Contributing Factors to Academic Performance for Students with Disabilities

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Abstract

Students with disabilities comprise a significant portion of college students and helping more students with disabilities succeed would be beneficial. Currently, colleges have successfully offered assistance to these students, and it has enhanced their ability to both attend and succeed in college. However, students with disabilities are less likely to access available resources through the Department of Disability Support Services once enrolled in college and are less likely to complete their education once started. Improved ability to manage life and school has been cited as important factors related to success at college for all students. Disabilities make managing life and school an even more pressing issue. This exploratory pilot study assessed whether Disability Support Services undergraduate students' grit, resilience, satisfaction with life, wellness, and perceived health were associated with higher grade point averages. Findings indicated that better health was associated with higher grade point averages. Significant relationships were also found between frequency of engagement in health behaviors by students with disabilities and their resilience, grit, and life satisfaction. These findings suggest that Disability Support Services should work with students to manage and develop general health promoting lifestyle habits and encourage students with disabilities to access available resources.

Keywords: college students with disabilities, resilience, grit, life satisfaction, health promoting behaviors

Students with disabilities are challenged by a rigorous college environment. Despite the challenging atmosphere, in 2015-2016, 19.4% of undergraduate students reported having a disability (U.S. Department of Education, National Center for Education Statistics, 2018). This percentage, however, is likely an underrepresentation because students with disabilities are less likely to pursue postsecondary education. Additionally, Newman and Madaus (2015) suggested only 35% of students who received special education services in high school disclosed their disability to their college or university. Universities, therefore, were unaware of 65% of students with disabilities enrolled in their school. To compound this issue, graduation data indicates that students with disabilities are less likely to complete their education once started (Dong & Lucas, 2016). To attend to this need, postsecondary institutions provide disability support services (DSS) for students with disabilities to facilitate their success in their academic training programs. Studies (Dong & Lucas, 2016; Kim & Lee, 2016) document that students with disabilities who use DSS perform better academically and graduate.

Success by students that use DSS inspired Mamiseishvili and Koch (2011) to use the data from the *Beginning Postsecondary Students Longitudinal Study* to determine what factors helped students with disabilities continue from the first to the second year of college. The data indicated that on-campus living, full-time enrollment, higher degree expectations, first-year grade point average (GPA), and net price of attendance predicted persistence. Additionally, academic integration (e.g., talking with faculty and advisors, study group participation); social integration; and stick-to-it-iveness positively influenced students continuing to their second year of college.

Mamiseishvili and Koch (2011) recommended that rehabilitation counselors, DSS staff, faculty, and administrators become aware of the factors that encourage students with disabilities to remain in college

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and to continue their academic pursuits. Since accommodations are important in students continuing their education, students should be notified prior to admission to college of the availability of DSS. Once they arrive on campus, students need to be educated about DSS and taught self-advocacy skills to assist in making these requests (Dong & Lucas, 2016).

Accommodations include course substitutions or waivers, readers, note takers, and scribes. Additionally, Mamiseishvili and Koch (2011) recommend that students with disabilities have academic goals, be encouraged to continue their education until completion, and where appropriate, receive funding to pursue academic coursework full-time. The authors recommended that students seek out cooperative learning opportunities and that they participate in activities that encourage interaction with others because these factors help them succeed in college. Overall, higher levels of student engagement with college life has been associated with higher levels of academic performance (Becker, Cooper, et al., 2009).

Studies have been completed to better understand factors affecting students with disabilities academic performance. Regarding performance and GPA, Kuncel et al. (2005) found in a meta-analysis that self-report of GPA was a good indicator for students with good GPAs and high abilities but was less accurate for students with lower GPAs and abilities. Additionally, students with disabilities' GPAs were improved by test accommodations, specifically, the extension of time and modification of the examination materials (Kim & Lee, 2016). Hall et al. (2002) compared undergraduate students with and without learning disabilities. Their study suggested that college students with learning disabilities had a stronger need for achievement than college students without learning disabilities. They also found that higher GPAs were associated with students who felt responsible for their own outcomes because of the significant relationship between need for achievement and GPA. This finding may explain why students with a learning disability scored significantly higher on the Hall Resiliency Scale initiative factor which was interpreted as the students finding solutions to issues they faced in their life.

