Personality and college student subjective wellbeing: a domain-specific approach

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Version Note

Abstract

Domain-specific measures of subjective wellbeing are valuable tools for assessing the mental health of college students. In this study, we examined relations between Big Five personality traits and college students' subjective wellbeing (SWB) using a college-specific measure: The College Student Subjective Wellbeing Questionnaire (CSSWQ). Using a latent variable modeling approach called bifactor analysis, we found that the general college wellbeing factor was best predicted by agreeableness and extraversion whereas the specific dimensions of college SWB were differentially predicted by conscientiousness and neuroticism. Specifically, conscientiousness best predicted academic satisfaction and efficacy whereas neuroticism best predicted students' connectedness to the university. The results suggest that the profile of a flourishing college student is extraverted and agreeable. This study illustrates the methodological advantage of using a domain-specific measure of SWB and bifactor modeling to shed light on the unique relations between personality and various aspects of college students' mental health.

Keywords: Big Five personality, college subjective wellbeing, positive psychology, bifactor analysis, psychometrics

Personality and college student subjective wellbeing: a domain-specific approach

Subjective wellbeing (SWB) refers to a person's self-perceptions of so-called "positive" inner events, which are defined as personally or socially desirable patterns of thinking (cognition) and feeling (emotion). The SWB of college students is a growing area of concern given the rise in mental health issues in higher education (Beiter et al., 2015; Twenge, Joiner, Rogers, & Martin, 2018). Moreover, poor SWB often precedes severe mental health and behavioral issues such as depression, suicidality, and college dropout (Keyes, Dhingra, & Simoes, 2010; Keyes et al., 2012; Renshaw & Bolognino, 2016). Accurately identifying high-risk individuals may inform targeted intervention and prevention efforts.

Personality individual differences are one of the strongest predictors of SWB (Friedman, Kern, & Reynolds, 2010; Steel, Schmidt, & Shultz, 2008). In their review, Lucas and Diener (2009) concluded "the most important factor in determining a person's SWB appears to be the personality with which he or she is born" (p.83). Accordingly, a growing body of work has examined the associations between college students' personality and SWB. Existing research, however, either uses a domain-general measure (e.g., life satisfaction, Joshanloo & Afshari, 2011; Lounsbury, Saudargas, Gibson, & Leong, 2005) or narrow measures in specific collegial contexts (e.g., satisfaction with major, Logue, Lounsbury, Gupta, & Leong, 2007). Both approaches are incomplete because domain-general measures overlook the domain-specific aspects of the college experience, whereas narrow measures in a single college context discount the multi-dimensional aspects of college thriving (Kim, Furlong, Dowdy, & Felix, 2014; Renshaw & Bolognino, 2016). In other words, neither approaches fully illustrate the association

between personality and college students' SWB because the criterion measures are either too general or too specific.

In the present study, we examined the associations between Big Five personality and college student SWB using a multi-dimensional domain-specific measure: the College Student Subjective Wellbeing Questionnaire (CSSWQ, Renshaw, 2016). The CSSWQ measures students' SWB in four specific college contexts: 1) Academic Efficacy, 2) College Gratitude, 3) School Connectedness, and 4) Academic Satisfaction. Given the unique social aspects of the college environment and the developmental needs of early adults, the profile of a psychologically flourishing college student may differ from the general population. A domain-specific scale, therefore, is more appropriate for measuring college students' SWB. We also use a bifactor analysis to model the criterion construct (Reise, 2012). Bifactor analysis is a type of confirmatory factor analysis that simultaneously models the general and specific factors of a multi-dimensional construct such as SWB. This technique allows us to examine – more clearly – the associations between each personality trait with both the general- and specific- factors of the CSSWQ, thereby shedding light on the unique relations between personality and various dimensions of college students' SWB.

Background

Subjective Wellbeing

Subjective wellbeing is a core construct in positive psychology (Seligman & Csikszentmihalyi, 2014) and conceptualized as a subtype of human wellbeing (cf. Biglan, Flay, Embry, & Sandler, 2012). SWB generally consists of one's overall life satisfaction, general tendency to experience positive affect, and a global sense of happiness (Diner, Oishi, & Lucas,

2009). Other approaches have expanded traditional conceptualizations of SWB to target specific

domains of human functioning. For example, Seligman's (2012) PERMA model operationalizes

SWB via self-reports of (P) positive emotion, (E) engagement, (R) relationships, (M) meaning,

and (A) accomplishment (e.g., Kern, Waters, Adler, & White, 2015). Similarly, Ryff and Keyes

(1995) proposed a six-factor model of wellbeing with a single higher-order factor representing

psychological wellbeing. Recent research has found evidence for a higher order general

wellbeing factor at the apex of the various SWB models (Chen, Jing, Hayes, & Lee, 2013).

