Adolescents' Personality Traits and Positive Psychological Orientations: Relations with Emotional Distress and Life Satisfaction Mediated by School Connectedness

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Abstract

Contemporary models emphasize linkages between malleable positive psychological orientations and enhanced quality of life. As such, it is important to consider if these positive orientations provide unique explanatory power beyond the long-established relations between quality of life and within-person, less malleable personality traits. This study contributed to the literature by examining the relations among adolescents' personality traits, positive psychology orientations, and self-reported quality of life indicators. These relations were further examined by considering the mediating effects of the important contextual influences of school connectedness. Self-report responses of 1,867 California high school students to an 88-item schoolwide online survey that included the Big Five Inventory-10 (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness), the Social Emotional Health Survey-Secondary (Belief in Self, Belief in Others, Emotional Competence, and Engaged Living), the School Connectedness Scale, the Brief Multidimensional Life Satisfaction Scale, and the Social Emotional Distress Scale-Secondary were used to examine relations. Stepwise multiple regression analyses showed that after controlling for demographic variables (Block 1: sex, grade, and ethnicity) the personality traits (Block 2) were, as expected, significantly associated with life satisfaction and emotional distress. Supporting study hypotheses, the inclusion of positive psychological orientations (Block 3) explained significantly more variance of students' life satisfaction ($\triangle R^2$ = 26%) and emotional distress ($\triangle R^2$ = 5%). Mediation analyses using Structural Equation Modeling (SEM) found that only positive psychological orientations had significant indirect relations with quality of life through school connectedness. Implications and future research and practice are discussed.

Keywords: personality traits, positive psychology, school connectedness, life satisfaction, emotional distress

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The Big Five Model (BFM) of personality traits (i.e., Neuroticism, Extraversion, Openness to Experience, Conscientiousness, and Agreeableness) has a long history of research showing its relations with individuals' quality of life, including life satisfaction and emotional distress (e.g., Suldo, Minch, & Hearon, 2015; Fogle, Huebner, & Laughlin, 2002). However, personality traits are conceptually less amenable to change than are the constructs examined in the positive psychology literature. Thus, there is a rapidly expanding recognition of the need to further examine the influences of positive psychological orientations on student development (Taylor, Oberle, Durlak, & Weissberg, 2017). Specifically, there is lack of understanding of how positive psychological orientations, such as self-efficacy, hope, gratitude, and empathy, might enhance the understanding of adolescents' thriving development, beyond the well-known influences of the BFM personality traits. This study aims to contribute to the goal of further understanding factors that enhance adolescents' quality of life.

In addition to within-person factors such as personality traits and positive psychological orientations, recent research discussed the critical influences of positive institutions on individuals' well-being (e.g., Lopez, Pedrotti, & Synder, 2014). For example, prior studies reported that adolescents' sense of connection and bonding with school play a significant role in their satisfaction with life and emotional distress (e.g., Joyce & Early, 2014; Pate, Maras, Whitney, & Bradshaw, 2017). However, no study to date has parsimoniously investigated within-student factors in relation to the known positive impact of school connectedness on quality of life indicators. Therefore, the current study aims to better understand how personality traits and positive psychological orientations are uniquely associated with adolescent quality of life beyond the effects of school connectedness. Results of this study may suggest a balanced approach to foster adolescent quality of life, supporting both schoolwide climate enhancement and efforts to promote student-centric skills and orientations.

Big 5 Personality Model (BFM) and Quality of Life

Personality traits are stable, consistent characteristics that affect how individuals feel, perceive, behave, and interact with others. The BFM is a widely employed personality classification model (McCrae et al., 2005) that organizes personality along five broad and distinct traits: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (Costa & McCrae, 1992). Neuroticism is an individual's tendency to experience negative emotions and emotional instability. Extraversion refers to an individual's proneness to positive emotions, excitement seeking, warmth, and assertiveness. Openness to Experience is related to an individual's willingness to consider and accept different feelings, ideas, and values. Agreeableness is concerned with an individual's inclination towards trust, altruism, compliance, and tender-mindedness in interpersonal relationships. Finally, Conscientiousness refers to an individual's propensity to control impulses and delay gratification. Among the BFM personality traits, neuroticism and extraversion, described as the *Big Two* traits (Eysenck, 1967; Tian, Jiang, & Huebner, 2018), have been identified as significant predictors of emotional distress (Grav, Stordal, Romild, & Hellzen, 2012; Jylhä & Isometsä, 2006). However, a recent meta-analysis linking personality traits to emotional distress among adults (Kotov, Gamez, Schmidt, & Watson, 2010) reported that the relation between extraversion and emotional distress is inconsistent and characterized by small effect sizes when significant, with conscientiousness identified as the second strongest correlate of distress after neuroticism. Overall, neuroticism is the strongest, most stable predictor of emotional distress among adults (Kotov et al., 2010), but less is known regarding these relations among adolescents.