Many factors effect students' performance. To determine the impact of these factors, resilience, grit, life satisfaction, and health have been reviewed to determine their relationship to grade point average (GPA). Resilience is the ability to bounce back from adversity (Smith et al., 2008). In a meta-analysis (Lee et al., 2013) that explored psychological protective (e.g., enhancing adaptation) and risk (e.g., maladaptation) factors and their impact on resilience, a large effect was found for protective factors (e.g., self-efficacy, life satisfaction, optimism) and a medium effect was found for risk factors (e.g., depression, anxiety, post-traumatic stress disorder). For the protective factors, self-efficacy was the strongest relationship to resilience followed by positive affect. For the risk factors both depression and anxiety had strong negative relationships to resilience. Researchers (Lee et al., 2013; Tansey et al., 2016) suggest resilience can be improved by enhancing protective factors. Persistence and perseverance, or grit, may also be related to academic performance.

Grit is a predictive trait for success. Duckworth, Peterson, Matthews, and Kelly (2007) defined grit as "perseverance and passion for long-term goals" (p. 1087). Grit requires focused attention, follow through, and stamina over time. The Grit Scale assesses two factors, Perseverance of Effort and Consistency of Interest. Perseverance was defined as sustained effort on the part of the individual and Consistency of Interest was defined as persistence and as a characteristic that develops over time (Duckworth, 2016). If a person demonstrates grit, the person will do what it takes to achieve their goal and will not be distracted by adversity while less gritty individuals allow challenges to cause them to change their goals (Duckworth et al., 2007).

Studies (Duckworth 2016; Duckworth et al., 2007,) have demonstrated that grit better predicts success than an intelligence quotient and conscientiousness. Undergraduate students majoring in psychology who had more grit outperformed students with less grit. Grit also better predicted completion of West Point training programs and who would be finalists at the Scripps National Spelling Bee. Older adults had more grit than younger adults (Duckworth et al., 2007; Duckworth & Quinn, 2009) suggesting that "grit grows with age and that one learns from experience that quitting plans, shifting goals, and starting over repeatedly are not good strategies for success" (p. 1092). Duckworth (2016) suggested grit can evolve from the inside out or from the outside in. Grit can be developed from the inside out through daily habits that cause a person to push them beyond their current skill level. These daily habits are also what can cultivate interest. Building grit from the outside in appears to be facilitated through coaches, parents, bosses, mentors, friends, and teachers who help create a supportive culture that pushes people beyond their current limit.

Beyond specific skills, life satisfaction is a cognitive, judgmental process which is internally imposed (Diener et al., 1985). Positive correlations have been reported between happiness, life satisfaction, positive affect, and grit. Negative correlations have been reported between happiness and negative affect. Neg-

ative correlations were also found between negative affect and grit and between negative affect and life satisfaction (Singh & Jha, 2008). In a sample of vocational rehabilitation consumers, resilience correlated positively with life satisfaction and negatively with depression while succumbing was just the opposite (Tansey et al., 2016).

In addition to the factors mentioned, health has consistently had expected relationships to school performance. Those with higher levels of health outperform students with identified disease or infirmity and or lower levels of health. College student's positive health or wellness was associated with higher levels of academic performance (Al-Hadid et al., 2013; Becker et al., 2009).

The purpose of this exploratory pilot study was to determine whether variables that relate to students' grit, resilience, satisfaction with life, wellness, and perceived health were associated with students with disabilities' GPA. Additionally, this study sought to determine if there were relationships between the investigated variables. Our hypotheses were that students with disabilities who have more resilience, grit, life satisfaction, better perceived health, and higher levels of wellness also have higher GPAs. With regard to the relationships of these studied variables, we hypothesized higher levels of resilience, grit, and life satisfaction would be related to health.

