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The Impact of Physical Health and Good Practices
on College Students' Psychological Well-Being*

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Psychological Well-Being

Well-being is a broad term capturing the importance of both psychological and physical exploration and health in one's life. The concept of well-being can be used to understand happiness, an individual's outlook on life, and life satisfaction. The definition and description of well-being is grounded in two distinct paradigms; the first is hedonism, "the view that well-being consists of pleasure or happiness," and the second is eudaimonism, grounded in the idea that "well-being consists of fulfilling or realizing one's daimon or true nature" (Ryan & Deci, 2001, p. 143). The latter is the focus of Ryff's research and subsequent scale on psychological well-being (Ryff, 1989a, 1989b; Ryff & Keyes, 1995; Ryff & Singer, 2008). It is based on the assumption that individuals are working towards self-actualization (Ryan & Deci, 2001). Understanding well-being in college students reveals more about their college experiences, including how they are impacted by specific stimuli on campus. As college students move through their educational experience, understanding the factors that shape their well-being contributes to the literature regarding the multitude of ways that college impacts students.

The *Ryff Scale of Psychological Well-Being (RSPWB)* is based on "life span developmental perspectives, which emphasize the differing challenges confronted at various phases of the life cycle" (Ryff, 1989a, p. 1070). Early notions of happiness focused on the balance of positive and negative affect and being satisfied with life (Ryff & Keyes, 1995). The *RSPWB* has expanded on the somewhat narrow definition of well-being as merely an assessment of an individual's affective balance. The role of stimulus is important in the *RSPWB*; more specifically, how individuals react to various stimuli at different points in their lives is at the

center of the *RSPWB*. As college students persist and encounter a variety of stimuli, aspects of their well-being can be measured using the six dimensions of well-being that evaluate health and psychological happiness: positive evaluations of oneself (Self-Acceptance), sense of continued growth and development as a person (Personal Growth), belief in a purposeful and meaningful life (Purpose in Life), quality relations with others (Positive Relations with Others), capacity to effectively manage one's life and surrounding world (Environmental Mastery), and sense of self-determination (Autonomy) (Keyes, Shmotkin, & Ryff, 2002; Ryff, 1989a; Ryff & Keyes, 1995). The six scales have significant, positive associations with measures of happiness and satisfaction and negative associations with depression. Furthermore, understanding individuals' psychological well-being is important at all stages of life.

Our research examines a snapshot of the first-year of college, when first-year students experience an array of physical and psychological changes through the transition process in college (Ryff, 1989a). Another recent study has examined the development of psychological well-being among first-year college students using an array of college experience variables (Bowman, in press-a). Bowman's investigation serves as a guide for our analysis. In our study, we extend Bowman's analytical model by introducing additional and unique covariates of physical health and Chickering and Gamson's (1987, 1991) Seven Principles for Good Practice in Undergraduate Education to more fully examine the roles of these two sets of factors in the development of first-year students' psychological well-being. Furthermore, while Bowman uses a more fully-specified model by incorporating a myriad of precollege and college-level controls, we created a parsimonious model that account for the nested nature of the data. Together, these analyses create a holistic understanding on the impact of the first-year college experience on a student's overall psychological well-being.

Literature Review

Since its inception, the *RSPWB* has been used to study a variety of age groups who encounter a multitude of situations. Studies using the *RSPWB* include examining happiness in midlife and elderly adults (Heidrich & Ryff, 1993a, 1993b; Ryff, 1989a, 1989b, 1995; Ryff & Heidrich, 1997), women and residence experience (Kling, Seltzer, & Ryff, 1997), impact of low socioeconomic status on happiness (Marmot, Ryff, Bumpass, Shipley, & Marks, 1997), treatment of depression (Fava, Rafanelli, Grandi, Conti, & Belluardo, 1998), and the effect of marital status on men and women in midlife (Marks & Lambert, 1998). Although the *RSPWB* has been used to explore happiness in a variety of populations, there has been limited research using the *RSPWB* to study college students (Bowman, in press-a, in press-c). Bowman (in press-a) found that first-year students reported psychological gains in well-being on precollege characteristics including being female, of non-traditional age, and high academic achievement. However, Bowman (in press-a) also demonstrated the importance of controlling for parental education when examining psychological well-being during college, finding that first-generation students report lower levels of psychological well-being compared to their non-first-generation peers. In a similar analysis using longitudinal data on first-year undergraduates at 19 colleges and universities and controlling for a battery of precollege and background characteristics, Padgett and Johnson (2008) also found that first-generation students report significantly lower levels on the *RSPWB* compared to their non-first-generation peers. Focusing on the links between perfectionism, stress, and dimensions of psychological well-being of college students, Chang (2006) found that stress fully mediated relations between socially prescribed perfectionism and three dimensions of psychological well-being, namely, autonomy, environmental mastery, and purpose in life.

