

RESEARCH ARTICLE

Dark and Light Triad Traits, Age, and Female Teacher Well-Being – A Parallel Mediation Analysis

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History

Received: 2 July 2025

Accepted: 8 December 2025

Published: 22 January 2026

Citation

Orosova, O., Liptakova, J., & Gajdosova, B. (2026). Dark and light triad traits, age, and female teacher well-being: A parallel mediation analysis. *European Journal of Mental Health*, 21, e0049, 1–15.
<https://doi.org/10.5708/EJMH.21.2026.0049>

Introduction: Despite its importance, teacher well-being remains underexplored, particularly regarding teacher-related traits. Identifying factors that shape well-being across career stages, especially the relationship between well-being and age, is essential.

Aim: The aim of the present study is to examine the association between age, a set of Dark and Light Triad traits, and female teacher well-being indicators.

Methods: 1,114 female teachers (mean age = 46, $SD = 9.12$) completed an online, self-reported questionnaire which included the Short Dark Triad Scale, the Light Triad Scale, and the Teacher Subjective Well-being Questionnaire. Confirmatory factor analysis, Pearson's correlation, hierarchical regression, moderation, and mediation analyses were carried out.

Results: The mediation analysis showed a significant direct effect of older age on higher school connectedness ($\beta = .11, p < .001, 95\% \text{ CI } [.05, .16]$) and on higher teaching efficacy ($\beta = .18, p < .001, 95\% \text{ CI } [.13, .23]$). Age was positively associated with narcissism, which in turn enhanced both teaching efficacy and school connectedness, as well as with Faith in Humanity, which contributed to higher school connectedness. Conversely, lower levels of Humanism were associated with reduced teaching efficacy.

Conclusions: The current study highlights key findings on the relationships between age, Dark Triad and Light Triad traits, and teacher well-being, showing that Narcissism (Dark Triad) and Faith in Humanity or Humanism (Light Triad) significantly mediated the associations between age and school connectedness and teaching efficacy, thereby offering insights into areas necessary to improve well-being throughout female teachers' careers.

Keywords: the dark triad, the light triad, school connectedness, teaching efficacy, age

Introduction

The COVID-19 pandemic heightened recognition that teaching is a demanding profession (Kupers et al., 2022), with teaching considered one of the most stressful professions (Schleicher, 2022). Consequently, research attention has increasingly focused on teacher well-being, with a surge in publications over the last ten years (Tran et al., 2024). This trend reflects the growing recognition that teacher well-being not only affects professional growth and motivation but also influences student success, as engaged teachers positively impact student outcomes (Branand & Nakamura, 2016; Burić & Macuka, 2018,). In the Slovak Republic, only 5% of teachers feel valued, compared to an OECD average of 26%. Slovakian pupils also perceive their teachers as among the least enthusiastic (OECD, 2020a, 2020b).

Teacher Well-Being

Building on this context, research into teacher well-being has expanded beyond stress and burnout to consider the efficacy of positive subjective well-being indicators such as positive emotions and cognitions (Renshaw et al., 2015). Acton and Glasgow (2015) support this claim by recognizing the shift in focus from merely managing stress, burnout, and resilience to nurturing approaches that foster happiness and positive functioning, thereby enhancing and enriching teachers' professional experiences in the long term. They synthesize research on teacher well-being and define it as encompassing hedonic, eudaimonic, and relational dimensions, highlighting personal and professional fulfillment, satisfaction, purpose, and happiness, developed collaboratively with colleagues and pupils (Acton & Glasgow, 2015).

This study is based on the teacher well-being model (Renshaw et al., 2015), which consists of the most commonly researched positive dimensions of school connectedness (prosocial relationships) and teaching efficacy (self-efficacy). School connectedness reflects teachers' sense of support and relationships with colleagues in the workplace (Macovei et al., 2023; Renshaw et al., 2015), whereas teaching efficacy refers to teachers' perceptions of their ability to manage diverse teaching tasks effectively, defined as evaluating one's teaching behaviors as meeting environmental demands (Renshaw et al., 2015). The current study aims to replicate and examine a positive perspective on teacher subjective well-being, presenting evidence that teaching efficacy and school connectedness among Slovak teachers are separate latent indicators of subjective well-being, as confirmed by Renshaw et al. (2015).

The Dark and Light Triads of Personality and Well-Being

Research into teacher personality, including the Five-Factor Model, HEXACO, and the Dark and Light Triads, has enhanced understanding of its role in education (Göncz, 2017). While the Big Five remains dominant, research has shifted towards more individualized traits (Peterson & Palmer, 2021). Over the past two decades, theoretical models portraying personality through the Dark Triad have become increasingly widespread. However, there has recently been a shift towards traits that highlight prosocial qualities such as empathy, compassion, and altruism (Bălan et al., 2023).

The Dark Triad (Paulhus & Williams, 2002) includes three socially aversive traits: Machiavellianism, psychopathy, and narcissism (O'Boyle et al., 2012). Machiavellianism involves manipulation, cynicism, exploitation, and self-interest, with evidence suggesting that it is influenced by environmental factors and can be modified through experience (Jones & Paulhus, 2011). Psychopathy is marked by impulsivity, thrill-seeking, lack of empathy, and disregard for others and societal norms (Dinić & Jevremov, 2021). Narcissism is characterized by grandiosity, entitlement, dominance, and self-centeredness (Dinić & Jevremov, 2021; Jonason & Ferrell, 2016; Jones & Paulhus, 2014).