A growing body of recent literature has investigated how personality traits relate to life satisfaction. Existing BFM studies among adolescents mainly discuss the BFM traits of neuroticism and extraversion as significant correlates of adolescent life satisfaction (Heaven, 1991; McKnight, Huebner, & Suldo, 2002). For example, in studies involving middle and high school students, life satisfaction yielded significant positive correlations with extraversion (r = .21 to .26) and negative correlations with neuroticism (r = -.29 to -.44; Fogle et al., 2002; McKnight et al., 2002; Rigby & Huebner, 2005; Tian et al., 2018). Consistent with studies on emotional distress, prior research on life satisfaction with adolescents provides relatively little information about the associations between life satisfaction and the other three BFM traits (i.e., conscientiousness, agreeableness, and openness to experience). Furthermore, the strength of the associations between overall personality traits and life satisfaction has been in the small to moderate range, suggesting that individual differences in life satisfaction are not fully accounted for by the BFM traits (Lui, Rollock, Chang, Leong, & Zamboanga 2016) and that there is a need to consider other influences on adolescents' quality of life.

Positive Psychological Orientations and Quality of Life

Recent literature has turned its attention to examining the contributions of positive psychological orientations in an effort to expand understanding of the mechanisms that foster quality of life. Contrasted with relatively stable personality traits, positive psychological orientations such as self-awareness, empathy, and gratitude are conceptualized as factors that can be fostered and cultivated (Roeser & Eccles, 2014). A recent meta-analysis supported the importance of positive orientations in improving student healthy behaviors (e.g., positive attitudes and social behaviors) and reducing negative student outcomes (e.g., conduct problems and emotional distress; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). A longitudinal study using a sample of 1,316 adults in the United States (Avey, Wernsing, & Mhatre, 2011) found that individuals with greater hope, efficacy, optimism, and resilience were more likely to report higher life satisfaction. Converging evidence also indicates that interventions that successfully promote positive orientations decrease emotional distress (Sin & Lyubomirsky, 2009).

Although research findings suggest that effective mastery of positive psychological orientations is associated with better student outcomes (e.g., life satisfaction and fewer academic or social difficulties; Guerra & Bradshaw, 2008), few studies have reported on whether these constructs add significant explanatory power beyond the effects of personality characteristics identified in previous research. Recently, Marcionetti and Rossier (2016) investigated how much variance in life satisfaction is attributable to selected positive psychological orientations (i.e., self-esteem and self-efficacy) among Swiss adolescents. They found that three BFM personality traits (neuroticism, extraversion, and conscientiousness) explained 27% of life satisfaction's variance. However, when the positive psychology orientations of self-esteem and self-efficacy were included to the final regression model, they explained an additional 7% of the variance. Only conscientiousness, self-esteem, and self-efficacy significantly explained variance in life satisfaction, with self-esteem identified as the strongest indicator ($\beta = .31$).

Adolescent School Connectedness

In addition to within-person influences on quality of life indicators, social contextual factors play a role, with school connectedness being particularly relevant for adolescents. School connectedness is defined as a student's feeling of belongingness to school and emotional closeness with peers and teachers (Fredricks, Blumenfeld, & Paris, 2004), including (a) positive school relationships, (b) feeling part of the school, (c) feeling safe in school, (d) feeling happy at school, and (e) perceiving fairness (Marraccini & Brier, 2017). Relatively few studies have examined predictors of school connectedness, with more attention paid to the positive outcomes associated with high levels of school connectedness. Personality and positive psychological orientations influence individuals' perceptions, behaviors, and feelings, which may affect evaluations and attitudes toward social contexts. For example, positive teacher support and gratitude orientations were associated with enhanced school connectedness (Allen, Bella-Brodrick, & Waters, 2016), which was in turn associated with greater life satisfaction, higher educational achievement, and fewer internalizing and externalizing problems (Joyce & Early, 2014; Loukas, Suzuki, & Horton, 2006; Pate et al., 2017; You et al., 2008). Despite the documented protective influences of school connectedness, as many as 40 to 60% of high school students report feeling not well connected to school (Klem & Connell, 2004), highlighting the importance of identifying factors related to increased school connectedness among adolescents.

Study Rationale and Contribution

Students with high quality of life indicators, such as high life satisfaction and low emotional distress, are more likely to report better academic performance, physical health, and social relationships, as compared to those with low life satisfaction and high emotional distress (Deighton et al., 2018; Ng, Huebner, & Hills, 2015; Proctor, Linley, & Maltby, 2010; Shaffer-Hudkins, Suldo, Loker, & March, 2010). As such, a deeper understanding of the correlates of life satisfaction and emotional distress could better inform efforts to help adolescents thrive. Currently, few studies have examined the relations between personality traits and quality of life indicators among adolescents. Of the few studies examining associations between personality traits and quality of life among adolescents in the United States (McKnight et al., 2002; Rigby & Huebner, 2005; Suldo et al., 2015), most samples were from the eastern states, suggesting that investigations are needed to improve understanding of the relations for diverse adolescent populations. Furthermore, although an increasing number of studies have reported the importance of positive psychological orientations on positive youth development, to our knowledge no study to date has investigated personality and positive psychological orientations together in relation to adolescent quality of life.

In addition to personality and positive psychological orientations, contextual factors influence adolescent healthy development (Bronfenbrenner, 1979; Parker et al., 2015). School, in particular, is an important context in

adolescents' everyday life, and their feeling of connectedness to school influences their perceived quality of life (You et al., 2008). Adolescents with different personality and/or positive psychological orientations might respond to and evaluate similar environmental stimuli differently, and in turn, experience different levels of quality of life. For example, students in Grades 5 to 12 who rated themselves high on a measure of hope were more likely to report feeling connected to their school and being satisfied with their lives (You et al., 2008). Additionally, individuals with low school connectedness were more likely to report experiencing negative affect (Joyce & Early, 2014; McGraw, Moore, Fuller, & Bates, 2008) and were less likely to report satisfaction with lives (You et al., 2008).