As stated earlier, the concept of well-being also encompasses aspects of an individual's physical health. Pascarella and Terenzini (2005) note that students who attend college typically have an overall higher satisfaction with their quality of life compared to those who did not, but the overall difference is negligible. Variables often associated with quality of life that have an effect on college outcomes include student health, alcohol consumption, tobacco use, and sleep deprivation. Recent research focusing on the effects of alcohol have examined binge drinking (Goodman, Martin, Reams, & Pascarella, 2008; Perkins, 2002; Wechsler et al., 2002; Weitzman, Nelson, & Wechsler, 2003), student engagement (Porter & Pryor, 2007), life fulfillment (Murphy, Hoyme, Colby, & Borsari, 2006), and short term effects such as class truancy, personal injury, and disruptions in the community (Wechsler & Nelson, 2008). Others have focused on the effects of alcohol consumption on college outcomes, including academic achievement and long-term implications for educational attainment and occupational mobility (Dowdall & Weschler, 2002; Engs, Hanson, & Diebold, 1996; Pascarella et al., 2007; Paschall & Freisthler, 2003; Porter & Pryor, 2007; Rau & Durand, 2000). The overarching conclusion from these studies is that excessive use of alcohol during college has a negative effect on a variety of college outcomes. Specifically, Bowman (in press-a) found that compared to students who did not drink during their first-year of college, students who consumed various amounts of alcohol over a one-week period had lower levels of psychological well-being.

Researchers note the prevalent use of tobacco and the high proportion of smoking behaviors among the college student population compared to the general public and differences in attitudes, values, and beliefs about smoking and the risks it poses for public health (Borders, Xu, Bacchi, Cohen, & SoRelle-Miner, 2005; Patterson, Lerman, Kaufmann, Neuner, & Audrain-McGovern, 2004; Thompson et al., 2007). Although research specifically aimed at tobacco use

and its impact on college outcomes has been sparse, evidence suggests that smoking is negatively correlated with educational attainment and that smokers tend to be less satisfied with their college experience and more likely to be engaged in other high-risk behaviors compared to their non-smoking peers (Emmons, Wechsler, Dowdall, & Abraham, 1998; Pascarella & Terenzini, 2005; Wechsler, Kelley, Seibring, Kuo, & Rigotti, 2001). Further research on first-year students has revealed a bidirectional relationship between alcohol and smoking behaviors in which both smoking and drinking are likely to occur in the same 24-hour period (Dierker et al., 2006).

College students are some of the most sleep-deprived individuals within any population (e.g., Forquer, Camden, Gabriela, & Johnson, 2008; Pilcher & Walters, 1997). Research has suggested a number of indicators that contribute to sleep deprivation within college students, including stress and sleep patterns (Tsai & Li, 2004; Verlander, Benedict, & Hanson, 1999). Sleep deprivation has also been linked to cognitive and academic performance in college. Students who were deprived of sleep performed significantly lower on a series of complex cognitive tasks (Pilcher & Walters, 1997) and academic performance measures (Curcio, Ferrera, & De Gennaro, 2006) compared to students who maintained an adequate amount of sleep. The American College Health Association (2008) reports that difficulty sleeping is the third leading cause of poor academic performance. One area of emerging research on college student health is the relationship between sleep habits, sleep quality, and sleep quantity and measures of health and well-being (Buboltz, Brown, & Soper, 2001; Curico, Ferrero, & Gennero, 2006; Pilcher, Ginter, & Sadowsky, 1997). Pilcher, Ginter, and Sadowsky (1997) conducted two studies that measured sleep quality versus sleep quantity as it relates to well-being in college students. Their research suggests that measures of well-being are more closely aligned with sleep quality than

sleep quantity. Other research suggests that college students do not have the same amount of sleep quality compared to non-enrolled adults and that women in particular struggle to maintain sleep, which can lead to increases in depression and anxiety (Buboltz, Brown, & Soper, 2001). As the research on physical health and well-being as indicates, it is important to understand not only the impact of these health issues on physical well-being, but to further explore their link to psychological well-being among college students.