Method

Participants

The participants contacted for this study were the 240 power users at a Southeastern university registered with the Department for Disability Support Services (DSS). Power users are those who consistently used DSS services to take all their tests at DSS regardless of the subject matter. Non-power users only occasionally used DSS to take tests related to their areas of weaknesses, or when they felt accommodations through DSS will help them with their grades. Forty-nine students of these power users began the survey and thirty (12.5%), twenty-eight undergraduate students and two graduate students of queried participants, completed the survey. Because of the small number of graduate students participating, only data from undergraduate students was analyzed. Of the students who started and did not complete the survey, there was insufficient information to allow the authors to compare the survey non-completers and survey completers, and the authors did not have Institutional Review Board permission to access student records for non-responders.

Procedures

After obtaining permission for the study from the Institutional Review Board for research with human subjects, the Department for Disability Support Services provided a list of power users to the research team. The power users were then sent a letter from the DSS director and the researchers via email requesting their participation in the study. REDCap (Research Electronic Data Capture) software was used for distribution of the survey because REDCap "is a secure, HIPAA [Health Insurance Portability and Accountability Act]- and FERPA [Family Education Right to Privacy Act]-compliant, web-based application for building and managing online surveys and databases" (East Carolina University, Information Technology and Computing Services, 2019, para. 1). The original survey was emailed to students' March 1, 2018 with follow-up surveys emailed, March 14, 2018, April 25, 2018, October 1, 2018, and November 13, 2018. Paper surveys were given to the staff at the Department for Disability Support Services during final exams in the spring and fall of 2018 in an effort to increase response rates. Eleven of the twenty-eight (39.3%) surveys completed were paper surveys. These participants data were entered by the researchers.

In an effort to increase response rates, an incentive to complete the survey was added in fall 2018. Students who completed the entire survey had their names placed in a drawing for one of four $25 gift certificates from Amazon. An email was then sent to all survey non-completers and to participants who had begun but not completed the survey informing them of the drawing. As mentioned above, the survey was emailed out two additional times with the letter requesting survey completion noting the addition of the drawing. One additional person completed a paper survey in fall 2018. The added incentive resulted in five additional surveys being completed.

Instruments

An online and paper version of the *Brief Resilience Scale* (Smith et al., 2008), *Short Grit Scale* (Duckworth et al., 2007; Duckworth & Quinn, 2009), *Satisfaction with Life Scale* (Diener et al., 1985), *Salutogenic Wellness Promotion Scale - Young Adult Version* (Becker et. al. 2008), the *Perceived Health Assessment* (Becker et al., 2007), and a demographic questionnaire were used to evaluate students using Disability Support Services (DSS).

Brief Resilience Scale (BRS; Smith et al., 2008). The BRS was originally developed as a single construct measure of resilience where resilience was defined as the ability to bounce back or recover from stress. The BRS has a six-item scale with three positively worded

items and three negatively worded items. Negatively worded items are reverse scored. Respondents answer each question using a five-point Likert scale (e.g., 1 *strongly disagree* to 5 *strongly agree*; Smith et al., 2008). The results revealed a one-factor solution with good internal consistency (Cronbach alpha ranged from .80 to .91) and good test-retest reliability. Smith et al. (2013) reported BRS cut-off scores. The overall resilience score was 3.70, with low resilience falling below 3.0 and high resilience above 4.3.

Tansey et al. (2016) completed a psychometric validation of the BRS with a sample of vocational rehabilitation consumers. They reported a two-factor solution using both principal component and confirmatory factor analyses. The three positively phrased items loaded on to a factor labeled Resilience and the three negative phrased items loaded on to a factor labeled as Succumbing. Resilience was defined as the ability to bounce back from adversity and succumbing was an inability to resist a negative force. There was a significant correlation between Resilience and Succumbing. Internal consistency reliability was within acceptable ranges. Construct validity of this scale was demonstrated through correlations to other measures. The Resilience factor had a significant positive correlation with life satisfaction and a significant negative correlation with depression while the Succumbing factor had a significant positive correlation with depression and a significant negative correlation with life satisfaction. The results revealed a two-factor solution with good internal consistency and good test-retest reliability (Tansey et al., 2016).