Although these traits are generally viewed negatively, research has suggested that certain Dark Triad traits can be advantageous in some professions, including teaching, due to qualities such as charm, leadership, assertiveness, and adeptness in impression management (Arif, 2018; Kay & Saucier, 2020). Narcissism may be advantageous for teachers, whereas Machiavellianism and psychopathy are generally seen as drawbacks. These findings are supported by evidence showing that Machiavellianism and psychopathy are negatively associated with well-being, whereas narcissism is positively related to well-being. Machiavellianism and psychopathy are linked to viewing happiness as unattainable, while narcissists hold a positive view of happiness (Joshanloo, 2021).

In contrast, the Light Triad emphasizes positive personality traits linked to prosocial behavior (Bălan et al., 2023). These include Kantianism (seeing people as ends), Humanism (valuing human dignity), and Faith in Humanity, that is, belief in human goodness (Kaufman et al., 2019). These traits are strongly associated with life satisfaction and well-being (Mewara, 2024), as well as psychological resilience and creativity (Khan et al., 2021).

Research has shown that being older and female is associated with higher Light Triad traits, whereas men tend to score higher on Dark Triad traits (Gerymski & Krok, 2019; Pechorro et al., 2024). Moreover, Light Triad traits demonstrate distinct associations with self-transcendence and growth-fostering effects compared to Dark Triad traits (Kaufman et al., 2019). Overall, the Light Triad appears to be associated with a higher overall quality of life than the Dark Triad across various dimensions of well-being and personal growth. Importantly, individuals do not embody solely Light or Dark Triad traits; rather, each person exhibits a unique blend of these characteristics (Kaufman et al., 2019).

Gender, Age, and Teacher Well-Being

Previous research on gender differences in teacher well-being has yielded ambiguous results (Erden et al., 2023; Fu et al., 2022; Hascher & Waber, 2021). For instance, Fu et al. (2022) found that male teachers reported higher subjective well-being scores in happiness, energy, life satisfaction, mood, and emotional control compared to female teachers. Conversely, Özcan (2024) did not find a significant gender difference in teacher well-being. Another study showed that women's well-being was more volatile than men's, although it appeared to demonstrate greater resilience (Blanchflower & Bryson, 2024).

In addition to gender, age and experience have been examined as factors influencing teacher well-being. Fedorov et al. (2020) emphasized the importance of identifying factors impacting teachers' well-being at various career stages in order to enhance professional well-being. Surveys have revealed that more experienced teachers often report lower job satisfaction, higher stress, and reduced levels of well-being (Bricheno et al., 2009). Fedorov et al. (2020) found that teachers' professional well-being generally declines with age, although aspects such as autonomy and self-acceptance remain stable across different age groups. However, Vorkapić and Peloza (2017) found that age and experience are not strong predictors of teachers' well-being.

To explore the role of experience more closely, studies often compare novice and experienced teachers. It is commonly assumed that experienced teachers are experts (Beijaard et al., 2000). Tschannen-Moran and Hoy (2007) found that novices had lower self-belief and depended more on resources and support, while experienced teachers relied more on their own expertise.

Teachers' self-efficacy follows a non-linear U-shaped curve, increasing from early to mid-career and then declining. Female teachers report higher workload stress, greater stress from student behavior, and lower classroom management self-efficacy (Klassen & Chiu, 2010, 2011). Older teachers' declining self-efficacy may stem from age-related changes and perceptions of diminished competence influenced by age stereotypes (Klassen & Chiu, 2010).

Despite these findings, systematic reviews suggest that the evidence remains limited. Hascher and Waber (2021) concluded that age and teaching experience show weak and inconsistent correlations with teachers' subjective well-being. Given the importance of teacher well-being, however, it is surprising how limited the evidence is on teacher-related characteristics and their link to teacher well-being (Schleicher, 2022).

Rationale and Objectives

Despite the somewhat inconsistent findings of previous studies, there is growing support for the assumption that an association exists between age, gender, Dark Triad traits, Light Triad traits, and the examined indicators of teacher well-being. Building on this assumption, previous evidence suggests that teaching efficacy and school connectedness increase with age and years of experience. However, Vorkapić and Peloza (2017) have noted that assessing teacher subjective well-being is most effective when an individual's personality is taken into account, arguing that personality stands as one of the most dependable indicators of subjective well-being.

In light of these considerations, the present study aims to extend existing research by examining the association between age, a set of the Dark Triad and Light Triad traits, and teacher well-being indicators. Accordingly, the study formulated three hypotheses: (i) There is an association between age and well-being indicators. (ii) There is an association between the set of Dark Triad and Light Triad traits and teacher well-being indicators, after controlling for age. (iii) The association between age and well-being indicators is mediated in parallel by the Dark Triad and Light Triad traits.

Methods

Participants and Data Collection

Emails were sent to Slovak teachers under the aegis of the National Institute of Education and Youth (NIVAM) in Bratislava throughout March 2023. A total of 3,649 teachers initially started completing the questionnaire. Overall, 1,267 teachers (1,114 female, 88.8%; mean age = 45.85, $SD = 9.19$) completed the questionnaire. Due to the gender imbalance in the sample, all analyses were restricted to the female subsample (1,114 female teachers; mean age = 46.00, $SD = 9.12$; range = 21–69 years; mean years of practice = 20.07), thereby excluding male participants. The participating female teachers represented pre-school education (2.6%), primary education

(67.0%), and secondary education (29.5%), with 0.9% unreported/unknown. Teachers were informed about the study's objectives and provided voluntary informed consent. All research data were handled confidentially, ensuring the anonymity of the participants at all times. The participants were informed that they could withdraw from the study at any time. The study protocol was reviewed and approved by the Ethics Committee of the Faculty of Arts at P. J. Šafárik University, Number FIL005901/2022. Teachers were surveyed using an online questionnaire administered through the *Qualtrics platform*.