Drawing on prior studies, this study's hypotheses are as follows:

H1a: The BFM traits are significantly associated with high school students' life satisfaction.

H1b: Positive psychological orientations, after controlling for the influences of BFM traits, will explain additional unique variance in adolescents' life satisfaction.

H2a: The BFM traits are significantly associated with high school students' emotional distress.

H2b: The positive psychological orientations, after controlling for the influences of BFM traits, will explain additional unique variance of adolescents' emotional distress.

H3a: School connectedness is an important variable associated with quality of life (life satisfaction and emotional distress) during adolescence; thus, it will mediate the relations between personality traits and quality of life.

H3b: School connectedness is an important variable associated with quality of life (life satisfaction and emotional distress) during adolescence; thus, it will mediate the relations between positive psychological orientations and quality of life.

Method

Participants

All 1,984 students in the participating high school were invited to partake in the study. Twenty-five students (1.2%) declined to participate and 92 (4.6%) provided mostly incomplete responses. Usable surveys (i.e., self-reports with few missing responses) were received from 1,867 students (94% of all eligible students). The majority of students were of Latino/a/x background (77.7%; with 9.5% mixed ethnicity, 6.3% White, and 6.5% youths of other sociocultural backgrounds). There were 864 (46%) males, 973 (52%) females, and 30 (2%) other gender identification, 564 (30%) ninth graders, 453 (24%) tenth graders, 474 (25%) eleventh graders, and 376 (20%) twelfth graders. Most of the students (80.5%) were considered to be socioeconomically disadvantaged based on eligibility for the United States federal free/reduced priced school meal program. With respect to academic achievement, 57% of eleventh graders met/exceeded state English Language Arts learning standards (9% above the state average) and 23% met/exceeded the state math learning standards (14% below the state average).

Measures

Big Five Personality Traits. The Big Five Inventory-10 (BFI-10; Rammstedt & John, 2007) has two items per domain: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. The students rated each item on a five-point scale from 1 = *disagree strongly* to 5 = *agree strongly*. The BFI-10 has psychometric properties similar to the full Big 5 inventory (Thalmayer, Saucier, & Eigenhuis, 2011): good test-retest reliability, convergent validity with another personality scale (NEO-Personality Inventory-Revised; Costa & McCrae, 1992), external validity with peer ratings, and a five-factor structure (Rammstedt & John, 2007). Mean item response scores were used in the analyses.

Positive Psychological Orientations. The Social Emotional Health Survey–Secondary (SEHS-S; Furlong et al., 2014) uses 36 items to measure 12 positive psychological orientations (three items per construct). Several structural validation analyses across diverse student groups have shown that the 12 SEHS-S subscales load onto four domains: Belief in Self (BIS; self-awareness, persistence, self-efficacy), Belief in Others (BIO; peer support, teacher support, family support), Emotional Competence (EC; empathy, emotional regulation, delay of gratification), and Engaged Living (EL; gratitude, zest, optimism; Furlong et al., 2014; Telef & Furlong, 2017; You et al., 2014, You, Furlong, Felix, & O'Malley, 2015). Students rated their social emotional health using a six-point response scale (1 = *very much unlike me*, 2 = *unlike me*, 3 = *somewhat unlike me*, 4 = *somewhat like me*, 5 = *like me*, 6 = *very much like me*). Mean item response scores were used in the analyses, with higher scores indicating positive psychological

orientations. Psychometric properties are supportive including evidence of the reliability and validity of the higher-order model, internal consistency, construct and predictive validity, and invariance across sociocultural groups and gender (Lee, You, & Furlong, 2016; Telf & Furlong, 2017; You et al., 2015). Cronbach's alpha coefficient for the current sample was .90 for BIS, .81 for BIO, .75 for EC, and .89 for EL.

Emotional Distress. The Social Emotional Distress Survey–Secondary (SEDS-S; Dowdy, Furlong, Nylund-Gibson, Moore, & Moffa, 2018) is a 10-item scale that measures internalizing distress (e.g., "I felt sad and down" and "I was scared for no good reason"). Students rated past-month experiences using a five-point response scale (1 = *not true of me*, 2 = *a little true of me*, 3 = *pretty much true of me*, 4 = *true of me*, 5 = *very true of me*). Confirmatory factor analyses have supported adequate model fit for a one-factor structural model (Dowdy et al., 2018). Mean item responses were used in the current analyses, with higher scores indicating greater emotional distress. Cronbach's alpha coefficient for the current sample was .93.

Life Satisfaction. The Brief Multidimensional Student Life Satisfaction Scale (BMSLSS; Seligson, Huebner, & Valois, 2003) is a five-item self-report measure of life satisfaction across five domains (friends, family, self, school, and living environment). Students indicated their degree of satisfaction using a five-point response scale (1 = *very dissatisfied* to 5 = *very satisfied*). Total mean item scores of global life satisfaction were computed, with higher scores indicating greater global life satisfaction. Previous research with the BMSLSS yielded acceptable internal consistency estimates with adolescents (α = .75-.83; Funk, Huebner, & Valois, 2006; Ng, Huebner, Maydeu-Olivares, & Hills, 2018; Zullig, Valois, Huebner, Oeltmann, & Drane, 2001), which compares with a Cronhach's alpha coefficient of .78 for the current sample.