Short Grit Scale (Grit-S; Duckworth et al., 2007; Duckworth & Quinn, 2009). Grit measures a non-cognitive trait which is defined as, “the passionate pursuit of long-term goals” (Duckworth et al., 2009, p. 542). The original Grit Scale was 12-items (Duckworth et al., 2007). This scale demonstrated high internal consistency and two factors Consistency of Interests and Perseverance of Effort. The Grit-S was developed and validated by Duckworth and Quinn (2009). The Grit-S contains a total of eight items that are each rated on a 5-point Likert-type scale ranging from 1 (*not at all like me*) through 5 (*very much like me*). A two-factor model - Consistency of Interest (persistence), and Perseverance of Effort - with four items in each factor was supported by a confirmatory factor analysis. Both factors were strongly intercorrelated, r = .50, p < .001 and had adequate internal consistency. Cronbach’s Alpha on the Grit-S ranged from .73 to .83, on the Persistence of Effort from .60 to .78, and on the Consistency of Interests from .73 to .79. A single mean score is obtained (Duckworth & Quinn, 2009). A score of 1 indicates the person is "*not gritty at all*", while a score of 5 indicates the person is "*extremely gritty*" (Duckworth et al., 2007; Duckworth & Quinn, 2009). Grit is relatively stable over time, both factors were strongly intercorrelated ($r = .59$, $p < .001$; Duckworth & Quinn, 2009).

Satisfaction with Life Scale (SWLS; Diener et al., 1985). The SWLS measures global life satisfaction (Diener et al., 1985; Pavot & Diener, 1993). The SWLS is composed of five items and is measured using a seven-point Likert scale (e.g., 1 *strongly disagree* to 7 *strongly agree*; Diener et al., 1985). The SWLS takes less than one minute to complete (Pavot & Diener, 1993). A total score is obtained that ranges from *extremely dissatisfied* (5 - 9) to *highly satisfied* (30 - 35; Diener, 2006). The test-retest correlation coefficient at two months was .82 with coefficient alpha at .87. High internal consistency and temporal reliability were demonstrated (Diener et al., 1985) across gender, ethnicity, and age (Pavot & Diener, 2008; Sousa & Lyubomirsky, 2001).

Salutogenic Wellness Promotion Scale (SWPS; Becker et al., 2008). The SWPS is a 25-item questionnaire, with responses ranging from 5 (*Always*) to 0 (*Never*) that measures student perceptions of how often they engage in health promoting actions in seven unique dimensions: physical, social, emotional, spiritual, intellectual, vocational, and environmental. The SWPS assesses the ability to manage emotions; physical movement in sport and lifestyle; nutrition from food intake; actions that build networks and relationships; vocational importance (i.e., schoolwork: enjoyable, satisfying, inspirational); efforts made to improve their intellectual abilities through reading, vocabulary, writing; spiritual meaning related to the greater good and religious activities; and actions to support or improve a healthy environment. Reliability and validity have been reported in multiple studies (Becker et al., 2008; Becker, Cooper, et al., 2009). Statistically significant predictive and construct validity reported a positive relationship ($p < .001$) to perceived health (Becker, Moore, et al., 2009), adequate test-retest reliability (Anderson et al., 2013), and an overall internal consistency alpha of .85 to .89 with subscale validity scores of .6 to .86 (Becker et al., 2008; Becker, Moore, et al., 2009).

Perceived Health Assessment. Participants were asked to rank their perceived health on a 5 point Likert scale as *excellent, very good, good, fair,* and *poor* based on the World Health Organization’s (1948) definition of health, “Health is a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity” (para. 1). To learn more about their health status, participants were asked how they made that determination. The query asked

participants to indicate, with a percentage that added up to 100, the percent of their personal state of health that was positive physical, mental and social well-being, and the percentage that was negative disease and infirmity. Resulting percentages were labeled well-being and infirmity.

Demographic Questionnaire. The survey included demographic questions about gender, age, race/ethnicity, marital status, children, height, weight, year in school, GPA, student status, lived on/off campus, work status, and volunteer activities. Additional demographic questions about success factors, challenges and ability to meet those challenges were included. Students were asked to self-report GPA and to self-identify. Identification information enabled the researchers to access their actual GPA from the semester prior to survey completion to compare to their reported GPA.