Measures

The original English scales were translated into Slovak using the back-translation method. Prior to the primary phase of the study, the participants answered various questions concerning their demographic information.

The Short Dark Triad

The Short Dark Triad (SD3) serves as a non-clinical assessment of the Dark triad, enabling the examination of empirical associations within normal populations (Jones & Paulhus, 2014). This 27-item measure includes nine items for each subscale assessing Machiavellianism (e.g., "Most people can be manipulated", $\alpha = .70$), narcissism, (e.g., "People see me as a natural leader", $\alpha = .66$), and psychopathy (e.g., "I'll say anything to get what I want", $\alpha = .58$; Jones & Paulhus, 2014). Respondents were asked to indicate the extent to which they agree with each item on a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

In the current study, a confirmatory factor analysis (CFA) was first conducted on the original 27-item, three-factor structure of the SD3. The initial model showed poor fit ($CFI = .68$, $TLI = .65$, $RMSEA = .06$, $SRMR = .07$), which led to the stepwise removal of items with low factor loadings and weak contributions to the model (Items 1, 15, 18, 20, 25, and 26). After these modifications, the resulting model demonstrated improved fit ($CFI = .82$, $TLI = .79$, $RMSEA = .06$, $SRMR = .06$).

Following this refinement process, the final model consisted of eight Machiavellianism items, seven narcissism items, and six psychopathy items, with satisfactory reliability for each factor (Machiavellianism: $\alpha = .69$; narcissism: $\alpha = .68$; psychopathy: $\alpha = .64$). This description provides full transparency regarding the initial model, the applied modifications, and the resulting psychometric properties of the SD3 in the current sample of female teachers.

Light Triad Scale

The 12-item Light Triad Scale (LTS), developed by Kaufman et al. (2019), assesses three dimensions of prosocial orientation. Faith in Humanity reflects the belief that people are fundamentally good (e.g., "I think people are mostly good"). Humanism captures the extent to which individuals value the dignity and worth of each person (e.g., "I tend to treat others as valuable"). Kantianism denotes the inclination to treat others as ends in themselves rather than as means to an end (e.g., "I don't feel comfortable overtly manipulating people to do something I want"). Participants responded using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Although the CFA indicated an acceptable overall model fit ($CFI = .91$, $RMSEA = .05$, $SRMR = .04$), several issues suggest the need for further exploration. Factor 3 showed low loadings (.26 – .38) and poor reliability ($\alpha = .41$), and some items exhibited high residual variances, indicating they were poorly explained by the hypothesized factors. Additionally, the strong correlation between Factor 2 and Factor 3 ($r = .71$) suggests potential overlap or redundancy. Given these findings, an exploratory factor analysis (EFA) was warranted to examine the underlying factor structure, identify the most coherent number of latent factors, and refine the measurement model.

An EFA using oblimin rotation was performed. Based on eigenvalues, parallel analysis, and factor loadings, a two-factor solution provided the most interpretable and statistically supported model. Items with low or cross-loadings (Items 4, 5, 11, 12) were removed in a stepwise manner, resulting in a refined eight-item version of the scale. A subsequent CFA was then conducted to validate this two-factor solution. The final model demonstrated an acceptable fit to the data, $\chi^2(19) = 119.91$, $p < .001$, $CFI = .93$, $TLI = .89$, $RMSEA = .07$ (90% CI [.06, .08]), and $SRMR = .04$.

The first factor, Humanism (five items; Cronbach's $\alpha = .65$), represents a sincere appreciation for others and a moral orientation characterized by honesty, empathy, and respect. This factor comprises the first three items from the original Humanism factor, along with two additional items that were originally assigned to the Kantianism factor in the Light Triad scale. The constituent items are as follows: "I tend to applaud the successes of other peo-

ple,” “I tend to treat others as valuable,” “I enjoy listening to people from all walks of life,” “I prefer honesty over charm,” and “I don’t feel comfortable overtly manipulating people to do something I want”. The second factor, Faith in Humanity (three items; Cronbach’s $\alpha = .68$), reflects a general belief in the inherent goodness and fairness of people. This factor consists of the first three items from the original Light Triad scale factor of the same name. The items are as follows: “I tend to see the best in people,” “I tend to trust that other people will deal fairly with me,” and “I think people are mostly good”. The two latent factors were moderately correlated ($r = .42$), indicating that although both dimensions capture related aspects of prosocial orientation, they represent distinct yet complementary components within this personality framework.

Although the original Light Triad model proposes three factors, a CFA in the present study supported a two-factor structure. Subsequent analyses therefore used these two empirically supported factors while retaining the label “Light Triad” for theoretical consistency.

Well-Being

The Teacher Subjective Well-being Questionnaire (TSWQ) was developed by Renshaw et al. (2015). The TSWQ is an eight-item self-report instrument designed to evaluate teachers’ subjective well-being. The items are answered on a Likert-type response scale ranging from 1 (almost never) to 4 (almost always). The TSWQ comprises two subscales that measure School Connectedness (e.g., “I feel like I belong at this school”) and Teaching Efficacy (e.g., “I am a successful teacher”).