School Connectedness. The five-item School Connectedness Scale (SCS; Resnick et al., 1997) has been frequently used in previous research (Anderman, 2002; Loukas et al., 2006; McNeely, Nonnemaker, & Blum, 2002). The SCS measures students' psychological bonds with school (e.g., "I feel close to people at this school, I am happy to be at this school," and "I feel safe in my school"). Participants rated their response on a five-point scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neither disagree nor agree*, 4 = *agree*, and 5 = *strongly agree*). Mean item scores were used in the analyses. Previous research has reported internal consistency reliabilities of .78-.87 (Anderman, 2002; Furlong, O'Brennan, & You, 2011). Using confirmatory factor analyses, a one-factor model structural model had invariance across 18 sociocultural groups of high school students in California (Furlong et al., 2011). The Cronbach's alpha coefficient for the current sample was .81.

Procedure

Data for the present analyses came from a universal social-emotional wellness surveillance survey conducted at a comprehensive high school located in central California on one day in May 2016. The practical utility of the survey was to provide the school's administration information to better understand their students' social-emotional wellness needs. Prior to survey administration, the school administrators consulted with the study's researchers and requested their assistance. Following the authors' university institutional review board's informed consent requirements, consent forms were distributed to the parents. Passive parental consent and student assent were attained. Survey responses were anonymous. The survey questionnaire included 88 items with item blocks presented in the following order after an introduction section that asked for student assent: SEHS-S, SCS, BMLSS, SEDS-S, BFI-10, and validity check items. An online questionnaire presentation (Qualtrics ®) was used. Items within each block were presented one at a time and in a unique random order for each student. Students were prompted to respond if they skipped an item but were not required to answer questions. Surveys were administered in classroom units by regular classroom teachers following a prepared script. Students at the participating high school each had a personal iPad, which was used to completed the survey questionnaire in an average of 15.4 min.

Data Analysis Procedures

First, the relations between personality, positive psychological orientations, life satisfaction, and emotional distress were examined with two hierarchical linear regressions using SPSS version 24. For both life satisfaction and emotional distress, control variables of gender, grade, and ethnicity were entered in Step 1, the BFM traits were entered in Step 2, and the four SEHS-S positive psychological orientations were entered in Step 3. After initial regression analyses, tests for mediation were examined using Mplus version 8. Structural equation modeling (SEM) was used to assess the hypothesized structural relations between the latent variables. SEM was selected because it has the flexibility to test relations among latent variables of interest (Kline, 1998). One of the advantages of using SEM over traditional methods such as ANOVA and regression analysis is that it allows researchers to quantify measurement errors in a separate term, thus isolating the true effects (McDonald & Ho, 2002). Maximum

likelihood was used to handle missing data. The model fit was assessed based on several criteria: the non-normed fit index (NNFI; Bentler & Bonett, 1980), the comparative fit index (CFI; Bentler, 1990), and the root mean square error of approximation (RMSEA; Steiger & Lind, 1980). Values less than .08 for the RMSEA and values close to .95 for the NNFI and CFI were used to determine a good-fitting model (Hu & Bentler, 1999). To test the significance of the mediating effects, we used maximum likelihood bootstrapping with a 95% confidence interval (Shrout & Bolger, 2002). This method utilizes repeated sampling from the data set and estimates the indirect effect in each re-sampled data set. Table 1 presents the means, standard deviations, ranges, and correlations among the study variables.

Results

The relations among personality traits, positive psychological orientations, life satisfaction, and emotional distress were first examined using hierarchical regressions. The full regression model explained 49% of the variance in life satisfaction, adjusted R^2 = .49, $F(12, 1848) = 151.88$, $p < .001$, and 37% of the variance in emotional distress, adjusted R^2 = .37, $F(12, 1848) = 92.95$, $p < .001$.

Life Satisfaction Regression

In the first block, gender, grade, and ethnicity accounted for just 1% of the variance in life satisfaction, adjusted R^2 = .01, $F(3, 1857) = 7.53$, $p < .001$. The addition of the BFM traits in the second block significantly increased explained variance in life satisfaction to 23% ($\triangle R^2$ = 22%), adjusted R^2 = .23, $p < .001$, supporting the Hypothesis 1a (H1a) that personality traits are significantly associated with adolescent quality of life. The four SEHS-S positive psychology domain were entered into the third block and explained an additional 26% of variance in life satisfaction, adjusted R^2 = .49, $p < .001$, which supported *H1b* that positive psychological orientations explained significant additional variance in life satisfaction after controlling for personality traits. In the final model, grade, ethnicity, conscientiousness, neuroticism, and all four SEHS-S positive psychology domains (BIS, BIO, EC, and EL) were significantly associated with life satisfaction. Among these factors, BIO had the highest beta value (β = .33, $p < .001$), followed by EL (β = .20, $p < .001$), BIS (β = .15, $p < .001$), EC (β = -.10, $p < .001$), neuroticism (β = -.09, $p < .001$), conscientiousness (β = .03, $p = .018$), grade (β = -.06, $p < .001$), and ethnicity (β = .03, $p < .001$).