To date, the majority of research on SWB has used domain-general approaches (i.e.,

experienced across life contexts) to investigate the relationship between SWB and other valued

life outcomes. Findings from this line of work have demonstrated, for example, that general

positive affectivity is a significant predictor of physical health symptoms (Pettit, Kline, Gencoz,

Gencoz, & Joiner Jr, 2001), that general self-efficacy has a positive influence on work

performance (Parker, Jimmieson, & Johnson, 2013), and that general life satisfaction predicts

momentary measures of psychological and physiological stress (Smyth, Zawadzki, Juth, &

Sciamanna, 2017).

Another, smaller line of work was undertaken to evaluate the relationship between

domain-specific SWB (i.e., experienced within specific life domains, such as school or work)

and valued life outcomes. Studies in this area have shown that multidimensional domain-specific

SWB measures are psychometrically defensible (e.g., Gilman, Huebner, & Laughlin, 2000;

Singh & Aggarwal, 2018), and that responses to domain-specific measures can have variable

associations with responses to domain-general measures of wellbeing (e.g., Oishi & Diener,

2001). Moreover, domain-specific and general measures of wellbeing can have differential

power for predicting domain-specific outcomes (e.g., Datu, 2018; Kim et al., 2014; Renshaw & Bolognino, 2016).

One relatively new measure in the study of college students is the College Student Subjective Wellbeing Questionnaire (CSSWQ), which was developed by Renshaw and Bolognino (2016) to measure young adults' multidimensional wellbeing within university settings. Like other multidimensional measures of SWB, the CSSWQ was conceived with the intent of functioning as a screening instrument that allows practitioners to gauge wellbeing at the population level and, potentially, identify persons with poorer wellbeing that might warrant intervention or supports. The authors found that the overall college wellbeing score was a stronger predictor of students' academic achievement than domain-general wellbeing measures (Renshaw & Bolognino, 2016). The multi-dimensionality nature of the instrument also revealed unique associations between specific SWB dimensions and domain-specific outcomes. For example, grade point average was most strongly associated with academic satisfaction and academic efficacy dimensions of the CSSWQ whereas as general mental health outcomes such as depression was more strongly associated with school connectedness (Renshaw, 2018).

Another realm of research independently supports the predictive power of domain-specific SWB, sans comparisons with domain-general SWB. This is illustrated in studies validating school-specific measures of SWB with adolescents, which have repeatedly shown that these indicators are viable predictors of a variety of valued life outcomes, including standardized test scores and grade-point average (Renshaw & Chenier, 2018), substance use and problem behaviors (Arslan & Renshaw, 2018) as well as positive social and academic engagement at school (Renshaw, Cook, & Long, 2015). In sum, there is ample evidence illustrating the added

value of domain-specific multi-dimensional measures of SWB as a predictor of valuable

behavioral and mental health outcomes in their respective settings (e.g., colleges).

Personality and Subjective Wellbeing

Compared to situational and life circumstances, personality dispositions play a much

more significant role in determining a person's subjective wellbeing (Diener, Suh, Lucas, &

Smith, 1999; Hentschel, Eid, & Kutscher, 2017; Reyes-García, Angelsen, Shively, & Minkin,

2018). Two meta-analyses have examined the relations between major personality traits and

SWB (DeNeve & Cooper, 1998; Steel et al., 2008). Although the earlier meta-analysis found

weak to modest correlations, Steel and colleagues – using more validated measures of the Big

Five personality (Costa & McCrae, 1992) – found much higher correlations between personality

and SWB.

Wilson (1967) characterized a happy person as "extraverted, optimistic, worry free."

Accordingly, research has found extraversion and neuroticism to be the most consistent

predictors of SWB (Diener et al., 1999; Lauriola & Iani, 2017; Steel et al., 2008). Across six

indicators of SWB, extraversion and neuroticism had meta-analytic correlations ranging from r

$= .18$ to $r = .53$ (Steel et al., 2008). The association between personality and SWB has been

attributed to temperament theories (Costa & McCrae, 1980; Gray, 1970; Tellegen et al., 1988).

According to Gray, people who are high on extraversion are more sensitive to reward signals,

which result in greater positive emotions when being exposed to positive stimuli. In contrast,

people who are high on neuroticism are more sensitive to negative stimuli. Indeed, a number of

studies have attributed the association between personality and subjective wellbeing to

physiological processes (Lucas & Baird, 2004; Smillie, Cooper, Wilt, & Revelle, 2012). Other

personality traits such as conscientiousness and agreeableness also show modest relations with specific facets of subjective wellbeing. Correlations between agreeableness to SWB, for instance, ranged from $r = .12$ with positive affect, to $r = .30$ with overall happiness (Steel et al., 2008). Similarly, conscientiousness was negatively correlated with negative affect and positively correlated with quality of life.