A CFA using maximum likelihood estimation was conducted to test the two-factor model of the well-being scale. The model showed an acceptable fit, $\chi^2(18) = 149.31$, $p < .001$, CFI = .96, TLI = .94, RMSEA = .08, 90% CI [.07, .09], and SRMR = .04. Internal consistency was satisfactory for both factors (School Connectedness: $\alpha = .82$; Teaching Efficacy: $\alpha = .79$) and for the total scale ($\alpha = .84$). Although one item (Item 8) showed a weak negative loading ($\beta = -.06$, $p = .007$), its exclusion worsened the overall model fit, suggesting that it should be retained despite its low contribution. Teaching efficacy and school connectedness among Slovak female teachers were confirmed to be indicators of subjective well-being, as verified by Renshaw et al. (2015).

Statistical Analysis

Statistical analyses were conducted using the open-source software JASP (Version 0.19.3; JASP Team, 2025). Basic descriptive statistics were first computed to summarize the central tendencies and variability of all study variables, providing an initial overview of the dataset and allowing for the identification of potential anomalies. CFA was conducted to verify the factor structure of the measurement scales, ensuring that the observed data adequately fit the theoretically expected latent constructs; the CFA was carried out using default maximum likelihood estimation settings in JASP. Pearson’s correlation analysis was then used to examine the bivariate relationships between the main variables, offering insight into the strength and direction of their linear associations.

Hierarchical multiple regression analyses were conducted separately for school connectedness and teaching efficacy. Each analysis proceeded in two steps. In Step 1, age was entered as the sole predictor to account for its potential association with each dependent variable. In Step 2, the personality traits Machiavellianism, narcissism, psychopathy, humanism, and faith in humanity were added to evaluate their incremental associations beyond age.

As part of the hierarchical regression procedure, all underlying assumptions were thoroughly examined for both dependent variables. The distributions of school connectedness and teaching efficacy were assessed through descriptive statistics and visual inspection, with no apparent irregularities observed. The distribution of model residuals was evaluated using diagnostic plots. The histogram of standardized residuals indicated an approximately symmetric distribution, and the Q–Q plot showed that most residuals closely followed the reference line, suggesting no substantial deviations from normality. The residuals-versus-predicted plot displayed no systematic pattern or funnel shape, indicating that the assumptions of linearity and homoscedasticity were met. Multicollinearity was not a concern, as all tolerance values exceeded .75 and all VIFs were below 1.4.

Mediation analysis was conducted in JASP using the SEM module with maximum likelihood estimation. Standard errors for direct effects were estimated using the delta method. Indirect effects were evaluated using bias-corrected percentile bootstrap confidence intervals based on 5,000 resamples. Missing data were handled using full-information maximum likelihood. Because the mediation model was saturated ($df = 0$), global fit indices were not reported.

Results

Preliminary Analyses

The results of the preliminary analyses are presented in [Table 1](#). A large positive correlation was found between age and years of experience, indicating a collinearity problem; therefore, years of experience were not included in the analyses. A moderate positive correlation was found between school connectedness and teaching efficacy. Age and years of experience were positively correlated with school connectedness, teaching efficacy, and narcissism, one of the Dark Triad personality traits. Humanism was negatively correlated with these variables, whereas age was positively correlated with Faith in Humanity.

Table 1. Descriptive Statistics and Correlation Coefficients Between the Studied Variables

	1	2	3	4	5	6	7	8	9
Age	—								
Years of practice	.84***	—							
School connectedness	.17***	.16***	—						
Teaching efficacy	.24***	.25***	.48***	—					
Machiavellianism	-.06	-.06	-.15***	-.06	—				
Narcissism	.17***	.19***	.22***	.35***	.18***	—			
Psychopathy	-.03	-.03	-.16***	-.14***	.44***	.19***	—		
Humanism	-.11***	-.10***	.10***	.17***	-.21***	-.00	-.21***	—	
Faith in Humanity	.06*	.04	.34***	.18***	-.25***	.01	-.23***	.27***	—
<i>M</i>	45.98	20.07	12.47	13.11	17.96	16.99	8.62	21.13	10.87
<i>SD</i>	9.12	10.33	2.68	1.94	5.14	4.62	2.80	2.25	2.11

Regression Analyses

School Connectedness

The hierarchical multiple regression for school connectedness is summarized in [Table 2](#). In the first step, age was entered and showed a significant positive association with school connectedness, explaining 2.9% of the variance, $F(1, 1111) = 33.72, p < .001$, indicating that older female teachers tended to report higher school connectedness. After adding Machiavellianism, narcissism, psychopathy, humanism, and Faith in Humanity in the second step, the model improved significantly, $\Delta R^2 = .17, \Delta F(6, 1106) = 44.70, p < .001$, resulting in a total R^2 of .20. In the final model, narcissism and Faith in Humanity were positively associated with school connectedness, indicating that female teachers with higher levels of these traits reported higher school connectedness. In contrast, Machiavellianism and psychopathy were negatively associated, indicating that female teachers with higher levels of these traits reported lower school connectedness. Humanism was not significantly associated, and age remained a significant positive predictor.

For school connectedness, both hypotheses were supported. Age showed a significant positive association with school connectedness, confirming the first hypothesis. Consistent with the second hypothesis, the set of Dark Triad and Light Triad traits explained additional variance beyond age, with the exception of humanism. Narcissism and Faith in Humanity were positively associated with school connectedness, whereas Machiavellianism and psychopathy were negatively associated. Overall, the results support the predicted associations between age, personality traits (except humanism), and school connectedness.