Good Practices

Given the dearth of literature on the psychological well-being of college students and the educational practices that promote this college outcome (Bowman in-press-a; Bowman, in-press-b; Padgett & Johnson, 2008), it is important to examine the effects of Chickering and Gamson's (1987, 1991) influential Seven Principles for Good Practice in Undergraduate Education on the *RSPWB*. The Seven Principles for Good Practice are: student-faculty contact, cooperation among students, active learning, prompt feedback to students, time on task, high expectations, and respect for diverse students and diverse ways of knowing (Chickering & Gamson, 1991). The Good Practices conceptual framework has been employed by a myriad of researchers investigating students' college experience and the influence of those practices on a variety of college outcomes (e.g., Cruce, Wolniak, Seifert, & Pascarella, 2006; Kuh, Pace, & Vesper, 1997; Kuh & Vesper, 1997; Padgett et al., in press; Pascarella et al., 2006; Pascarella, Wolniak, Cruce, & Blaich, 2004; Seifert, Drummond, & Pascarella, 2006; Sturnick & Connors, 1995). Padgett and Johnson in particular found first-year students who participated in faculty and peer interactions and were academically motivated reported higher gains in their psychological well-being. In addition, Bowman (in press-a) found that frequency of faculty interaction, participation in diverse experiences, and enrollment in diversity courses lead to positive gains in psychological

well-being.

With prior research on psychological well-being guiding our analysis, the purpose of this study is to more fully examine the effects of physical well-being and Chickering and Gamson's (1987, 1991) Seven Principles for Good Practice in Undergraduate Education on students' overall psychological well-being during the first-year of college. By applying this framework, we seek to introduce a detailed exploration of the effects of students' physical well-being and Good Practices on students' psychological well-being into the college impact literature. Finally, we hope that by focusing on all seven of the Good Practices, we will be able to empirically investigate how these essential features of the college environment affect a student's psychological well-being in ways that may have been missed by prior research using the Good Practices. The specific research questions guiding our analysis are:

1. To what extent do student background characteristics influence first-year students' psychological well-being?
2. To what extent does a student's physical health influence their psychological well-being?
3. To what extent do Good Practices affect psychological well-being, controlling for precollege and background characteristics and a set of measures of in-college physical health?

Methods

Institutional Sample. Funded by the Center of Inquiry in the Liberal Arts at Wabash College, the Wabash National Study of Liberal Arts Education (WNSLAE) is a large, pretest/posttest longitudinal investigation of the effects of the liberal arts experience on a range of cognitive and psychosocial outcomes. The two-year and four-year colleges and universities participating in the WNSLAE study vary in institutional type and control, size, selectivity,

patterns of student residence, and location within the United States, including the Northeast, Southeast, Midwest, and Pacific Coast regions. The primary focus of the WNSLAE study is to study the impact of the liberal arts experience on educational outcomes theoretically associated with liberal arts education. As such, liberal arts colleges are purposefully over-represented within the institutional sample.

Student Sample. The individuals in this analysis were first-year, full-time undergraduates from the 2006 and 2007 WNSLAE cohorts. Students at larger institutions were randomly selected from the incoming first-year class to participate in the WNSLAE study, though the sample from the largest participating institution was randomly selected from first-year students in the College of Arts and Sciences. Every first-year student from the smaller institutions, including all liberal arts colleges, was invited to participate. Students from the 2006 cohort were offered a \$50 stipend to participate in each wave of data collection. The 2007 cohort, however, did not receive a stipend. To maintain appropriate response rates and compensate for possible response bias, some institutions from the 2007 cohort created incentives. With regards to the administration of the WNSLAE study, the offer of a stipend is the only substantial difference between cohorts. The 2006 cohort is comprised of 4,501 first-year students from two community colleges, three regional universities, three research universities, and 11 liberal arts colleges. The 2007 cohort includes 3,375 first-year students from three regional universities, one research university, and four liberal arts colleges

Data Collection. The data for the WNSLAE study was conducted in two separate waves¹. The initial data collection took place in the early fall semester of the first-year. Students completed the WNSLAE precollege survey, provided information on student demographics,

¹ For a comprehensive description of the WNSLAE study and operational definitions of the WNSLAE liberal arts outcomes, please visit:
http://www.education.uiowa.edu/crue/publications/documents/WNSLAE_Research_Methods_Draft_March2008.pdf

family background characteristics, high school and precollege experiences, and precollege measures on a number of cognitive and psychosocial outcomes. The follow-up data collection was conducted in the spring semester of the first-year, giving students at least one-year of college participation between data collections. The follow-up data collection saw a respectable decline in student persistence to complete the survey ($n = 3,081$ for the 2006 cohort; $n = 1,064$ for the 2007 cohort). Two complementary survey instruments, the National Survey of Student Engagement student survey and the WNSLAE Student Experiences Survey, were administered to measure a myriad of student college experiences, student engagement, liberal arts experiences, and exposure to vetted good practices.