Personality and College Student SWB. Studies examining the relations between personality and college student SWB have revealed a similar pattern of associations. Joshanloo and Afshari (2011), for example, found that extraversion and neuroticism – but not the other three Big Five dimensions – were the primary predictors of college students' life satisfaction. Similarly, Lounsbury et al., (2005) found extraversion and neuroticism to be the strongest predictors of life satisfaction (also see Harris, English, Harms, Gross, & Jackson, 2017; James, Bore, & Zito, 2012). Interestingly, the authors did not find extraversion to be a significant predictor of college satisfaction. However, their measure of college satisfaction contained primarily academically oriented items and did not contain social or emotionally related dimensions of wellbeing. Using a more narrow measure, Logue et al., (2007) found that extraversion, neuroticism, and conscientiousness primarily predicted college students' satisfaction with major.

Some studies have adopted a multi-dimensional conceptuality of SWB. Joshanloo and Nosratabadi (2009), for instance, examined the relations between the Big Five personality traits with three dimensions of wellbeing: psychological wellbeing, social wellbeing, and emotional wellbeing. The authors, however, categorized students into discrete groups varying in mental health based on an aggregation of the wellbeing dimensions. Likewise, Marino et al. (2016)

examined the relations between personality and positive mental health (PMH) using a multi-dimensional instrument: the Social and Emotional Health Survey (Furlong, You, Renshaw, Smith, & O'Malley, 2014). The authors found that extraversion was significantly related to all four dimensions of positive mental health; agreeableness significantly predicted emotional competence, belief-in-others, and engaged living. Other Big Five traits showed modest associations with the mental health domains. Interestingly, emotional stability was not significantly related with any of the PMH domains. However, the authors only examined the associations between the Big Five with each dimension of PMH. Moreover, these studies also used domain-general measures of SWB, and therefore, may not adequately reflect college-specific aspects of student wellbeing.

The analytical strategies of the aforementioned studies are limited given the multi-dimensionality of the criteria. The observed association between personality and an aggregate measure of wellbeing (e.g., Joshanloo and Nosratabadi, 2009) does not provide insight into the unique contributions of the specific dimensions. In contrast, associations between personality to specific wellbeing dimensions (e.g., Marino et al., 2016) are ambiguous in terms of the independent role of the general factor. In other words, it is uncertain whether the observed association between a personality trait (e.g., extraversion) and a specific dimension of SWB (e.g., belief-in-self) is attributed to the dimension itself, or the general factor of positive wellbeing.

General vs. Specific SWB

Most multi-dimensional psychological constructs consist of a general component (e.g., general mental ability) and specific dimensions (e.g., verbal ability, reasoning ability, etc).

Predictions are maximized when the breadth of the predictor is matched with the breadth of the criterion (Hogan & Roberts, 1996). McAbee and Oswald (2013), for example, found that broad personality dimensions such as conscientiousness differentially predicted measures of academic performance that vary in bandwidth. Specifically, conscientiousness most strongly predicted broad measures of academic performance (grade point average), and only weakly predicted narrow performance dimension such as responsibility, ethics, and learning orientation. Similarly, previous meta-analytic investigations also revealed disparate associations between the five factors of personality and specific dimensions of subjective well-being (e.g., Steel et al., 2008). Their findings suggest that the associations between personality and subjective wellbeing may be enhanced by examining theoretically relevant linkages.

In multidimensional measures such as the CSSWQ, the overall scale score (e.g., overall wellbeing) is obtained by aggregating – or taking the average – across the lower order indicators (e.g., Renshaw & Bolognino, 2016). This approach is problematic because it leads to conceptual ambiguity: the composite score captures both the shared variance across lower order facets as well as the unique variance among the facets. Therefore, it is unclear whether the observed relationship between a predictor (e.g., extraversion) and outcome (e.g., aggregated college subjective wellbeing score) is attributed to a person's global evaluation of college SWB or one of the lower order facets (e.g., school connectedness).

When predicting multi-dimensional criteria, it is important that appropriate methodology is used (e.g., Caspi, Roberts, & Shiner, 2005; Chen, Hayes, Carver, Laurenceau, & Zhang, 2012). In this study, we examine the differential predictions of the five factors of personality on both general and specific factors of college subjective wellbeing using bifactor analysis. Bifactor

analysis is a form of confirmatory factor analysis where the items are simultaneously loaded onto a general factor and orthogonal lower-order factors. Previous application of the bifactor approach have primarily focused on the predictor construct, where the goal was to examine incremental prediction of the general and lower order factors of the predictor variable on the criterion (e.g., (Highhouse, Nye, Zhang, & Rada, 2017; Mcabee, Oswald, & Connelly, 2014). However, bifactor analysis can also be used to explore relationships between a set of predictors with the general and specific factors of the criterion, such as the relationship between personality and college subjective wellbeing.

Bifactor Analysis

Bifactor analysis is typically used to model the factor structure of multi-dimensional constructs where there exist a general higher-order factor and specific lower-order facets. Bifactor models have been used in intelligence (Gustafsson & Balke, 1993), personality (DeYoung, Peterson, Séguin, & Tremblay, 2008), and general subjective wellbeing (Chen et al., 2013). Bifactor models are appropriate when (1) there is a general factor that accounts for common variance across indicators (items); (2) there are multiple related but distinct domain-specific factors; and (3) researchers are interested in both the general factor and domain-specific factors, such as the broad and narrow aspects of subjective well-being (Chen, West, & Sousa, 2006).