Table 2. Hierarchical Multiple Regression Predicting School Connectedness

	B	SE B	β	t	p
Step 1					
Age	0.05	0.01	.17	5.81	<.001
Step 2					
Age	0.03	0.01	.11	3.87	<.001
Machiavellianism	-0.03	0.02	-.07	-2.10	.036
Narcissism	0.13	0.02	.23	8.15	<.001
Psychopathy	-0.10	0.03	-.10	-3.22	.001
Humanism	0.000	0.03	.00	0.00	.999
Faith in Humanity	0.37	0.04	.29	10.17	<.001

Note. Step 1: $R^2 = .029$, $F(1, 1111) = 33.72$, $p < .001$; Step 2: $R^2 = .195$, $\Delta R^2 = .166$, $\Delta F(6, 1106) = 44.70$, $p < .001$.

Teaching Efficacy

The hierarchical regression for teaching efficacy is summarized in **Table 3**. Age entered in the first step was significantly positively associated with teaching efficacy, explaining 5.7% of the variance, $F(1, 1111) = 67.40$, $p < .001$, indicating that older female teachers reported higher teaching efficacy. After adding the personality traits in the second step, the model improved significantly, $\Delta R^2 = .17$, $\Delta F(5, 1106) = 47.50$, $p < .001$, resulting in a total R^2 of .22. In the final model, narcissism, humanism, and Faith in Humanity were positively associated with teaching efficacy, indicating that higher levels of these traits corresponded to higher teaching efficacy. Psychopathy was negatively associated, indicating that female teachers with higher psychopathy scores reported lower teaching efficacy. Machiavellianism was not significantly associated, and age remained a significant positive predictor.

For teaching efficacy, both hypotheses were supported. Age showed a significant positive association with teaching efficacy, confirming the first hypothesis. Consistent with the second hypothesis, the set of Dark Triad and Light Triad traits explained additional variance beyond age, with the exception of Machiavellianism. Narcissism, humanism, and Faith in Humanity were positively associated with teaching efficacy, whereas psychopathy was negatively associated. Overall, the results support the predicted associations between age, personality traits (except Machiavellianism), and teaching efficacy.

Table 3. Hierarchical Multiple Regression Predicting Teaching Efficacy

	B	SE B	β	t	p
Step 1					
Age	0.05	0.01	.24	8.21	<.001
Step 2					
Age	0.04	0.01	.18	6.74	<.001
Machiavellianism	0.01	0.01	.01	0.38	.708
Narcissism	0.15	0.01	.34	12.42	<.001
Psychopathy	-0.11	0.02	-.15	-5.01	<.001
Humanism	0.11	0.02	.13	4.68	<.001
Faith in Humanity	0.09	0.03	.09	3.33	<.001

Note. Step 1: $R^2 = .057$, $F(1, 1111) = 67.40$, $p < .001$; Step 2: $R^2 = .224$, $\Delta R^2 = .167$, $\Delta F(5, 1106) = 47.50$, $p < .001$.

Mediation Analysis

A parallel mediation analysis was conducted to examine whether Machiavellianism, narcissism, psychopathy, humanism, and Faith in Humanity mediated the association between age and two outcome variables: school connectedness and teaching efficacy. **Figure 1** summarizes the results of the mediation model.

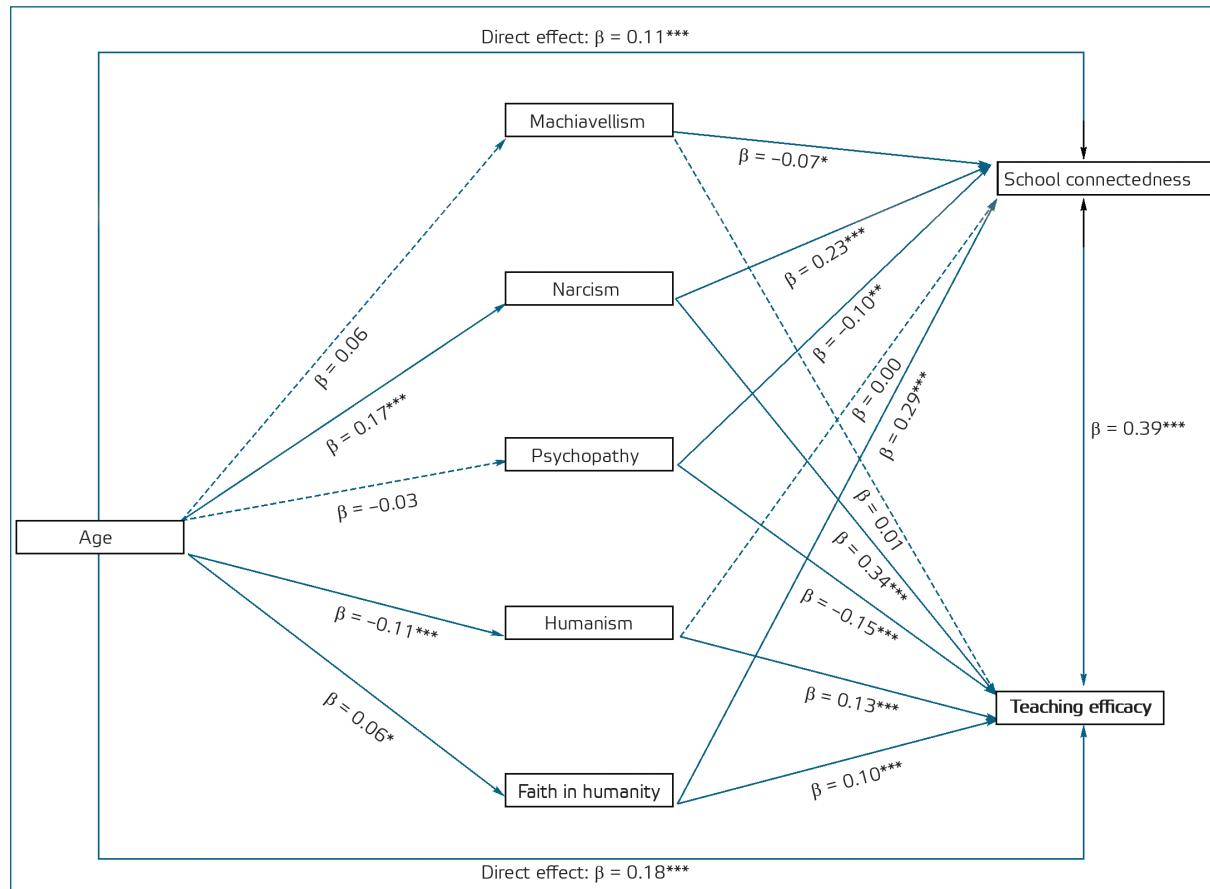
Age was positively associated with school connectedness, reflecting a direct effect, $\beta = .11$, $p < .001$, 95% CI [.05, .16]. There was also a significant total indirect association of age with school connectedness, $\beta = .06$, $p < .001$, 95% CI [.04, .09]. Among the individual mediators, narcissism significantly mediated the association

