → PSS1	-0.26**	-0.26**	-0.26**	-0.26**	-0.26**	-0.26**
	NA → PSS2	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12
	NA → PSS3	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	NA → PWB	-0.41***	-0.10	-0.30***	-0.45***	-0.19**	0.01
	PSS1 → PWB	0.20***	0.03	-0.01	0.24***	0.12**	0.10**
	PSS2 → PWB	0.15**	0.74***	0.10*	0.11*	0.12**	0.03
	PSS3 → PWB	0.09	0.05	0.04	0.13*	0.14**	0.14**
2:	EC → PSS1	0.16	0.16	0.16	0.16	0.16	0.16
	EC → PSS2	0.06	0.06	0.06	0.06	0.06	0.06
	EC → PSS3	0.18	0.18	0.18	0.18	0.18	0.18
	EC → PWB	0.28**	0.08	0.30**	0.43**	0.32***	0.05
	PSS1 → PWB	0.26***	0.04	0.03	0.29***	0.14***	0.10**
	PSS2 → PWB	0.17***	0.74***	0.12**	0.14*	0.13**	0.03
	PSS3 → PWB	0.04	0.04	0.01	0.06	0.10*	0.14**
3:	SE → PSS1	1.05***	1.05***	1.05***	1.05***	1.05***	1.05***
	SE → PSS2	1.14***	1.14***	1.14***	1.14***	1.14***	1.14***
	SE → PSS3	1.02***	1.02***	1.02***	1.02***	1.02***	1.02***
	SE → PWB	0.99***	0.40*	0.25	0.87**	0.58**	0.39*
	PSS1 → PWB	0.21***	0.02	0.03	0.26***	0.12**	0.08*
	PSS2 → PWB	0.09	0.71***	0.10*	0.07	0.08*	0.01
	PSS3 → PWB	0.01	0.02	0.01	0.05	0.09*	0.13**
4:	OS → PSS1	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21
	OS → PSS2	0.00	0.00	0.00	0.00	0.00	0.00
	OS → PSS3	0.22	0.22	0.22	0.22	0.22	0.22
	OS → PWB	-0.08	0.09	-0.04	-0.03	0.03	0.25**
	PSS1 → PWB	0.26***	0.05	0.04	0.31***	0.15***	0.13***
	PSS2 → PWB	0.17**	0.75***	0.12**	0.14*	0.13**	0.04
	PSS3 → PWB	0.07	0.03	0.03	0.09	0.12*	0.11**

Note. Dimensions of ATQ. 1: NA – Negative Affect, 2: EC – Effortful Control, 3: SE – Surgency/Extraversion, 4: OS – Orienting Sensitivity.
Dimensions of PSS. 1: Family, 2: Friends, 3: Others.
Dimensions of PWB are cited on columns.
*** $p < .001$; ** $p < .01$; * $p < .05$

Table 5 *Individual and multiple (summed) indirect effects of structural models (ATQ on PWB mediated by PSS)*

	PWB1	PWB2	PWB3	PWB4	PWB5	PWB6
ATQ NA						
NA→ PSS1 → PWB	– 0.052 (1) [–.099/–.014]			–0.061 (1) [–.123/–.015]	–0.031 (1) [–.062/–.007]	
NA→ PSS → PWB	– 0.070 (1) [–.133/–.011]			– 0.076 (1) [–.155/–.010]	– 0.043 (1) [–.091/–.001]	
ATQ SE						
SE → PSS1 → PWB	0.223 (1) [.087/.387]			0.275 (1) [.095/.506]	0.126 (1) [.036/.246]	0.083 (1) [.008/.183]
SE → PSS2 → PWB		0.810 (3) [.385/1.288]	0.109 (3) [.011/.235]		0.095 (1) [.004/.207]	
SE → PSS3 → PWB					0.094 (1) [.008/.201]	0.128 (1) [.032/.253]
SE → PSS → PWB	0.340 (1) [.144/.568]	0.853 (3) [.406/1.305]	0.145 (3) [.018/.304]	0.402 (1) [.144 / .716]	0.314 (1) [.138 / .528]	0.212 (1) [.069 / .387]

Note. ATQ NA (Negative Affect), ATQ SE (Surgency/Extraversion), refers to ATQ scales, PSS1-PSS3 and PSS (summed) refers to Perceived Social Support scales and PWB1-PWB6 to Psychological Well-Being scales.
All indirect effects are calculated with 25000 repetitions of 95% CI of Monte Carlo method.
According to categories of Zhao (2010) classification: 1): Complementary (partial) mediation; 3): Indirect-only (complete) mediation, and the empty cells are all 4): Direct-only non-mediation.

ing dimensions, supporting the role of social support as a partial mediator in these associations.

Discussion

The main aim of this study was to analyze the relationship between temperament and psychological well-being in Spanish university students, and the mediating role of perceived social support. Our results confirmed the initial hypotheses: surgency and effortful control predicted higher well-being, while negative emotionality was associated with lower levels. Perceived social support predicted higher well-being, particularly when received from family or friends. Mediation effects of perceived social support were confirmed for negative emotionality and surgency.