Bifactor models are comparable to a second-order model, which was used as the analytical framework in the development of the original CSSWQ (Renshaw & Bolognino, 2016). Figure 1 compares a bifactor model of the CSSWQ to a second-order model. In a bifactor model, the indicators simultaneously load on to the orthogonal lower-order factors and the general factor

of wellbeing (Figure 1a). The lower-order factors are represented by the residual variance in the indicators after accounting for the general factor. In other words, the residual variance for the lower-order factors can be conceptualized as the unique variance in the items captured by each specific dimension of SWB after accounting for the general factor. According to Reise, Moore, and Haviland (2010), lower- and higher-order factors in a bifactor model are on "equal conceptual footing and compete for explaining item variance – neither is 'higher' or 'lower' than the other" (p. 547).

In second-order models, the items are modeled as indicators of the lower-order factors. Furthermore, the lower-order factors are modeled as reflections of the general factor (Figure 1b). Second-order models are a variant of the bifactor model where the item loadings to the general factor is constrained to zero; conversely in a bifactor model, the item loadings to the general factor is free to vary. According to Chen et al., (2006), second-order models are more restricted than bifactor models. Moreover, second-order models suffer from conceptual ambiguity in modeling multi-dimensional constructs. Specifically, the general factor in a second-order model does not separate the unique variance of the lower-order facets from the shared variance.

Bifactor models are more theoretically appropriate than second-order models for modeling multi-dimensional constructs. In the bifactor model, specific factors are constrained to be uncorrelated with the general factor. This allows the model to estimate the specific latent factors (academic satisfaction, gratitude, etc) after partialing out variance attributed to the general factor of college SWB. In contrast, the second-orders models are not capable of fully separating the general factor and lower order facets. This is because, in a second-order model, the specific factors are also represented by unique variances (disturbances) of the general factor:

thus, leading to conceptual ambiguity. In other words, the specific factors in a second-order model are contaminated by the general factor. Likewise, individual scale scores derived from taking the arithmetic sum (or average) of the item scores are equally contaminated by both general and specific factors (Chen et al., 2012).

Present Study

In the present study, we use a latent variable modeling approach to examine the associations between personality and college student SWB. First, using bifactor analysis, we accurately model both the general and specific components of the CSSWQ. Next, using path analysis, we examine the unique associations between the Big Five personality and both the general and specific dimensions of college SWB. The combination of a college-specific measure and appropriate methodology allows us to accurately examine the role of personality in the subjective wellbeing of college students.

Methods

Procedure

Data were gathered at two separate time points from students enrolled in psychology classes at a large southern university in the United States as part of a larger data collection effort. We recruited participants using the university's human subjects pool (SONA) and respondents received nominal course credit for their participation. All of the instruments and procedures reported in the paper were approved by the Institutional Review Board (IRB) at the first author's institution. Each survey took approximately ten minutes to complete. Participants completed the *Big Five Inventory* (BFI, John, Donahue, & Kentle, 1991) and demographic variables at Time 1; At Time 2, participants completed the *College Student Subjective Wellbeing Questionnaire*

(CSSWQ; Renshaw, 2016). The separation of predictor and criterion variables reduces the effect

of common measurement variance (Vandenberg & Lance, 2000). All survey material was

administered using Qualtrics[1], an online survey platform. Participants completed the survey over

the internet. Given that the project received the "Exempt" status by the IRB, written or oral

consent was waived. Instead, after reviewing the consent form on the electronic survey, the

participants were explicitly told to "only continue to the next page if you consent to the

procedures described above."

Sample

The first survey was completed by 434 college students during the first month of the fall

semester. The follow-up survey containing was completed approximately two months later by

249 participants. Across both surveys, we included five attention check questions to reduce

response acquiescence (e.g., "if you are still paying attention, please respond to this question

with 'strongly disagree'"; DeSimone, Harms, & DeSimone, 2015). Participants who failed more

than one question were dropped from the survey. This process yielded a total of 181 participants

who completed both surveys. The final sample was primarily female (82%) and Caucasian

(83%). The participants were evenly distributed across class standings (28% of the participants

were Freshman, 20% Sophomore, 27% Juniors, and 25% Seniors).

Measures

Big Five Inventory (BFI). The BFI is a 44-item self-report measure of the Big Five

personality (John et al., 1991). It measures the five personality traits: extraversion (e.g., "tends to

be quite", agreeableness (e.g., "has a forgiving nature"), conscientiousness (e.g., "tends to be

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lazy"), neuroticism (e.g., "can be moody"), and openness to experience (e.g., "values artistic, aesthetic experience"). Participants were presented with short statements that describe aspects of their personality and indicated, on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*), the degree to which they agree or disagree with each statement.