between age and school connectedness, $\beta = .04, p < .001, 95\% \text{ CI } [.03, .06]$. Faith in Humanity was also a significant mediator, $\beta = .02, p = .046, 95\% \text{ CI } [.00, .04]$. Indirect associations through Machiavellianism, $\beta \approx .00, p = .189, 95\% \text{ CI } [-.00, .01]$, psychopathy, $\beta \approx .00, p = .359, 95\% \text{ CI } [-.00, .01]$, and humanism, $\beta \approx .00, p = .997, 95\% \text{ CI } [-.01, .01]$, were not statistically significant. The total effect of age on school connectedness was significant, $\beta = .17, p < .001, 95\% \text{ CI } [.11, .22]$.

Age was also positively associated with teaching efficacy, reflecting a direct effect, $\beta = .18, p < .001, 95\% \text{ CI } [.13, .23]$. The total indirect association of age with teaching efficacy was significant, $\beta = .06, p < .001, 95\% \text{ CI } [.03, .08]$. Narcissism significantly mediated this association, $\beta = .06, p < .001, 95\% \text{ CI } [.04, .08]$. Humanism showed a significant negative indirect association, $\beta = -.01, p = .009, 95\% \text{ CI } [-.03, -.01]$. Indirect associations via Machiavellianism, $\beta \approx -.00, p = .762, 95\% \text{ CI } [-.01, .01]$, psychopathy, $\beta = .01, p = .342, 95\% \text{ CI } [-.01, .01]$, and Faith in Humanity, $\beta = .01, p = .089, 95\% \text{ CI } [-.00, .02]$, were not statistically significant. The total effect of age on teaching efficacy was significant, $\beta = .24, p < .001, 95\% \text{ CI } [.18, .29]$.

Overall, these findings provide partial support for Hypothesis (iii), which proposed that the association between age and well-being would be mediated in parallel by the Dark Triad and Light Triad traits. Parallel mediation was observed, as at least one mediator from each trait cluster showed a significant indirect association with both well-being indicators. Specifically, narcissism (Dark Triad) and Faith in Humanity (Light Triad) significantly mediated the association between age and school connectedness, whereas narcissism (Dark Triad) and humanism (Light Triad) significantly mediated the association between age and teaching efficacy. Although other traits did not contribute significant indirect pathways, the presence of significant mediators from both the Dark Triad and Light Triad confirms that age-related differences in well-being are partly conveyed through personality characteristics reflecting both antagonistic and prosocial interpersonal tendencies.

Figure 1. Meditation Model



Note: Dashed lines represent paths that were not statistically significant, * $p < .050$, ** $p < .010$, *** $p < .001$.

Discussion

The connection between Light Triad traits, Dark Triad traits, and well-being has been an under-explored area in personality research (Blasco-Belled et al., 2024). The mediation analysis in this study offers insight into the intricate relationships between age and female teacher well-being indicators and elucidates the mechanisms of these relationships.

The present results align with previous research showing a positive association between teacher well-being indicators, namely school connectedness and self-efficacy (Arslan, 2018; Ferreira et al., 2024). School connectedness boosts self-efficacy, even during online teaching (Yang et al., 2021), while support from colleagues and principals enhances well-being and job satisfaction (Tran et al., 2024). The current study found that both school connectedness and teaching efficacy increase with age and experience, echoing Podolsky et al.'s (2019) findings that experienced teachers improve their effectiveness, benefiting both colleagues and pupils.