Data Analysis

The researchers reviewed qualitative data collected. For quantitative data, a correlation (F-Test) was completed between self-reported and actual GPA and between all scale scores. Additionally, separate linear regressions were performed with scale scores and demographic variables as the independent variable with GPA as the dependent variable. Analysis of demographic groups and comparison between scores on completed scales and GPA were used to determine relationships. No missing data needed to be accounted for because incomplete scales were not used in the analysis.

Results

Demographics

Twenty-one of 28 (79%) of the participants were female and the average age was 21. The participants ranged in age from 18-40 years. Most, 24 out of 28 (86.2%) of the students were White, one was divorced. Eight participants were Freshman, one was a Sophomore, nine were Juniors, and 10 were Seniors. The mean GPA of the 28 students was 3.24 with a range of 2.05-4.0. A significant relationship was found between self-reported GPA and actual GPA ($p < .035$; $r = 0.4150$). Of the 28 participants, two (7%) were part-time students and the remaining 26 (93%) were full-time students. Eighteen (64.3%) lived off campus and the remaining 10 lived on campus. Fifteen reported they worked five hours or less each week, three reported they worked six to 10 hours per week, four indicated they worked 11 to 15 hours per week, two reported they worked 16 to 20 hours per week, and two indicated they worked more than 20 hours per week. They all reported volunteering.

Reasons for DSS

Qualitative data indicated the students who completed this study were primarily students who had attention deficit hyperactivity disorders (9), attention deficit disorders (6), or both (1). This was followed by students who had challenges decoding (5), anxiety (3), physical disabilities, visual impairments, epilepsy, and stroke (1 each). These students often reported multiple disabilities (i.e., attention deficit hyperactivity disorder and anxiety, dyslexia, or panic disorder). Extra time to take tests, low distractions, or separate areas for testing were the primary accommodations requested by the participants. Most of the students requiring extra time also required testing in a low distraction area, a separate setting, or both. Other requested accommodations included a reader, having the ability to read out loud, assistance bubbling an exam, audio note takers (e.g., LiveScribe©), text readers (e.g., Read&Write by Texthelp®), and using a computer for note taking.

Approximately 54% of the students gave themselves credit for their own success in college. The reasons provided for success where they studied, were determined, focused, and organized. One of these students even attributed their success to their disability. This student said, "My OCD, although difficult to cope with, has its own benefits. It provides me with an endless drive and a strive for perfectionism." Thirty-nine percent of the students attributed their success to support from the university (e.g., DSS, professors, writing and tutoring centers), their family, friends, and outside services. Students greatest challenges revolved around, effective studying, concentrating, and difficulty with a specific subject matter. Additionally, there were disability specific challenges. For example, technology is not always user friendly for people with disabilities. Studying and time management were cited as both a challenge and as a technique to overcome challenges.

Scale Scores

In this sample, one out of 27 students with disabilities scored high on resilience with a score above 4.3 and eight of 27 of these students scored low on resilience by scoring below 3.0. Regarding satisfaction with life, 19 (70%) of 27 students with disabilities were slightly to extremely satisfied and one (4%) of 27 was neutral. Seven (26%) of 27 of these students were slightly dissatisfied or dissatisfied, none were extremely dissatisfied. A summary of scale scores and the scale's reliability scores are listed in Table 1.

Relationship of GPA and Scale Scores

The correlation revealed a significant relationship existed between GPA and the well-being and infirmity percentage measures used to better understand the perceived health ranking ($F = 4.936$; $p > 0.035$). Both correlation and regression analyses indicated that a higher GPA was associated with participants who had higher levels of well-being while a lower GPA was associated with participants who reported higher levels of disease and infirmity.

Additional analysis identified significant relationships between the *Brief Resilience Scale* (BRS), *Short Grit Scale* (*Grit-S*), *Satisfaction with Life Scale* (SWLS), and the *Salutogenic Wellness Promotion Scale* (SWPS). From these analyses, significant relationships were found between the BRS and Grit-S ($p < .0001$). A regression (Table 2) and a correlation (Table 3) analysis were completed suggesting more engagement in health promoting actions as measured by the SWPS were associated with higher scores on BRS ($p < .0001$), *Grit-S*, ($p < .0143$) and SWLS ($p < .001$). Additionally, higher scores on the SWLS were associated with higher scores on the Grit-S and BRS.