We weighted the follow-up data to each institution's first-year undergraduate population by sex (male or female), race (Caucasian, African American/Black, Hispanic/Latino, Asian/Pacific Islander, or other), and ACT score (or COMPASS/SAT equivalent). Though the weighting mechanism for this analysis does not adjust for non-response bias, it does modify the sample to more accurately resemble the total student population from which this sample was drawn. After eliminating students with missing data, 4,025 students (97.1% of original follow-up completers) remained in our analysis.

Dependent Measure. The *RSPWB* (Ryff, 1989a; Ryff & Keyes, 1995) is a 54-item, theoretically-grounded instrument that focuses on measuring six dimensions of psychological well-being: self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy (Ryff, 1989a; Ryff & Keyes, 1995; Keyes, Shmotkin, & Ryff, 2002). The six 9-item scales have significant, positive associations with measures of happiness and satisfaction and negative associations with depression. We averaged scores on the six scales to create a composite scale of *RSPWB* to measure our dependent variable. Appendix A

provides detailed operational definitions and descriptive statistics for every variable within the model.

Insert Appendix A here

Independent Measures. The variables of interest for this analysis center on two sets of independent variables. The first set focuses on a student's physical health during the first-year of college. *Overall health in college* is a self-reported measure of a student's overall health using a five-point Likert-scale ranging from very poor to excellent. The measure was recoded into a dichotomous variable, with 1 = Good/Excellent and 0 = Poor/Fair. *Alcohol consumption in college* is a continuous measure of how often a student consumed alcoholic beverages during a typical one-week period during the current school year. *Use of tobacco in college* assesses how many cigarettes a student smokes during a 24-hour period. The response set for this measure is comprised of five choices: do not smoke, less than half a pack a day, between half a pack and one pack a day, more than one pack but less than two packs a day, and more than two packs a day. Lastly, *Feels sleep deprived in college* is a dichotomous variable measuring the extent to which a student feels sleep deprived, with 1 = Frequently/Almost always, 0 = Never/Occasionally.

The second set of variables of interest are based on Chickering and Gamson's (1987, 1991) Seven Principles for Good Practice in Undergraduate Education. *Quality of nonclassroom interactions with faculty* is a five-item scale ($\alpha = 0.85$) that examines the extent to which nonclassroom interactions with faculty have a positive influence. Nonclassroom interactions with faculty are viewed as an extension and important component of classroom learning (see Pascarella & Terenzini, 2005). *Cooperative learning* is a four-item scale ($\alpha = 0.70$) that examines the extent to which students teach one another by cooperating on class projects and

activities both in- and out-of-classroom. Though researchers have interchangeably used collaborative learning to measure cooperative learning, cooperative learning is typically viewed as a more formal peer learning experience (Pascarella & Terenzini, 2005). *Integration of ideas, information, and experiences* is a nine-item scale ($\alpha = 0.76$) comprised of items focusing specifically on college courses and experiences that have aided the student in making viable connections between knowledge from the classroom and life experiences. *Prompt feedback* is a three-item scale ($\alpha = 0.68$) measuring the extent to which students receive faculty feedback in a timely manner and integrate the feedback into their academics. *Academic challenge and effort* is an 11-item scale ($\alpha = 0.65$) comprised of items measuring a student's academic effort, contribution to class through questions and discussions, and time spent preparing for class. *Challenging classes and high faculty expectations* is a six-item scale ($\alpha = 0.82$) measuring how often faculty challenged students and students challenged each other within the classroom. Lastly, *Diversity experiences* is a six-item scale ($\alpha = 0.65$) measuring the extent to which a student participated in a racial or cultural awareness experience during their first year and how often they participated in meaningful discussions with diverse peers.

Controls. In addition to the independent variables of interest, a number of control variables were included to account for differences in student background characteristics and precollege experiences. Given prior research on the influence of parental education on psychological well-being (Bowman, in press-a; Padgett & Johnson, 2008), we included a dichotomous measure accounting for level of parental education (parents have at least some level of college education versus first-generation status). Given the sensitivity associated with reporting one's income and the unreliability of income as a self-reported measure, we substituted a dichotomous variable measuring if the student was a recipient of a federal grant as a proxy for

income. This is an institution-reported variable, and students who receive the grants are at or below the poverty level. Bowman (in press-a) also suggests that a student's gender and race influence their psychological well-being; as such, gender (male versus female) and student's race (white versus non-white) were included as control variables. Vallerand and colleagues (1992) state that, "One of the most important psychological concepts in education is certainly that of motivation...motivation is related to various outcomes such as curiosity, persistence, learning, and performance" (p. 1004). As such, we included a continuous measure of academic motivation that emphasizes the students' level of intrinsic motivation. Additionally, precollege measures of a student's physical health were incorporated into the models. These precollege physical health measures were constructed similarly to the college-level physical health measures and include a student's overall health in high school, how often a student consumed alcohol per week in high school, the amount of tobacco use per day in high school, and how often the student felt sleep-deprived in high school. Finally, a pretest covariate measuring *RSPWB* at T1 was included. It is important and valuable to account for the pretest measure because it allows us to more confidently attribute variations in the posttest measure of well-being to variations in the other independent measures since the initial precollege well-being score has been controlled for (Astin & Lee, 2003; Pascarella, 2006).