Emotional Distress Regression

In the first block, gender, grade, and ethnicity accounted for 5% of the variance in emotional distress, adjusted R^2 = .05, $F(3, 1857) = 33.45$, $p < .001$. The addition of the BFM personality traits in the second block significantly increased the variance explained in emotional distress to 33% ($\triangle R^2$ = 28%), adjusted R^2 = .28, $p < .001$, supporting *H2*a that personality traits are significantly associated with adolescent emotional distress. The four SEHS-S positive psychology domains were entered in the third block and explained an additional 5% of variance in emotional distress, adjusted R^2 = .05, $p < .001$, which supported the *H2b* that positive psychological orientations explained significant additional variance in emotional distress after controlling for personality traits. Overall, gender, ethnicity, neuroticism, BIS, EC, and EL were significantly associated with emotional distress. Among these factors, neuroticism showed the highest beta value (β = .33, $p < .001$) indicating that it was the strongest factor associated with emotional distress followed by, EC (β = .20, $p < .001$), EL (β = -.18, $p < .001$), BIS (β = -.15, $p < .001$), gender (β = -.12, $p = .001$), and ethnicity (β = .02, $p = .012$).

Mediation Models

The school connectedness mediation hypotheses were examined to further evaluate the relative contributions of personality and positive psychological orientations to life satisfaction and emotional distress. Results indicated that none of the BFM personality traits had indirect relations with life satisfaction and emotional distress through school connectedness, rejecting *H3a* that school connectedness would mediate the relations between personality and quality of life among adolescents. Only neuroticism and conscientiousness were directly associated with life satisfaction, and only neuroticism was directly associated with emotional distress. Larger effects were found for all of the four hypothesized mediated pathways to life satisfaction through school connectedness for the SEHS-S positive psychology orientations, supporting *H3b* that school connectedness mediates the relations between positive psychological orientations and quality of life among adolescents. Specifically, the indirect effect of school connectedness on the relation of life satisfaction were as follows: BIS = .04 (95% CI = .02 ~ .06, $p < .001$); BIO = .10 (95% CI = .08 ~ .12, $p < .001$); EC = .03 (95% CI = .02 ~ .04, $p < .001$); and EL = .06 (95% CI = .04 ~ .08, $p < .001$). Similarly, all four hypothesized mediated pathways, relating the four positive psychology orientations to emotional distress through school connectedness, were significant. Specifically, the indirect effects of school connectedness on emotional distress relations were as follows: BIS = -.02 (95% CI = -.03 ~ -.01, $p < .01$); BIO =

-.04 (95% CI = -.06 ~ -.03, $p < .001$); EC = -.01 (95% CI = -.02 ~ -.01, $p < .001$); and EL = -.03 (95% CI = -.04 ~ -.02, $p < .001$). Figures 1 and 2 present the results of the tested mediated pathways.

Discussion and Implications

A primary purpose of the current study was to contribute to the understanding of the relative contributions of within-person influences on adolescents' quality of life. Personality and positive psychological orientations together explained 49% of life satisfaction and 37% of emotional distress, supporting the hypotheses that within-person factors are substantially associated with adolescents' quality of life. More specifically, it was found that positive psychological orientations enhanced understanding of adolescents' thriving development, beyond the well-known influences of the stable, within-person BFM personality traits.

Personality Traits, Positive Psychological Orientations, and Quality of Life

Among five personality traits, only neuroticism (negatively) and conscientiousness (positively) were related to adolescent life satisfaction. These results partially support research that has identified the two big traits—neuroticism and extraversion—as significant indicators of quality of life (e.g., Heaven, 1991). Given that there are limited studies on the relations between personality traits and quality of life specifically among adolescents, results of this study suggest that further scholarly efforts are needed to identify which personality traits are related to adolescent well-being. Regardless, the relations between the two personality traits and life satisfaction were weaker compared to positive psychological orientations' relations with life satisfaction. These findings suggest that positive psychological orientations are critical to understanding adolescents' life satisfaction.

In the final regression model, positive psychological orientations—all four SEHS-S domains—were stronger indicators of life satisfaction than the neuroticism and conscientiousness personality traits. Among the four positive psychological domains, BIO was identified as the strongest indicator, followed by EL, BIS, and EC. Adolescents' belief that their peers, family, and teachers genuinely care about them was the strongest indicator of feeling satisfied with their life, which emphasizes the transactional aspects of positive psychological orientations. The next two factors — EL and BIS (indicate feeling grateful, optimistic, and enthusiastic in daily life, as well as having self-awareness, persistence, and self-efficacy) — focus on positive attitudes. These results support the substantial efforts in contemporary positive psychology to promote school-based programs that foster youths' social emotional competence and life vitality (Furlong, Gilman, & Huebner, 2014).