College Student Subjective Wellbeing Questionnaire (CSSWQ). The revised version of the CSSWQ consists of 16 self-report items that comprise four subscales: Academic Efficacy (4 items), College Gratitude (4 items), School Connectedness (4 items), and Academic Satisfaction (4 items). All CSSWQ items are arranged along the same 7-point Likert-type response scale (1 = *strongly disagree* to 7 = *strongly agree*) and are directly phrased to measure the constructs of interest (e.g., "I am an organized and effective student" and "I am happy with how I've done in my classes") (Renshaw & Bolognino, 2016; Renshaw, 2016). Overall wellbeing score was calculated by taking the average of all scale items.

Results

Table 1 contains the scale reliabilities and intercorrelations between the variables. The results showed that the four dimensions of college subjective wellbeing are strongly correlated with each other, and with the overall composite score for college subjective wellbeing. Four of the five dimensions of personality, except for openness to experience, predicted overall subjective wellbeing.

Next, we examined the fit of the bifactor model for the CSSWQ. In addition to the bifactor model, we also tested alternative theoretical models (Credé & Harms, 2015). Table 2 contains the model fit indices for the one-factor, four-factor, second-order factor, and bifactor model of the CSSWQ. All analyses were done with the package *lavaan* in R using maximum

likelihood estimation. The one-factor model, which only assumes a general factor of subjective wellbeing, had poor fit. The four-factor model fit the data better than a one-factor model, but the fit indices still did not meet standard criteria for acceptable model fit based on established criteria (Hu & Bentler, 1999; MacCalum, Browne, & Sugawara, 1996). The RMSEA, for example, was greater than 0.06, and the CFI and TLI were both less than .95.

Although the CSSWQ was originally conceptualized as a second-order model (Renshaw & Bolognino, 2016), some of the fit indices for the second-order model were unsatisfactory. For example, the RMSEA for the second-order model was greater than .06; 90% confidence interval estimates did not include .05[0.073 – 0.103], which is suggested as a criteria for good model fit (Steiger, 1990). Moreover, CFI was less than .95, which is required for excellent fit (Hu & Bentler, 1999). The bifactor model had excellent fit with the data across all model fit indices (Table 2). CFI and TLI were both at or above 0.95. Although RMSEA did not reach the conventional cut-off criteria of 0.06 recommended by Hu and Bentler (1999), the 90% confidence interval did include 0.05 [0.048 – 0.083], which is considered acceptable according to Steiger (1990). The change in chi-squared between the second-order and bifactor model was also statistically significant. Theoretical considerations also suggest that a bifactor structure is more representative of the multi-dimensional nature of subjective wellbeing (Chen et al., 2006).

Table 3 contains the item loadings in the bifactor model. Item loading estimates showed that all items loaded to both the general wellbeing factor and the lower order factors. It is notable that – on average – most of the items loaded more strongly to the lower order factors than the general factor. The results suggest that even after accounting for the shared variance across items, there is still strong evidence for the existence of lower order facets.

Associations Between Big Five and College SWB

Next, we examined the associations between the five factors of personality to both the general and specific factors of college student SWB. The path model fit the data well (Table 2). Table 4 contains the standardized path coefficients between the latent factors of CSSWQ and the Big Five personality traits. The pattern of associations between personality and SWB in the path model is noticeably different from the bivariate relations. First, we find that extraversion – consistent with previous theory and research – was the strongest predictor of the general factor in the bifactor model. Neuroticism, however, did not predict the general wellbeing factor. Other facets of the Big Five did, however, predict the narrow facets of college SWB. Agreeableness positively predicted gratitude; conscientiousness positively predicted academic efficacy and academic satisfaction, and neuroticism negatively predicted school connectedness. Openness to experience was not associated with any of the latent factors of the CSSWQ.

Discussion

In this paper, we sought to examine the association between the Big Five personality traits and college students' subjective wellbeing. Past research has been limited due to the use of overly broad or highly specific measures of SWB. To better illuminate the role of personality and college student SWB, we used a domain-specific measure: The College Student Subjective Wellbeing Questionnaire. Furthermore, using a bifactor analysis, we examined the unique associations between each personality factor and both the specific and general factors of college SWB.

Whereas previous research has found conscientiousness to be a significant predictor of student SWB, our results show that conscientiousness is related only to academic related

dimensions of the CSSWQ such as academic satisfaction and academic efficacy. These results

are consistent with other research demonstrating the role of conscientiousness on academic

performance (McAbee & Oswald, 2013). However, after accounting for the specific academic

related domains, conscientiousness was no longer associated with the general wellbeing factor.