The correlations between age and teacher subjective well-being have been inconsistent (Hascher & Waber, 2021). Age can be considered a somewhat "distal" predictor of self-reported work characteristics and well-being. Indeed, it is not age itself that directly elicits differences in well-being but rather age-related differences in more "proximal" factors such as personality characteristics (Zacher et al., 2014). In particular, the association between age and Dark Triad traits has not been consistent in previous studies. Barlett and Barlett (2015) found that age was negatively correlated with Dark Triad traits, with older individuals exhibiting lower levels of Dark Triad traits due to their "successful transition through emerging adulthood" (p. 20). Meanwhile, Rahafar et al. (2017) found that age was not associated with Dark Triad traits among university students. These findings do not completely align with the present results. Parallel mediation analysis in this study confirmed that narcissism (a Dark Triad trait) significantly mediated the relationship between age and both well-being indicators, namely school connectedness and teaching efficacy. This finding may reflect the performative aspect of teaching described by Friedman (2016), in which teachers often engage in behaviors aimed at captivating and motivating students, suggesting that certain socially aversive traits, such as narcissism, might enhance perceived effectiveness and connectedness in the classroom context. However, the narcissistic aspect of teaching is often overlooked. Teaching roles offer authority, influence, and the opportunity to guide others, making it a profession that can foster healthy narcissism through its social nature. The current findings align with previous research establishing a positive correlation between narcissism and subjective well-being (Blasco-Belled et al., 2024; Jonason et al., 2015) as well as academic self-efficacy (Abdi et al., 2022). Conversely, maladaptive narcissism has been found to have a significant negative relationship with academic self-efficacy (Abdi et al., 2022). Narcissism predicts a range of adaptive outcomes, which may explain its positive association with well-being (Joshanloo, 2021). Lower levels of healthy narcissism contribute to overcommitment, exacerbating the effort-reward imbalance and increasing the risk of gratification crises in the teaching profession (Schmitt, 2021). The positive link between narcissism and well-being (Joshanloo, 2021) can be explained in two ways. Firstly, the narcissism scale mainly measures adaptive traits such as grandiosity, which may inflate well-being scores. Narcissists may tend to provide socially desirable responses, enhancing their self-reported well-being. This research also showed that as age increased, levels of narcissism, characterized by a sense of entitlement and a belief in one's privileged status compared to others (Saadat & Ghamarani, 2017), also rose. This increase in narcissism correlated with higher levels of teaching efficacy and school connectedness.

In addition, the present study did not find significant associations between age and psychopathy or between age and Machiavellianism among female teachers; however, both Machiavellianism and psychopathy were negatively associated with school connectedness, indicating that female teachers with higher levels of these traits reported lower school connectedness. The primary symptom of Machiavellianism is coldness, reflecting emotional detachment, a lack of empathy, and disregard for the needs and goals of others (Bańska & Orlowski, 2012). This implies that Machiavellianism does not contribute to teachers' sense of school connectedness. Machiavellianism is inherently socially maladaptive and is consistently linked to a range of negative interpersonal and personal outcomes (Götz et al., 2020). Moreover, Machiavellianism is context-specific, with schools representing social environments characterized by a unique occupational lifestyle shaped by interactions between students and the school community (Bańska & Orlowski, 2012). It has been found that Machiavellianism in teachers is negatively related to students' perceptions of teacher expert power and positively related to perceptions of teacher legitimate power (Teven, 2007). Taken together, these findings suggest that Machiavellianism, despite its occasional utility in achieving specific goals or exerting influence, may undermine the relational and prosocial aspects of teaching, particularly the sense of connectedness to the school community. This highlights the need for a critical reflection on socially aversive traits in educational contexts: while they may provide short-term advantages in authority or control, they appear to compro-

mise teachers' relational engagement and potentially their broader professional well-being. These results underscore the importance of considering not only the presence of socially aversive traits but also the context in which they manifest, as the social and relational demands of teaching may magnify the negative consequences of such traits.

It should be noted that Light and Dark Triad traits are not opposites but rather represent distinct constructs (Ramos-Vera et al., 2023). Teachers with Dark Triad traits (narcissism, Machiavellianism, and psychopathy) are typically perceived as dominant, assertive, and effective leaders, while those with Light Triad traits (Kantianism, humanism, and Faith in Humanity) are generally characterized by a respectful and empathetic nature (Kaletta & Reuther, 2021). Human relationships and social interaction are integral components of educational institutions, and individuals who value humanism typically admire others and celebrate their peers' successes (Çobanoglu & Demir, 2022; Kaletta & Reuther, 2021).

Humanism was only one of the parallel mediators from the Light Triad that explained the association between age and teaching efficacy in this study, and only one of the Light Triad traits (Faith in Humanity) contributed to explaining one of the well-being indicators, namely school connectedness. Among female teachers, Faith in Humanity increased and Humanism decreased with age, and both traits were positively associated with well-being indicators. These results are best interpreted through the lens of decreasing positive interpersonal experiences among teachers as they age and the influence of social norms promoting empathy (Landa-Blanco et al., 2024). However, it is those who feel their work has meaning and embody qualities such as kindness, humanism, empathy, and concern for others' well-being who tend to be happier and more satisfied with their lives (Mewara, 2024). As teachers gain experience, their belief in the goodness of others (Faith in Humanity) may strengthen, enhancing their sense of connection and engagement at school, while their humanism may decline due to greater exposure to the challenges of the educational environment. This pattern suggests that different components of the Light Triad may influence aspects of teaching efficacy and well-being in distinct ways, highlighting the complex relationship between personality traits, age, and professional outcomes. Promoting Faith in Humanity and humanism, as well as fostering a healthy level of female teacher narcissism, may enhance their enthusiasm, positive emotions, intrinsic motivation, and sense of being valued, highlighting the importance of personality and experience in professional fulfillment. Understanding how these factors evolve over time and interact with broader workplace challenges is therefore essential for supporting teachers' sustained engagement and well-being.