Discussion

These findings suggest several things that seem obvious in hindsight. For instance, the findings support our hypothesis that better positive health, described in this study as well-being, was associated with improved GPA. Findings also supported that more engagement in health promoting activities was associated with grit, resilience, and life satisfaction. There were also relationships between resilience and grit, and students who were more satisfied with their lives had more grit and were more resilient. Our findings, however, do not support that DSS students who have more resilience, grit, life satisfaction, and higher levels of wellness also have higher GPAs. Grit scores indicated these students were somewhat gritty, and research (Duckworth 2016) suggests DSS could enhance students grit by building a culture that encourages them to challenge their limits. Since grit has been reported to predict success, this would seem to indicate that these students are more likely to be successful than less gritty students (Duckworth et al., 2007, Duckworth 2016). Further, these students reported support from DSS staff, faculty, and their families which may support Duckworth's (2016) suggestion that grit can be built from the outside in from the supportive culture of others.

Our results supported the work of Singh and Jha (2008) who reported a positive correlation between life satisfaction and grit and resilience was positively correlated with life satisfaction as reported by Tansey et al. (2016). Scores also indicated that the students were satisfied with their lives. Diener (2006) suggested that "growth and challenge might be part of the reason the respondent is satisfied" (para. 3).

Regarding self-reported GPA, a significant correlation was found between what the students with disabilities reported and their actual GPA. Our participants received accommodations which could have influenced their GPAs as Kim and Lee (2016) reported that higher GPAs were earned by students with test and course accommodations. Additionally, students in this study provided accurate GPAs which is different than what Dobbins et al. (1993) reported. This could be due to easier access to GPAs than at the time of the previous study or because the students who chose to participate in this study had good GPAs. Hall et al. (2002) reported higher GPAs for students with learning disabilities who felt responsible for their own outcome. Our participants gave themselves credit for their own success which is also supported by Barber (2012) who reported personal motivation and drive to succeed as factors noted by students with disabilities who were college graduates. Additionally, participants in this study, as well as Barber's (2012) participants, reported using on campus resources such as DSS, testing and tutoring centers, accommodations, and reported good relationships with DSS staff, faculty, and their families as factors related to their success.

Implications for Disability Support Services staff

This study showed significant relationships between frequency of engagement in health behaviors by these students with disabilities and the outcomes of grit, resilience, and life satisfaction. These findings extend existing research by suggesting there may be a benefit to assessing and analyzing student engagement in health behavior practices. Suggestions would include encouraging DSS centers to work with students on general health promoting lifestyle behaviors such as increasing physical activity, improving food selection, enhancing intellectual capabilities, better management of emotions, and building social connections (Becker, Cooper, et al., 2009). DSS centers can also work with their colleges to create a health promoting campus because higher engagement with health promoting actions has been associated with grit and resilience. This would be of value because grit has been demonstrated to be associated with improved success at college by students (Duckworth et al., 2007, Duckworth 2016).

DSS staff, faculty, and family members need to encourage students with disabilities to talk with DSS staff and faculty and to access available campus re-

sources to increase the student with a disabilities chance for graduation success. These same services were recommended by DSS staff during times of transitions such as when students with disabilities are entering college, graduating, entering employment, and starting graduate school (Barber, 2012).

Our participants reported that their greatest challenges revolved around effective studying, concentrating, and difficulty with a specific subject matter. These data suggest providing students with instructions in learning strategies and self-awareness strategies may help to address some of these issues. Better learning by students can be accomplished by having DSS staff introduce faculty to the Disabilities, Opportunities, Internetworking, and Technology website also known as DO-IT (University of Washington, 2019) and the universal design for learning practices (CAST, 2018) because using these resources will make learning more accessible to all.