The lack of an association between neuroticism and general wellbeing was puzzling because

neuroticism is one of the most consistent predictor of subjective and psychological wellbeing

(Lucas & Diener, 2009; Takebayashi, Tanaka, Sugiura, & Sugiura, 2018, but see Marino et al.,

2016). We did, however, found an association between neuroticism and school connectedness,

which is arguably more affectively driven. Given that neurotic individuals tend to appraise

experience more negatively, it is reasonable to expect that students who are high on neuroticism

tend to perceive lower support and affiliation with their university. The observed association is

also noteworthy given that school connectedness was one of the strongest predictors of

depression (Renshaw 2018). Our suggest that a school connectedness may serve as an

intermediate link between neuroticism and depression of college students (Grevenstein, Aguilar-

Raab, & Bluemke, 2018; Weissman, Prusoff, & Klerman, 1978).

The observed association between agreeableness and the general wellbeing factor is

particularly noteworthy. Some previous studies have generally shown that agreeableness is

unrelated to college student wellbeing (James et al., 2012; Logue, Lounsbury, Gupta, & Leong,

2007; Lounsbury, Saudargas, et al., 2005). Likewise, studies in the general population have

found agreeableness only weakly associated with SWB (Steel et al., 2008). One possible

explanation for our finding is the domain specificity of the measure, which better reflects

students' experience in college. College environments are socially oriented. Therefore, students'

overall wellbeing may be more contingent on the quality of their social relationships, which

better align with agreeableness. Said another way, students who are more dispositionally inclined

to "get along" may experience better overall wellbeing in college. Indeed, past research has

found that agreeableness is the strongest predictor of friendship quality in college students

(Demır & Weitekamp, 2007), and others have found that social experiences serve as an

important explanatory variable for college students life satisfaction (Harris et al., 2017). The role

of agreeableness for college SWB is consistent with trait-activation theory (Tett & Guterman,

2000). According to trait-activation theory, personality traits are manifested in situations where

the environment is congruent with the trait. For example, openness to experience is more

predictive of job performance in occupations where creativity is most valued (Judge & Zapata,

2015). Relatedly, in a college environment where social interactions are ubiquitous, it comes as

no surprise that extraversion and agreeableness are the most important predictors of general

college wellbeing.

 Deviations in the associations observed using bivariate correlations and latent variable

modeling also highlight the benefit of a bifactor analysis when the researcher is concerned with

predicting a multi-dimensional construct. Whereas the overall student wellbeing score – using an

aggregation method – was significantly predicted by four of the five personality traits, the

bifactor path analysis revealed significant associations with only extraversion and agreeableness.

The differences in the magnitude of associations are also noteworthy. Bivariate correlations, for

example, showed agreeableness and conscientiousness to be the strongest predictors of overall

subjective wellbeing; whereas bifactor analysis showed conscientiousness was unrelated with the

general wellbeing factor and was most strongly associated with academic efficacy and academic

satisfaction. Although extraversion was only moderately correlated with each of the dimensions scores in the CSSWQ using bivariate correlations, bifactor analysis showed that it is one of the primary predictors of the general wellbeing factor.

Our results speak to the importance of using appropriate measures and methodology predicting multi-dimensional measures. Arguably, past research has overlooked the unique associations between personality and specific dimensions of college SWB because the statistical models did not account for the shared variance across dimensions (e.g., Marino et al., 2016). Therefore, the observed associations may either be attenuated or inflated depending on the role of the general factor. After accounting for shared variance across dimensions of SWB (general wellbeing factor) using bifactor analysis, we were able to identify unique associations between each specific domain and the Big Five as well as the true association between the Big Five and college students' general wellbeing. Based on these findings, we suggest that when researchers are concerned with predicting multi-dimensional criteria (e.g., SWB), a bifactor modeling approach should be considered if the researcher is interested in disentangling the unique associations between the predictor with both the specific and general factors of the criteria.

Our research also calls for further inquiry into the relations between personality and SWB more broadly. Existing research has often overlooked the hierarchical nature of SWB. As demonstrated by Chen et al., (2013), despite multiple conceptualizations of wellbeing, there exist a higher order general factor in addition to specific factors of wellbeing. Future research should examine associations between personality and the general wellbeing factor as well as the specific wellbeing dimensions. As illustrated in our results, when higher- and lower- order dimensions of wellbeing are simultaneously considered, the observed association with personality can differ

considerably. Examining these associations can provide more accurate estimates for the role of personality as well as evidence of for the construct validity of the general wellbeing factor.