This perspective becomes particularly salient when considering the context of the exclusively female sample in the present study. Teaching remains a highly feminized profession, and female teachers report greater work-related mental effort (Gan et al., 2025), elevated depressive symptoms, higher demands across life domains, and fewer home resources. Depressive symptoms are associated with both emotional and quantitative work demands, as well as reduced leisure time (Stengård et al., 2022). Such gendered pressures may shape the expression and development of interpersonal personality traits, including humanism, Faith in Humanity, and healthy narcissism, across the teaching career.

Strengths and Limitations

The key strength of this research is that it fills a gap in the existing literature by offering new insights into teacher well-being. However, the use of self-reported data, which is susceptible to recall and social desirability bias, as well as the failure to account for social desirability effects, are significant limitations that must be considered when interpreting the findings of this study. Future research should include a social desirability measure and consider combining qualitative and quantitative analyses to better account for these potential biases. A key limitation of this study is the gender imbalance in the sample, with 88.8% female participants, reflecting the predominance of women in Slovak schools. Consequently, all subsequent analyses were conducted exclusively among female teachers, which limits the generalizability of the findings to male educators.

The three-factor structure of the Light Triad was not confirmed among Slovak female teachers, and low internal consistency of the Light Triad Scale was observed, particularly for the Kantianism subscale, as reflected by the Cronbach's alpha coefficient. Structural validations of the Polish version (Gerymski & Krok, 2019) and the Spanish version (Stavraki et al., 2023) of the Light Triad Scale produced comparable findings. This issue may be attributed to the small number of items in each subscale of the Light Triad Scale (Biçaksız & Tekeş, 2023) in addition to potential cultural differences in the interpretation of some items. Statements such as "I prefer honesty over charm" or "I would like to be authentic even if it may damage my reputation" might be understood by respondents as referring either to treating others as ends in themselves or to being true to oneself (Gerymski & Krok, 2019). However, the two-factor solution (Light Dyad) that excludes Kantianism seems to be more psychometrically appropriate (Stavraki et al., 2023).

Conclusion, Implications and Future Directions

The current study highlights several key findings regarding age, personality traits, and female teacher well-being. Specifically, narcissism (Dark Triad) and Faith in Humanity (Light Triad) significantly mediated the association between age and school connectedness, while narcissism (Dark Triad) and humanism (Light Triad) significantly mediated the association between age and teaching efficacy. Although the remaining traits did not yield significant indirect effects, the presence of mediators from both the Dark and Light Triads indicates that age-related differences in well-being are partly transmitted through personality characteristics reflecting both socially aversive and prosocial interpersonal tendencies.

The results can inform interventions to improve female teacher well-being by considering the interaction between age and personality traits. Schools should focus on promoting healthy narcissism, empathy, and positive communication, particularly through the work of school psychologists. Moreover, a greater understanding of how age affects well-being can help identify female teachers at risk of burnout and encourage engagement (De Clercq et al., 2022). Additionally, fostering self-awareness in teachers can enhance their well-being throughout their careers, aligning with findings that personality plays a key role in career decisions and workplace behaviors (MacIntyre et al., 2019; Vedel & Thomsen, 2017).

Future longitudinal studies or experimental designs should examine causal relationships and track how changes in Dark and Light Triad traits impact teacher well-being over time. Teachers' professional experiences during the COVID-19 pandemic and the ways in which these experiences influence their current teaching practices should continue to be regarded as an important topic for future research. As in other fields, the post-pandemic period has seen discussions about the phenomenon referred to in the press as "The Great Resignation," even within education (Macovei et al., 2023, p. 02). Fox and Walter (2022) noted that despite the grim portrayal of teaching and learning in the media during the pandemic, teachers showcased remarkable innovation, adaptability and community spirit. Schools with proactive, supportive supervisors and strong collegial connections fostering teacher resilience through emotional support saw educators maintain well-being and enthusiasm for their work (Fox & Walter, 2022; Kupers et al., 2022). Those who displayed higher resilience amid COVID-related stress often cited strong support from school management and a sense of belonging to their school community (Fox & Walter, 2022). Further research should also explore whether Dark and Light Triad scores among teachers not only correlate with teacher well-being but also with student well-being and academic success in the post-pandemic era, given that crises also affect teacher efficacy (Podolsky et al., 2019). Additionally, future research should aim to expand the range of dark traits beyond the Dark Triad, as well as the scope of the Light Triad to encompass other positive personality aspects, particularly in the context of studying teacher personality (Kaufman et al., 2019; Moshagen et al., 2018). The findings of this study offer insights into teachers' strengths and highlight opportunities for improving well-being throughout their careers.

Acknowledgement

This study was supported by the National Institute of Education and Youth of the Slovak Republic. The authors would like to thank RNDr. Mária Rychnavská, PhD. and Prof. PaedDr. Ivan Pavlov PhD. for their collaboration in data collection and all participating teachers for their effort and time.

Funding

This work was supported by the Slovak Research and Development Agency under the Contract no. APVV-23-0500.

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Declaration of interest statement

The authors have no conflicts of interest to disclose.

Ethical statement

This manuscript is the authors' original work.

All participants engaged in the research voluntarily and anonymously.

Their data are stored in coded materials and databases without personal data.

The studies involving human participants were reviewed and approved by the Ethics Committee at the Faculty of Arts of Pavol Jozef Šafárik University in Košice Srobárova 2, Košice, Slovak Republic, Approval Number: FIL005901/2022.

Data availability statement

Datasets presented in this article are available from the corresponding author upon reasonable request.

Declaration on using artificial intelligence in research and manuscript preparation

The authors have not used AI technologies in our research or the preparation of this manuscript.

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