Three institutional type controls were accounted for that may contribute to a student's psychological and physical well-being. Seifert et al. (2007) found evidence suggesting that students experience varying levels of psychological well-being across different institutional types. Inclusion of institutional type controls allows us to account for these unique differences between institutional environments, and as such we included three institutional type variables in the analysis: community colleges, regional universities, and research universities, with liberal

arts colleges serving as the reference group. For ease of interpretation, we standardized all continuous dependent and independent measures so that the coefficients represent effect sizes.

Analyses

First, we examined the missing data for potential biases. Cases that were dropped through listwise deletion, specifically across the independent variables at T2, indicate there was no potential bias, suggesting the missing data was missing at random and unbiased to the dependent measure (Allison, 2002). Therefore, we proceeded to use listwise deletion. Furthermore, to investigate the presence of multicollinearity, a variance inflation factor test was conducted. The variance inflation factor scores ranged from 1.07 – 2.28, with a mean of 1.52. These scores fall within a desired range, indicating that the multicollinearity of the independent variables to be acceptable (Myers, 1990; Stevens, 2002).

Because the data utilized for this analysis is comprised of the 2006 and 2007 cohorts of WNSLAE dataset, we included a control variable to account for potential differences between each cohort. Furthermore, the analyses were conducted using multi-institutional longitudinal data assembled using a complex sampling design. To account for the nested nature of the data, statistical procedures have been performed throughout each model to control for the clustering effect. The nested nature of the data assumes that student respondents are nested within individual institutions and are likely to behave much more similarly than students between institutions. Without proper adjustment, students' responses would have exposed the analyses to a greater likelihood of negative bias in standard errors, leading to inflation of test statistics and greater chance of type I error.

Ordinary Least Squares Regressions. A series of ordinary least squares regressions on *RSPWB* were conducted, introducing sets of variables into the model in three separate blocks.

The first block regressed *RSPWB* on student background and precollege characteristics (i.e., parental education, income level as measured by recipient of a federal grant, gender, race, and academic motivation), high school health (as measured by overall health, alcohol consumption, tobacco use, and sleep deprivation), and the pretest measure for *RSPWB*. The second block incorporated the institutional type controls and the four college measures of physical health (first-year overall health, alcohol consumption, tobacco use, and sleep-deprivation). The third and final block (referred to as the full regression model) is an extension of the second block of covariates, with the inclusion of the seven vetted Good Practices.

Limitations

As previously stated, the primary purpose of the WNSLAE study is to examine the liberal arts experiences theoretically associated with liberal arts education and educational outcomes. As such, liberal arts colleges are purposefully oversampled within the WNSLAE institutional data. Given this analysis is performed on multi-institutional data and the importance of accounting for the nested nature of the data, our degrees of freedom are limited to 25 aggregates (with 26 participating institutions in our data). As such, we are restricted in the amount of covariates we can include in the analysis. Valuable measures of high school academic achievement (i.e., ACT composite scores) and college-level controls (i.e., place of residence, employment, social involvement) had to be omitted from our model. The measure of race within this model is restricted to a dichotomous measure between white and non-white students, thus limiting the extent to which we can explore changes in psychological well-being across different races (see Bowman, in press-a). The restriction of covariates within this analysis did not allow for the inclusion of conditional effects, an important statistical procedure that provides another layer of analysis between covariates. It is also important to acknowledge that potential selection

bias may exist within the sample. Given that we are examining a snapshot of well-being in an individual's life span, we cannot make discernable generalizations comparing the enrolled college students in our sample with any non-enrolled individuals. Moreover, students who enroll in college are typically highly motivated individuals who are likely to have a greater awareness of their personal self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy. This awareness may skew the results on the composite measure representing these six-dimensions of well-being.

Results

The precollege model estimates the effects of student background and precollege characteristics on their psychological well-being in college. Significant effects within the precollege model indicate differences within the independent measures on *RSPWB* prior to any college experiences. Table 1 summarizes the standardized effects of the OLS regressions. Lower-income students (recipients of federal grants) report lower levels of well-being and male students have significantly lower scores on the *RSPWB* than their female peers. Two of the four measures of physical health in high school were also significant: students who report high levels of overall health and did not use tobacco in high school experience significantly higher levels of psychological well-being in college.