Relationship between Temperament and Psychological Well-Being

The results suggest that individuals scoring higher in surgency and effortful control tend to experience greater psychological well-being, whereas those with higher negative emotionality report lower levels of well-being. Orienting sensitivity positively predicted only personal growth, suggesting that high sensitivity to internal and external stimuli supports mainly self-perception of personal development.

Negative emotionality and effortful control were associated with the same well-being dimensions but in opposite directions. Greater negative emotionality or lower self-regulation related to lower self-acceptance, autonomy, environmental mastery, and purpose in life. It is understandable that subjects who frequently and intensely exhibit emotions such as anger, sadness, or frustration (and/or struggle to regulate these adaptively), have a more negative self-image, thereby diminishing their self-esteem (Arslan, 2009; Estrada et al., 2023; Heinonen et al., 2002; Robins et al., 2010). Correspondingly, it is expected that they show themselves as less autonomous and more insecure in managing certain as-

pects of their environment, and that they exhibit a lower sense of purpose in life. Though to date there are no studies which have analyzed the relationship between temperament (from the Rothbart model) and psychological well-being, previous studies on personality traits have revealed a line of results similar to those in our study (Abbott et al., 2008; Joshanlo; 2023; Kokko et al., 2013; Ryff, 2013; Slobodskaya et al., 2020).

It is noticeable however, that the constructs of negative emotionality and effortful control do not show an association with the well-being scales related to relationships with others and personal growth. This is peculiar, as young people with problems regulating negative and intense emotions would be expected to be more apathetic and discouraged at the idea of developing new behaviors and attitudes, and at greater risk of negative relationships with their environment. Nevertheless, our data suggest these traits are not actually an obstacle to the ability of students to discover their own potential, and in this case, other external variables such as family organization and functioning might be more relevant, as shown by other studies (Ju et al., 2023; Whittaker & Robitschek, 2001). Likewise, the high intensity and frequency of negative emotions and inability to regulate these to adequate levels does not have to interfere with the quality of the bond in relationships with others, since this may depend more on aspects like empathy or loyalty, which are not directly related to these temperament traits. The cultural factor may also explain this lack of significance, to the degree that high emotional intensity in social relationships may not be as "penalized" in Spanish culture, when compared to Eastern culture (Boiger et al., 2013, Matsumoto et al., 2008).

Surgency showed a strong positive association with the dimension of positive relationships, likely because sociability is highly valued in Spanish culture. Surgency also predicted self-acceptance, environmental mastery, purpose in life, and personal growth. Numerous studies on personality and well-being corroborate a significant contribution to well-being and mental health for the "homologous" personality trait to surgency, extraversion (Abbott et al., 2008; Kokko et al., 2013; Johansloo, 2023; Lamers et al., 2012; Ryff, 2013). However, surgency was not significantly associated with autonomy, indicating that sociability does not necessarily enhance self-directed independence during emerging adulthood. A greater number of studies would be necessary to inquire further into the meaning of this relationship.

Relationship between Perceived Social Support and Psychological Well-Being

Consistent with previous research (Hellfeldt et al., 2020; Wilson et al., 2020), perceived social support was positively related to psychological well-being. More specifically, support from family and friends had a stronger association compared to support from other significant people, which mainly predicted personal growth and purpose in life. The scale of relationships with other significant people usually refers to support received from a partner or special person with whom one shares a life project. This is one reason why this scale may have made a smaller contribution to young people's well-being in the context of Spanish culture, where emerging adults increasingly delay living with a partner, and continue to live with their families while focusing on expanding their social network of friends (Tobío, 2001). In contrast, a study by Aydin et al. (2017) reported the highest levels of perceived social support from other significant people in a sample of Turkish university students. As marriages at a young age are quite common in Turkish culture, this data

would reinforce the idea that cultural beliefs may explain how different sources of support contribute to psychological well-being at different developmental stages.

Perceived social support from family was associated with psychological well-being scales of self-acceptance, environmental mastery, purpose in life, and personal growth, across all temperament constructs. Prior studies corroborate the relationship between family support and better adjustment, particularly in childhood and adolescence (Catanzaro & Laurent, 2004; Hickey et al., 2017; Scholte et al., 2001). Though at the ages included in our study, a decrease in the impact of family support on the well-being of individuals would have been expected, the collectivistic nature of Spanish culture (Gouveia et al., 2003) might explain why family support remains crucial for emerging adults in this period. In Spain, on average, young people live well into their twenties with their families of origin (Tobío, 2001), thus support from this source may be far more significant than for young people of this age from other, less collectivistic cultures, where most live outside the home and have a less close and dependent relationship with their families (Manzi et al., 2006). Thus, it is surprising that perceived social support from the family did not predict well-being related to the scale of relationships with others. Nevertheless, in a more detailed analysis of the scale, in the reduced version, most items refer to well-being linked to friendships, which would explain why the source of family support was not significant. Furthermore, family support did not predict the autonomy well-being scale, probably as the concept of the Spanish family somehow implies dependence between members, and to stimulate the feeling of independence and autonomy of Spanish youth, the support perceived by people outside the family, such as friends or other significant people is more relevant. Similarly, a recent study in a sample of adolescents by Wang et al. (2023), found a concurrent link between the variables of autonomy and support from friends.