A limitation of our study is that the general wellbeing factor may represent common method variance in the measure (Podsakoff, MacKenzie, Lese, & Podsakoff, 2003). In other words, the shared variance across indicators may be the result of using the same method of measurement (self-report). Although CMV can be modeled with a bifactor approach in the literature (Johnson, Rosen, & Djurdjevic, 2011), we believe that the general factor in our bifactor model does not simply represent method factor. Specifically, the path model shows that the general factor of wellbeing was predicted by theoretically relevant constructs such as extraversion measured at a separate time point. There are no theoretical reasons for why extraversion – measured at another time – would be positively associated with the general factor if it simply represented a method factor. A second limitation is the lack of narrow personality measures. Past research has found narrow facets of the Big Five (e.g., creativity, patience, etc.) may provide incremental prediction of narrow academic outcomes over and above the broad traits (Lounsbury et al., 2005; McAbee et al., 2014). Future research should more closely examine the relations between narrow facets of personality and specific factors of college SWB. Individual difference characteristics outside of the traditional Big Five such as resiliency, risk propensity, and mindfulness should also be considered (Dubas, Baams, Doornwaard, & van Aken, 2017; Grevenstein et al., 2018; Zhang, Highhouse, & Nye, 2018). A third limitation of the study is the demographic characteristics of the sample, which consisted of mostly female undergraduate students in psychology. Future research should extend these findings to a more representative sample of the student body to enhance the generalizability of our findings. Finally,

future research should examine the incremental prediction of the narrow facets of the CSSWQ over the general factor of predicting academic outcomes. Although Renshaw (2016) found that the aggregated student wellbeing score positively predicted outcomes such as depression and GPA, it is uncertain if the relationship is driven by the general wellbeing factor or the specific facets. Future research should examine the incremental prediction of the general wellbeing factor on broad outcomes related to general wellbeing (e.g., satisfaction with life). Relatedly, future research should further explore the relations between the general wellbeing factor and other broad academic performance outcomes (e.g., Schmitt & Bradburn, 2019). A bifactor approach would shed light on the predictive validity of broad and narrow dimensions of college wellbeing on academic performance and student mental health.

In conclusion, our paper used a bifactor model to examine the predictive validity of the Big Five personality traits on both specific and general factors of college student wellbeing. We showed that there exists a general factor of college subjective wellbeing that accounts for shared variance across the specific dimensions. And, the general and specific dimensions of college SWB are differentially predicted by the Big Five personality traits: providing novel insights into the role of personality on college students' wellbeing.

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Table 1

Means, standard deviations, and inter correlations of variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Overall Well-Being	5.71	0.79	(.92)										
2. School Connectedness	5.44	1.10	.72**	(.91)									
3. Academic Efficacy	5.60	1.09	.77**	.28**	(.91)								
4. Gratitude	6.48	0.72	.71**	.39**	.50**	(.90)							
5. Academic Satisfaction	5.34	1.20	.85**	.50**	.56**	.45**	(.91)						
6. Extraversion	3.09	1.00	.24**	.31**	.04	.18*	.19**	(.79)					
7. Agreeableness	3.92	0.75	.36**	.26**	.25**	.34**	.28**	.25**	(.78)				
8. Conscientiousness	3.68	0.80	.37**	.07	.56**	.21**	.27**	-.06	.20**	(.73)			
9. Neuroticism	2.90	0.86	-.23**	-.23**	-.17*	-.07	-.19**	-.15*	.04	-.30**	(.56)		
10. Openness to Experience	3.65	0.70	.07	.08	.06	.13	-.01	.10	.22**	.09	-.18*	(.86)	
11. Sex	1.82	0.38	.20**	.12	.19*	.21**	.12	.12	.22**	.03	.19*	-.02	
12. Age	20.02	2.17	.02	-.02	.07	.11	-.05	-.03	.04	-.05	-.11	.13	.01

Notes. * indicates $p < .05$; ** indicates $p < .01$. *M* and *SD* are used to represent mean and standard deviation, respectively. Cronbach's alphas are in diagonals. Sex: 1 = Male, 2 = Female.

Table 2.

Fit indices of the confirmatory factor analyses for the CSSWQ

Model	RMSEA	CFI	TLI	SRMR	$\Delta\chi^2$
One-factor model	0.234	0.53	0.46	0.14	
Four-factor model	0.095	0.93	0.91	0.06	858.09*
Second-order model	0.088	0.94	0.92	0.07	23.43*
Bifactor model	0.065	0.97	0.95	0.07	79.84*
Bifactor path model	0.053	0.97	0.96	0.05	

Notes. *. $p < .01$, RMSEA. Root mean square error of approximation; TLI, Tucker-Lewis index; CFI, comparative fit index; SRMR, standard root mean square residual

Table 3.

Factor loadings of the CSSWQ indicators in the bifactor model

#	Item	GWF	School Connectedness	Academic Efficacy	College Gratitude	Academic Satisfaction
1	I feel like a real part of this university	0.53	0.54			
2	People at this school are friendly to me	0.58	0.66			
3	I can really be myself at this school	0.63	0.37			
4	Other students here like me the way I am	0.66	0.51			
5	I am a hard worker in my classes	0.56		0.64		
6	I am a diligent student	0.52		0.67		
7	I am an organized and effective student	0.43		0.68		
8	I study well for my classes	0.41		0.72		
9	I am so thankful that I'm getting a college education	0.51			0.55	
10	I am grateful to the professors and other students who have helped me in classes	0.51			0.71	
11	I feel thankful for the opportunity to learn so many new things	0.56			0.66	
12	I am grateful for the people who have helped me succeed in college	0.56			0.64	
13	I have had a great academic experience at this university	0.86				0.15
14	I am happy with how I've done in my classes	0.63				0.65
15	I am satisfied with my academic achievements since coming to this university	0.53				0.74
16	I am pleased with how my college education is going so far	0.82				0.40

Notes. All factor loadings are statistically significant at $p < .05$; GWF: general wellbeing factor.