Insert Table 1 here

The pretest measure accounts for a significant proportion of the explained variance in *RSPWB*. Therefore, a persistent significant effect for any independent variable across models, in the presence of control variables and the pretest measure, suggests that the variable has a significant influence on *RSPWB* within the model. Moreover, the pretest measure coefficient decreased 0.05 standard deviations when the college experience variables were introduced into

the full model. This suggests that although the pretest accounts for a large proportion of the variance in *RSPWB*, significant covariates also contribute explanatory power relative to variation in *RSPWB*.

In the physical health model, every significant precollege and background characteristic was also significant in the precollege model. However, once institutional type and college physical health measures were added to the model, the two significant physical health measures during high school became non-significant. After accounting for background characteristics, precollege variables, and the *RSPWB* pretest measure, two of the four measures of physical health during college were significant. First-year students who report higher levels of overall health during college were significant. First-year students who report higher levels of overall health also experience higher levels of psychological well-being than their peers. In other words, being a first-year student who is healthy overall increases psychological well-being by 0.27 standard deviations ($p < 0.001$), holding all other variables constant. Furthermore, students who report feeling sleep deprived during the first-year of college have lower levels of psychological well-being ($b = -0.19$; $p < 0.001$) compared to students who feel well-rested.

When the seven Good Practices were added in the final full regression model, the R^2 value increased (from 0.50 to 0.54) and the F-statistic was significant ($p < 0.001$), indicating that participation in good educational practices enhances students' psychological well-being. Specifically, three of the seven good practices had significant and positive effects on a first-year student's psychological well-being: quality of nonclassroom interactions with faculty ($b = 0.06$, $p < 0.05$), integration of ideas, information, and experiences ($b = 0.12$, $p < 0.001$), and receiving prompt feedback ($b = 0.03$, $p < 0.05$). The moderate positive effect of first-year students with higher overall health ($b = 0.19$, $p < 0.01$) and the moderate negative effect of students who feel sleep deprived ($b = -0.18$, $p < 0.001$) persist in the final model. In addition, the reduced

magnitude of the positive effect of overall physical health on psychological well-being suggests that the effect of physical health is partially mediated by students' participation in good educational practices, and healthier students are more likely to participate in such good practices in college. In combination, students with healthier lifestyles who engage in purposeful educational activities through the Good Practices experience higher levels of psychological well-being.

Discussion and Implications

The results from this analysis confirm prior research examining the impact of various college experiences on a student's psychological well-being (Bowman, in press-a) and introduce the previously unexamined relationships between Good Practices and psychological well-being. From this analysis, three distinctive and noteworthy patterns of relationships between the covariates and psychological well-being emerge. First, students from backgrounds often associated with advantage and prestige are significantly more likely to report higher levels of psychological well-being. Students who were not recipients of a federal grant report significantly higher levels of psychological well-being. This evidence suggests that students who come from households with higher levels of income are maintaining higher levels of psychological well-being, a composite of self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy during the first-year of college compared to their lower-income and less-advantaged peers. When these findings are combined with those from prior research (Bowman, in press-a; Padgett & Johnson, 2008), it appears that students who come from households with stable educational, financial, and academic support enter college with high levels of psychological well-being. Psychological well-being may constitute another subtler – but still important – means of social stratification in

the American educational system. For campus administrators working to promote equity in higher education, these results are disconcerting. These results add another layer to the complex process of successfully integrating and retaining diverse and disadvantaged student populations into the collegiate environment. Given that the *RSPWB* has positive associations with measures of happiness and satisfaction and negative associations with depression, low measures on the *RSPWB* by disadvantaged students further complicates efforts to successfully and fully engage and integrate these students into the college milieu.

Second, healthier students are more likely to report higher levels of psychological well-being. Prior research (Curcio, Ferrera, & De Gennaro, 2006; Forquer, Camden, Gabriau, & Johnson, 2008; Pilcher & Walters, 1997; Tsai & Li, 2004; Verlander, Benedict, & Hanson, 1999) has consistently shown that sleep deprivation during college negatively affects collegiate performance, specifically psychological well-being (Pilcher, Ginter, & Sadowsky, 1997), and the results from our study support this evidence. From a theoretical standpoint, we would anticipate that healthier college students are more likely to perform well on measures of psychological well-being and other college outcomes compared to less-healthy students. However, evidence suggests that specific unhealthy activities, including binge-drinking (e.g., Bowman, in prees-a; Goodman, Martin, Reams, & Pascarella, 2008; Perkins, 2002; Wechsler et al., 2002; Weitzman, Nelson, & Wechsler, 2003) and sleep deprivation (e.g., Curcio, Ferrera, & De Gennaro, 2006; Pilcher, Ginter, & Sadowsky, 1997) negatively affect one's collegiate academic experience. Though college administrators and student affairs practitioners certainly inform and warn students about the dangers and health and academic concerns related to binge drinking and sleep deprivation, the extent to which these communications actually inhibit these negative self-destructive behaviors is questionable. A more proactive approach would be to actively promote