Another interesting finding was that EC, including empathy, emotional regulation, and delay of gratification, was negatively associated with life satisfaction among adolescents. Although studies report the benefits of these skills for social relationships and academic performance (Zayas, Mischel, & Pandey, 2014), others studies indicated that these skills could sometimes be associated with poor life functioning (Bilewicz & Wojcik, 2018; Murphy, Costello, & Lilienfeld, 2018). For example, high levels of affective empathy indicate that adolescents are better able to perceive and relate with other people's feelings, but this also means that they may experience others' negative feelings, including distress, as their own. Similarly, although delay of gratification has been found to enhance positive academic, social, and health outcomes (Zayas et al., 2014), individuals with high capacity to delay gratification might also be over controlled and unnecessarily inhibited (Funder, 1998), which could result in lower life satisfaction and higher risk for the development of depression (Block, Gjerde, & Block, 1991). Interventions that target EC might include strategies to diminish emotional exhaustion. Future research can investigate the potential negative impacts of high emotional control on adolescents' well-being.

Personality Traits, Positive Psychological Orientations, and Emotional Distress

Three positive psychological orientations were identified as significant indicators of emotional distress, including EC, BIS, and EL. Adolescents' EC was positively associated with emotional distress, supporting previous studies that suggested overcontrolled individuals may experience higher risk for developing emotional symptoms (Bilewicz & Wojcik, 2018; Block et al., 1991). Both BIS and EL were negatively associated with emotional distress among adolescents, indicating that students with positive, confident self-beliefs, as well as those feeling engaged in daily life experiences, were less likely to report emotional distress. These findings support previous literature on the preventive benefits of having positive psychological orientations on students' mental health (e.g., You et al., 2014).

Expectedly, neuroticism was found to have the strongest positive relation with adolescent emotional distress, which is consistent with previous literature connecting neuroticism to mental health problems (Grav et al., 2012; Kotov et al., 2010). All other personality traits were not significantly related to emotional distress, suggesting that it is unnecessary and inefficient to measure all five personality traits as indicators when considering adolescent

emotional distress. This is especially an important finding to consider when developing efficient instruments for school-based universal screening to promote student well-being. Our findings suggest that positive psychological orientations are stronger indicators of positive life adjustment (life satisfaction) than any of the BFM personality traits. Neuroticism was a stronger indicator of negative life adjustment (emotional distress) than any of the positive psychological orientations. These findings are consistent with the complete mental health model—positive and negative mental health indicators are related, but distinct constructs. The implications further support a mental health approach to school-based mental health services that considers positive indicators and negative indicators of well-being (Kim, Dowdy, Furlong, & You, 2018; Kim, Furlong, Dowdy, & Felix, 2014).

School Connectedness Mediation

School connectedness, including positive school relationships, perceived fairness, feeling part of the school, and feeling safe and happy at school, was examined for its mediating effects on the relations between within-person factors and quality of life indicators. All five personality traits had no indirect relations with quality of life through school connectedness. Whereas school connectedness was significantly associated with both quality of life indicators (i.e., life satisfaction and emotional distress), personality traits were not significantly associated with school connectedness. Specifically, adolescents' personality characteristics—whether they were prone to feel negative or positive to the same stimulus or have more open- or close-minded attitudes to new ideas and experiences—contributed no explanatory power to the level of school connectedness. These findings suggest that personality traits are not maximally effective indicators of school connectedness among adolescents.

School connectedness was as a significant mediator between all four positive psychological orientations and the quality of life outcomes. Based on the transactional-ecological systems theory (Bronfenbrenner, 1979), the examination of only within-person constructs provides incomplete information about youth development — it is important to examine the influences of environmental characteristics on individual well-being. Our findings supported this theory by suggesting that students' sense of bonding within the school and evaluation of the school contexts are strongly related to their reported well-being. Crucially, it is important to note that within-person factors, especially positive psychological orientations, were directly associated with student reported well-being beyond the effects of school connectedness, suggesting the importance of fostering psychological strengths among adolescents to improve their quality of life.

School connectedness was the strongest indicator of adolescent life satisfaction, suggesting that educators and researchers should pay attention not only to fostering positive psychological orientations of individual students, but also to cultivating positive institutions (Lenzi, Sharkey, Wroblewski, Furlong, & Santinello, 2018), to improve students' satisfaction with their life. However, although significant, school connectedness had a relatively weak relation with emotional distress, suggesting that other life domains such as family, peers, or community have bigger impacts on adolescent emotional problems. Further studies may be beneficial to examine if other life domains mediate the relation between within-person factors and emotional problems among adolescents.

Limitations

The current study has several limitations. First, the BFI-10 had two items per each personality trait, which is psychometrically inferior to the long-form. Although the BFI-44 may provide improved psychometric properties, the BFI-10 was a more practical option as part of a larger study of adolescent mental wellness, allowing for a reasonable survey length for all participating adolescents. Furthermore, previous literature found that the BF-10 explained 70% of the full BFI variance and retained 85% of the retest reliability, as well as yielded substantial discriminant and structural validity (Rammstedt & John, 2007), supporting its use as an alternative measure of the BFI-44. However, future studies should continue exploring its psychometric properties with diverse populations. Additionally, although indirect effects of school connectedness on the relations between positive psychological orientations and student outcomes were significant, their coefficients were relatively small, suggesting that future researchers should attend to other potential mediators associated with adolescents' overall quality of life. Lastly, the current study used global life satisfaction as a positive indicator of quality of life, but within-person constructs may have differential relations with global and domain-specific life satisfaction (e.g., Weber & Huebner, 2015). Therefore, future studies can contribute to the literature by examining how personality traits and positive psychological orientations are uniquely associated with adolescents' satisfaction with diverse life domains.