There were several limitations. The low participation rate, self-selection bias, and social desirability limit generalizability. Also, because only power users, or consistent users of DSS, as opposed to the non-power users, who use DSS to improve academic areas of weakness, were surveyed, this may have impacted our results. In addition, the high female participation rate and the use of both online and paper surveys may limit external validity. However, Gosling et al. (2004), reported that Internet findings are consistent with paper-and-pencil methods. These findings also do not include the previously noted Newman and Madaus (2015) estimate that 65% of students with disabilities do not self-disclose their disability to the college. Additionally, incentives were used but they did not significantly affect the response rate but may have impacted survey results. Further, the survey was completed at one southeastern university which significantly narrows the generalizability of the results.

Despite limitations, these findings indicate the need for more research on how to best help the substantial population of college students with disabilities. As with most traditional studies, this study relied on multiple outcome measures to determine results. While ultimate success (i.e., graduation) provides information and must be determined, this study suggests process measures that provide information about lifestyle habits and how well students manage their daily life in college, also provides important information for DSS professionals not available from outcome measures alone. The authors recommend that future studies collect data on both the processes used by students and DSS services provided and analyze how those impact related outcomes.

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Table 1

Summary Statistics for Scale Scores

Scale	*n*	*M (SD)*	Variance	Range	Reliability
Health	28	3.50 (0.88)	0.78	2.0-5.0	
Well-being	28	69.29 (18.59)	345.77	20-100	
Infirmity	28	30.71 (18.59)	45.77	0-80	
Grit-S	28	3.28 (0.74)	0.55	2.0-4.75	.8466
Perseverance	28	3.82 (0.61)	0.37	2.75-5.0	.6873
Interest	28	2.74 (1.07)	1.16	1.00-5.00	.8879
BRS	27	3.27 (0.62)	0.39	2.33-4.50	.7635
Succumbing	27	3.07 (0.71)	0.51	2.33-4.50	.6966
Resiliency	27	3.46 (0.67)	0.45	2.0-4.33	.5362
SWLS	27	25.44 (6.75)	45.56	10-35	.9561
SWPS Average	26	3.26 (0.69)	0.48	2.00-4.52	.9054

Note. BRS = Brief Resilience Scale: Grit-S = Short Grit Scale; SWLS = Satisfaction with Life; SWPS = Salutogenic Wellness Promotion Scale.

Table 2

Regression Scale Scores Associated with GPA

Scale	β	*SE*	*p*
Perceived Health	0.0419	0.1073	.6993
Well-being	0.0104	0.0047	.035*
Infirmity	-0.0104	0.0047	.035*
Grit-S	0.1792	0.1234	.1586
SWPS	0.161	0.1256	.2113
BRS	0.048	0.1388	.7334
SWLS	0.017	0.0124	.1913

Note. BRS = Brief Resilience Scale; Grit-S = Short Grit Scale; SWLS = Satisfaction with Life; SWPS = Salutogenic Wellness Promotion Scale; *$p < 0.05$.

Table 3

Correlations Between Scale Scores

Scale	1	2	3	4	5	6	7	8
1.PerHlth		.9563	.9563	.3956	.0544	.0701	.0118*	.7107
2. WB	.9563		< .0001	.6119	.9484	.7835	.7700	.0432*
3. Infirm	.9563	< .0001		.6119	.9484	.7835	.7700	.0432*
4. Grit-S	.3956	.6119	.6119		.0143**	.0037**	.0193**	.1760
5. SWPS	.0544	.9484	.9484	.0143**		<.0001**	<.0001**	.2113
6. BRS	.0701	.7835	.7835	.0037**	<.0001**		<.0001**	.7387
7. SWLS	.0118	.7700	.7700	.0193*	<.0001**	<.0001**		.2006
8. GPA	.7107	.0432*	.0432*	0.2113	.1760	.7387	.2006	

Note. BRS = Brief Resilience Scale; Grit-S = Short Grit Scale; Infirm = Infirmity; PerHlth = Perceived Health; SWLS = Satisfaction with Life; SWPS = Salutogenic Wellness Promotion Scale; WB = Well-Being; * $p < .05$, ** $p < .01$.