campus health care facilities and counseling centers to incoming first-year students so they can become aware of the availability and proximity of health care. Moreover, it is likely that most full-time, first-year students do not fully understand their student insurance plan and the coverage and benefits it provides. Educating students on access to confidential treatment promotes healthier lifestyles, which this analysis suggests increases a student's well-being. Because these unhealthy and self-destructive behaviors have substantial negative consequences for academic performance, perhaps freshmen seminars should also emphasize curricula that include statistics and case studies on these important student-success topics.

Lastly, participation in a number of vetted Good Practices increases a student's psychological well-being. Of the seven Good Practices, three (quality of nonclassroom interactions with faculty, integration of ideas, information, and experiences, and receiving prompt feedback) were found to significantly and positively affect a student's psychological well-being. Moreover, two of the three significant effects (quality of nonclassroom interactions with faculty and receiving prompt feedback) are direct measures of faculty interaction/involvement with students. This supports prior research (Bowman, in press-a; Padgett & Johnson, 2008) that interaction with faculty positively influences a student's psychological well-being during the first-year of college. Faculty-student interactions appear to reinforce a student's psychological well-being. Yet, the Good Practices measuring peer interactions (cooperative learning and co-curricular involvement) were non-significant, suggesting that academic interactions with peers do not significantly influence a student's psychological well-being. The findings suggest the importance of students seeking out experiences that yield opportunities to participate in a knowledge-seeking environment that often includes student-faculty interactions. The more opportunities students have to interact with

faculty, the more likely they are to improve their overall psychological well-being. The other significant finding regarding Good Practices is that students who were able to integrate ideas and information from courses and college experiences in making connections between the classroom and their life experiences also report higher levels of psychological well-being. Integration of ideas, information and experiences can also occur through student-faculty and student-staff interactions. Faculty, staff, and campus leaders should make every effort to ensure that both students' curricular and their co-curricular learning opportunities emphasize meaningful interactions that promote psychological well-being.

Our analysis found that the positive effect of overall physical health on psychological well-being is partially mediated by students' participation in good educational practices. In other words, healthier students are more likely to participate in vetted Good Practices in college. The significant finding within this study indicates that first-year students who maintain healthier lifestyles and who engage in faculty interactions and integrate ideas and information from courses and college experiences experience higher levels of psychological well-being. While a combination of research on the importance of physical health in college and participation in the Good Practices increases overall educational success, this study highlights how valuable these two sets of activities are in promoting psychological well-being. Students who feel healthier, who engage in educational activities, and who exhibit high levels of well-being are likely to persist through college. It is imperative that administrators and practitioners address these issues in promoting and supporting student's psychological well-being.

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Table 1

Standardized Effects of Physical Health and Seven Good Practices on the Ryff Total Scale of Psychological Well-Being using the Wabash National Study of Liberal Arts Education (n = 4,025)

Variables ^a	Precollege	Physical Health	Good Practices
Parent(s) have Some College Education or More	0.09	0.09	0.08
Recipient of Federal Grant	-0.15***	-0.16**	-0.14**
Male	-0.14***	-0.14***	-0.14***
Race- White	0.07	0.04	0.03
Academic Motivation	0.02	0.02	-0.04***
Overall Health in High School	0.15**	0.03	0.07
Alcohol Consumption in High School	-0.03	-0.02	-0.02
Use of Tobacco in High School	-0.04*	-0.04	-0.03
Feels Sleep Deprived in High School	-0.06	0.02	0.02
Pretest Measure	0.64***	0.63***	0.59***
Institutional Type- Community College		0.06	0.15*
Institutional Type- Regional College		-0.05	0.02
Institutional Type- Research University		-0.03	0.05
Overall Health in College		0.27***	0.19**
Alcohol Consumption in College		-0.03	-0.03
Use of Tobacco in College		0.01	0.00
Feels Sleep Deprived in College		-0.19***	-0.18***
Quality of Nonclassroom Interactions with Faculty			0.06*
Cooperative Learning			0.02
Integrated Ideas, Information, and Experiences			0.12***
Prompt Feedback			0.03*
Academic Challenge and Effort			0.04
Challenging Classes and High Faculty Expectations			0.01
Diversity Experiences			0.01
R ²	0.49	0.50	0.54