Conclusion

Overall, neuroticism, positive psychological orientations, and school connectedness were strongly associated with student life satisfaction and emotional distress. Although neuroticism, a personality trait, is

considered less amendable, both positive psychological orientations and positive institutions are considered to be more within the intervention competency of educators and counselors. There might be benefit to students when educators and counseling practitioners balance efforts to foster positive, supportive school climates and students' psychological strengths. These implications are consistent with previous studies emphasizing the importance of schoolwide climate enhancement (Aldridge & McChesney, 2018; Greenberg, Domitrovich, Weissberg, & Durlak, 2017; Hymel, Low, Starosta, Gill, & Schonert-Reichl, 2018) and student centric social emotional psychoeducation (Domitrovich, Durlak, Staley, & Weissberg, 2017).

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Table 1

Correlation Matrix, Means, and Standard Deviations for Study Variables (N = 1,817)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Belief-in-Self	—											
2. Belief-in-Others	.57**	—										
3. Emotional Competence	.48**	.42**	—									
4. Engaged Living	.72**	.61**	.39**	—								
5. Extraversion	.35**	.32**	.10**	.41**	—							
6. Neuroticism	-.42**	-.18**	-.08**	-.39**	-.33**	—						
7. Agreeableness	.08**	.17**	.13**	.10**	.04	-.01	—					
8. Conscientiousness	.43**	.24**	.25**	.37**	.24**	-.28**	-.03	—				
9. Openness	.12**	.07**	.05*	.13**	.13**	-.09**	-.03	.09**	—			
10. School Connectedness	.50**	.55**	.36**	.53**	.27**	-.24**	.12**	.23**	.06*	—		
11. Life Satisfaction	.55**	.60**	.25**	.61**	.33**	-.36**	.11**	.30**	.07**	.62**	—	
12. Emotional Distress	-.40	-.25**	-.05*	-.42**	-.28**	.55**	-.02	-.23**	-.08**	-.33**	-.49**	—
Min.	1	1	1	1	1	1	1	1	1	1	1	1
Max.	6	6	6	6	6	6	6	6	6	6	5	5
M	4.32	4.53	4.58	4.23	3.84	3.59	3.96	3.77	3.98	4.26	3.88	2.27
SD	0.75	0.85	0.66	0.94	1.11	1.22	0.94	1.01	0.98	0.99	0.78	0.99

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

Table 2

Effects of Personality and Positive Psychological Traits on Life Satisfaction (LS) and Emotional Distress (ED)

Variable	Block 1				Block 2				Block 3				95% CI	
	LS		ED		LS		ED		LS		ED		LS	ED
	β	*S.E.*	*β*	*S.E.*	*β*	*S.E.*	*β*	*S.E.*	*β*	*S.E.*	*β*	*S.E.*		
Sex	.05	.03	-.41**	.04	-.09*	.03	-.14**	.04	-.03	.03	-.12**	.04	-.08, .02	-.19, -.05
Grade	-.05**	.02	.04*	.02	-.06**	.01	.03	.02	-.06**	.01	.02	.02	-.08, -.03	-.01, .05
Ethnicity	-.03**	.01	.02	.01	-.03**	.01	.03*	.01	-.03**	.01	.02*	.01	-.04, -.01	.01, .04
Extraversion					.14**	.02	-.09**	.02	.02	.01	-.03	.02	-.01, .04	-.07, .01
Neuroticism					-.16**	.02	.39**	.02	-.09**	.01	.33**	.02	-.11, -.06	.30, .37
Agreeableness					.09**	.02	-.02	.02	.02	.01	.00	.02	-.01, .05	-.04, .04
Conscientious					.14**	.02	-.07**	.02	.03*	.01	-.02	.02	.01, .06	-.06, .02
Openness					.01	.02	-.01	.02	-.01	.01	.00	.02	-.03, .02	-.04, .04
BIS									.15**	.03	-.15**	.04	.09, .20	-.22,-.07
BIO									.33**	.02	-.05	.03	.29, .37	-.11, .01
EC									-.10**	.02	.20**	.03	-.15, -.05	.14, .27
EL									.20**	.02	-.18**	.03	.16, .24	-.24, -.12
Ad R^2	.01	.77	.05	.96	.23	.68	.33	.81	.49	.55	.37	.78		
Ad R^2 change					.23**		.28**		.26**		.05**			

Note. LS = Life Satisfaction, ED = Emotional Distress, BIS = Belief-in-Self, BIO = Belief-in-Others, EC = Emotional Competence, EL = Engaged Living, Ad = Adjusted.