Perceived support from friends was related to most well-being dimensions (self-acceptance, positive relationships, autonomy, environmental mastery, and purpose in life), reflecting the central role of peer relationships during this life stage (Petruzzellis & Craig, 2016). However, personal growth was more associated with family and partner support, likely due to the reflective and intimate nature of this dimension.

The Mediating Role of Perceived Social Support

We also explored the mediating effect of perceived social support in the relationship between temperament and psychological well-being. To our knowledge, no previous studies have examined this type of relationship between the variables analyzed. Mediation effects were found for negative emotionality and surgency but not for effortful control or orienting sensitivity.

Negative emotionality was indirectly associated with lower well-being through lower perceived family support, which in turn was associated with lower self-acceptance, environmental mastery, and purpose in life. This suggests that negative emotionality was not only directly related to lower well-being, but also indirectly through its association with a negative psychosocial profile, consistent with findings on neuroticism and perceived support (Han et al., 2021; Swickert et al., 2010; Uchino et al., 2008). It is also noticeable that negative emotionality was associated with perceived family support, and not with perceived social support from other sources. This might be due both to the relevant role of family in the lives of emerging adults in Spanish

culture, as well as to the fact that they may feel freer to express high-intensity negative emotions in the family environment, which might ultimately be related to how they perceive support in that context.

For surgency, complementary mediation associations were observed via all three sources of perceived social support. Surgency was associated with higher perceived family support, which was broadly associated with higher well-being across scales; with higher perceived support from friends, which was related to relationships, autonomy, and purpose in life; and with higher perceived support from significant others, being related to introspective dimensions such as purpose in life and personal growth. This pattern of results suggests that, together with the direct, positive association between surgency and the aforementioned well-being scales, it also was indirectly associated with well-being through higher perceptions of support from family, friends, and other significant people, allowing us to draw a range of conclusions. Firstly, that surgency is related to the development of a positive psychosocial profile that is also associated with more positive interpretations of signals of support, similar to that indicated by studies on extraversion, perceived social support, and well-being (Swickert et al., 2002; Uchino et al., 2008; Udayar et al., 2020). Furthermore, how this trait was indirectly associated with well-being appears to differ depending on the source of perceived support, such that when surgency is associated with higher levels of perceived family support, well-being is higher on almost all scales; and when it is associated with higher perceptions of support from friends, this association is limited to the scales of relationships with others, autonomy, and purpose in life. It is noteworthy that when surgency is associated with higher perceived support from other significant people, it is related to well-being on scales involving greater reflective and introspective processes, such as purpose in life and personal growth. Thus, it appears that intimacy established with other significant people contributes to the fact that young people with higher levels of surgency set meaningful life goals and develop these based on their strengths and potential.

Overall, our findings confirmed that temperament and perceived social support jointly contribute to explaining psychological well-being in university students. Surgency and effortful control were positively associated with well-being, whereas negative emotionality showed a negative association. Perceived social support – particularly from family and friends – was associated with well-being and partially accounted for the associations between temperament and well-being. These results underscore the interplay between individual temperament traits and the quality of social relationships in the psychological adjustment of students during emerging adulthood.

Practical Implications, Limitations, and Future Research

Our findings highlight temperament as a key factor in understanding psychological well-being among Spanish university students. Specifically, high negative emotionality and low effortful control emerged as risk factors, suggesting a need for interventions targeting emotional self-regulation skills. In contrast, surgency appears to protect well-being, emphasizing the value of social skills training to foster supportive bonds.

Given the critical role of perceived social support for Spanish university students, future intervention programs targeting psychological well-being should involve families and peer groups. In the particular case of students who exhibit discomfort regarding their level of autonomy, professionals (e.g., psychologists, educational counsellors, academic advisors,

social workers, etc.) should focus on groups of friends, as the perceived support from this source appears key to well-being relative to this scale. In contrast, well-being scales with a more introspective component, such as purpose in life and personal growth, must be worked on through the support of sources which offer greater intimacy, such as family and other significant people. These findings suggest that university counseling services and psychological professionals could promote programs and initiatives that help students strengthen these personal and relational resources.

Some limitations of our study should be noted. First, the cross-sectional design limits causal interpretations. Although temperament is considered an antecedent, longitudinal studies are needed to better understand the directionality of the relationships observed. Second, reliance on self-report measures introduces potential bias, which could be addressed in future studies using observational or mixed-method approaches. Finally, a further limitation of the study is the highly uneven gender distribution in the sample, with men comprising only 22.53% of participants, which may affect the generalizability of the findings.

Despite these limitations, we believe our study advances knowledge of how temperament and social support interact to shape psychological well-being, and highlights the moderating role of cultural context in emerging adulthood.

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