^a A variable labeled Cohort06 was included in the analysis as a control to account for potential differences between the 2006 and 2007 cohorts

* p < 0.05, ** p < 0.01, *** p < 0.001

Appendix A
Operational Definitions and Descriptive Statistics for Dependent and Independent Variables

Variable/Description	<i>M</i>	<i>SD</i>
<u>Dependent Variable</u>		
<i>Ryff Total Scale of Psychological Well-Being</i> : Student's end of the first-year total mean score on the Ryff Scales of Psychological Well-Being. 54-total item scale of six dimensions of psychological well-being: positive evaluations of oneself, personal sense of continued growth and development, belief in a purposeful and meaningful life, positive relations with others, capacity to effectively manage one's life and surrounding world, and autonomy. The internal consistency reliabilities for each of the six scales ranged from $\alpha = 0.793$ to $\alpha = 0.864$.	T1: 4.56 / T2: 4.55	T1: 0.57 / T2: 0.61
<u>Measures of Physical Health</u>		
<i>Overall Health (in High School/College)</i> : How student rates his/her overall health. 1 = Good/Excellent, 0 = Poor/Fair.	T1: 0.92 / T2: 0.91	T1: 0.27 / T2: 0.29
<i>Alcohol Consumption (in High School/College)</i> : In a typical one-week period, how often student consumes alcoholic beverages. 1 = 0 times, 2 = 1 time per week, 3 = 2 times per week, 4 = 3 times per week, 5 = 4 times per week, 6 = 5 times per week, 7 = 6 times per week, 8 = 7 times per week, 9 = More than 7 times per week.	T1: 0.44 / T2: 0.96	T1: 0.86 / T2: 1.21
<i>Use of Tobacco (in High School/College)</i> : In a given day, how many cigarettes student smokes. 0 = Do not smoke/zero cigarettes, 1 = Less than half a pack, 2 = One half pack to one pack, 3 = More than one pack but less than two packs, 4 = Two or more packs.	T1: 0.07 / T2: 0.08	T1: 0.32 / T2: 0.35
<i>Feels Sleep Deprived (in High School/College)</i> : How often student feels sleep deprived. 1 = Frequently/Almost always, 0 = Never/Occasionally.	T1: 0.38 / T2: 0.45	T1: 0.49 / T2: 0.50
<u>Measures of Good Practices</u>		
<i>Quality of Nonclassroom Interactions with Faculty</i> : Five-item scale. The internal consistency reliability for this scale is $\alpha = 0.854$.	0.01	0.80
<i>Cooperative Learning</i> : Four-item scale. The internal consistency reliability for this scale is $\alpha = 0.697$.	0.00	0.73
<i>Integrated Ideas, Information, and Experiences</i> : Nine-item scale. The internal consistency reliability for this scale is $\alpha = 0.755$.	0.00	0.58
<i>Prompt Feedback from Faculty</i> : Three-item scale. The internal consistency reliability for this scale is $\alpha = 0.676$.	0.01	0.77
<i>Academic Challenge and Effort</i> : Eleven-item scale. The internal consistency reliability for this scale is $\alpha = 0.649$.	0.01	0.46
<i>Challenging Classes and High Faculty Expectations</i> : Six-item scale. The internal consistency reliability for this scale is $\alpha = 0.824$.	0.01	0.73
<i>Diversity Experiences</i> : Six-item scale. The internal consistency reliability for this scale is $\alpha = 0.651$.	0.00	0.60
<u>Precollege Control Variables</u>		
<i>Parent(s) have Some College Education or More</i> : Student's father and mother's combined educational attainment. 1 = Parent(s) attended at least some college or more, 0 = Parent's received a high school diploma/GED or less but did not attend college (first-generation status).	0.90	0.30
<i>Student was Recipient of Federal Grant</i> : 1 = Yes, 0 = No.	0.15	0.36
<i>Gender</i> : 1 = Male, 0 = Female.	0.37	0.48
<i>Race/Ethnicity</i> : 1 = White, 0 = Other.	0.76	0.42
<i>Academic Motivation</i> : Student's mean-based scale of precollege academic motivation using a Likert-like scale.	3.60	0.55
<u>Institutional-Type Control Variables</u>		
<i>Institutional Type- Community College</i> : 1 = Community college, 0 = Liberal Arts college.	0.03	0.17
<i>Institutional Type- Regional College</i> : 1 = Regional college, 0 = Liberal Arts college.	0.24	0.43
<i>Institutional Type- Research University</i> : 1 = Research university, 0 = Liberal Arts college.	0.26	0.44