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

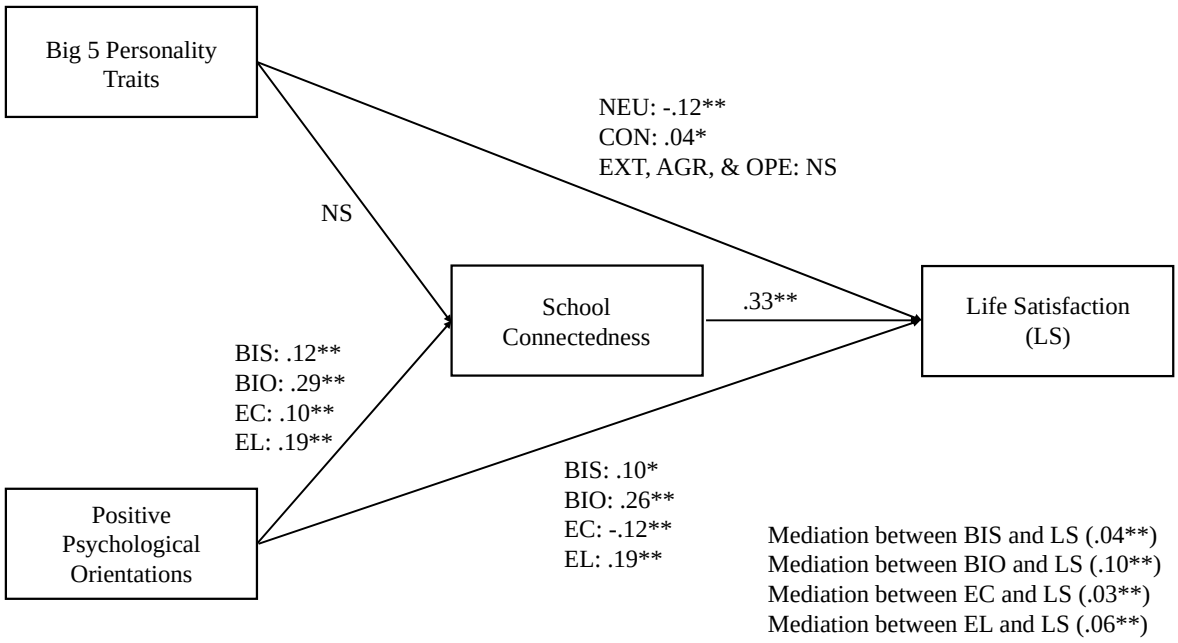

Figure 1. Path Coefficients of the Tested Hypotheses for Life Satisfaction (EXT = Extraversion, NEU = Neuroticism, AGR = Agreeableness, CON = Conscientiousness, OPE = Openness, BIS = Belief-in-Self, BIO = Belief-in-Others, EC = Emotional Competence, EL = Engaged Living. *$p < .05$. **$p < .001$).

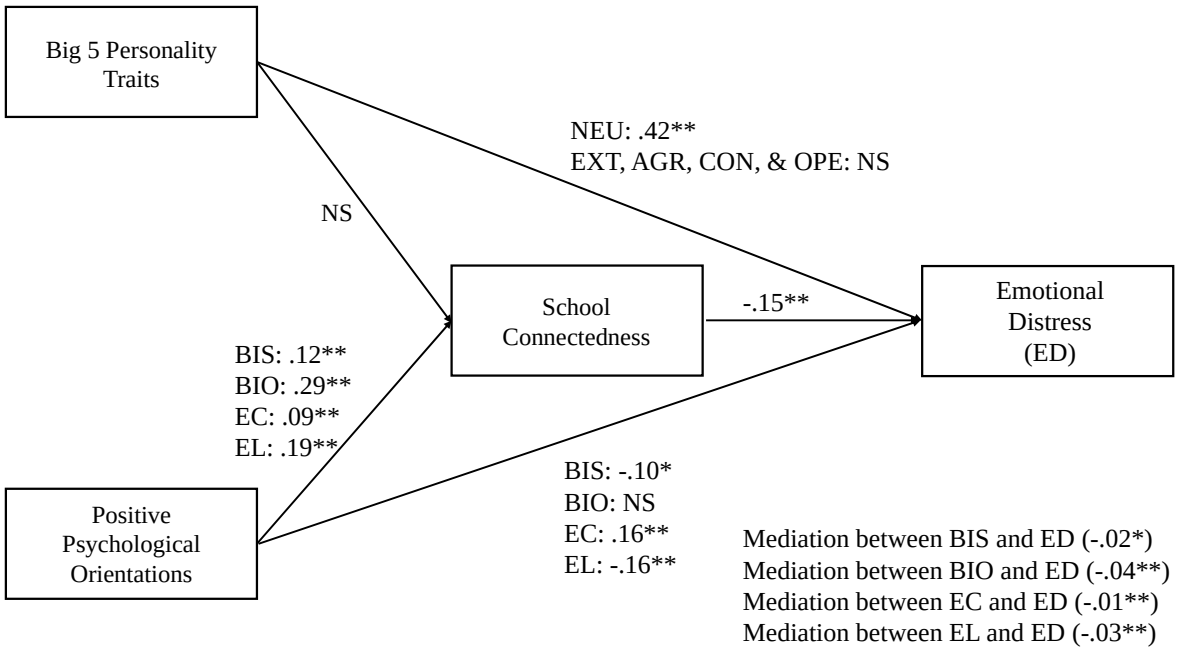

Figure 2. Path Coefficients of the Tested Hypotheses for Emotional Distress (EXT = Extraversion, NEU = Neuroticism, AGR = Agreeableness, CON = Conscientiousness, OPE = Openness, BIS = Belief-in-Self, BIO = Belief-in-Others, EC = Emotional Competence, EL = Engaged Living. *$p < .05$. **$p < .001$).