Table 4.

Standardized path coefficients between latent factors of CSSWQ and the Big Five personality traits

Latent Factors of CSSWQ	Big Five Dimensions				
	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness to Experience
General Wellbeing Factor	0.26**	0.21*	0.09	-0.09	-0.06
School Connectedness	0.07	0.10	-0.11	-0.27**	0.05
Academic Efficacy	-0.08	0.06	0.63**	0.02	0.00
College Gratitude	-0.02	0.23*	0.10	0.02	0.09
Academic Satisfaction	-0.08	0.15	0.21*	-0.17	-0.14

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

Figure 1. Comparison between a second-order and bifactor model of CSSWQ

a. Bifactor Model   b. Second-order Model
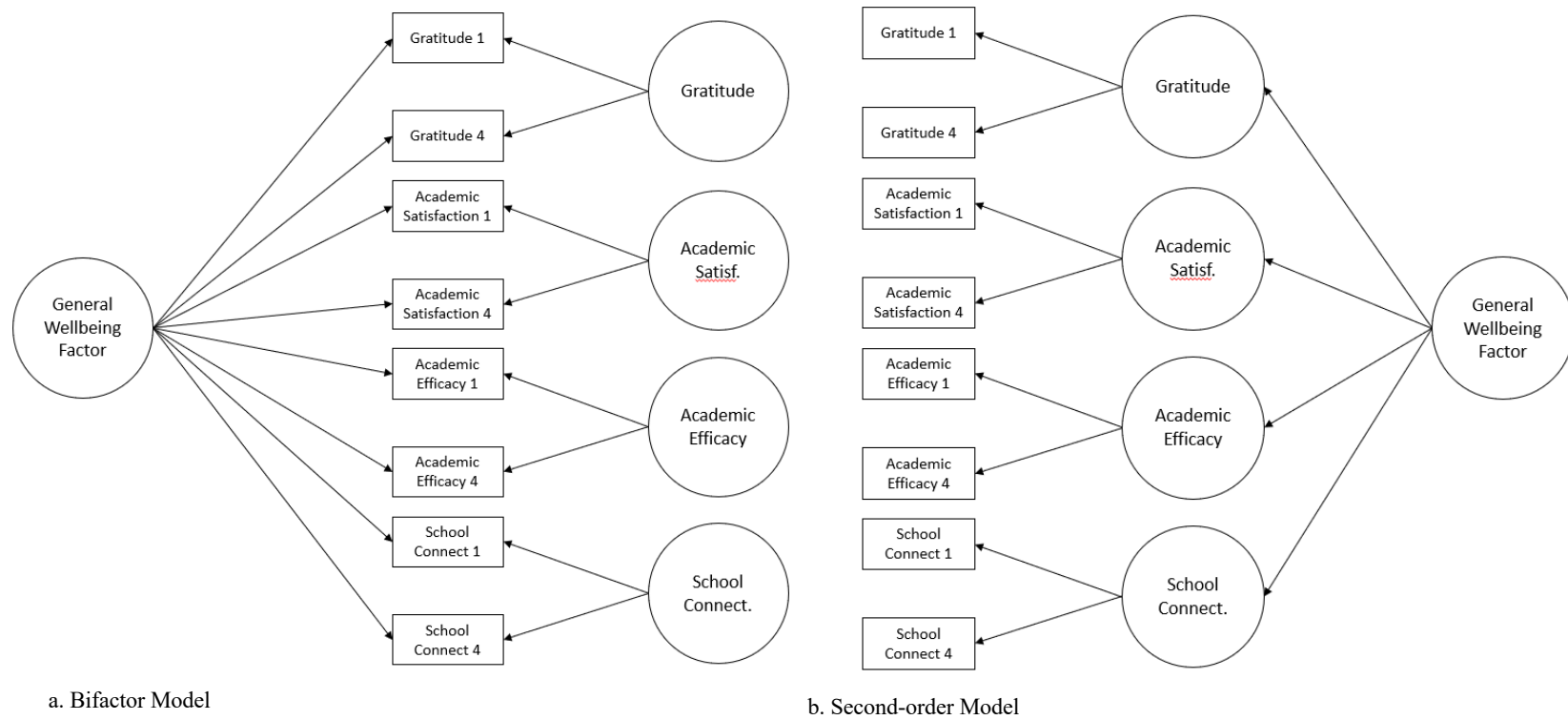
Note. Not all indicators of CSSWQ are illustrated in the figure, for clarity.