Improving Stress Management and Coping Skills in College Students

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ABSTRACT

This study examined college students' perceptions of stress, physical and psychological symptoms experienced as a result of stress, and stress coping skills, as well as the impact of a stress management college course on these variables. A survey of undergraduate college students was conducted at a university in northwest Pennsylvania over a two-year period. College students indicated experiencing moderate levels of stress with accompanying physical and psychological symptoms, and some skills and resources needed to effectively cope with stress. Stress symptoms, such as headaches, insomnia, restlessness, and gastrointestinal problems, were experienced weekly; others, such as tense muscles, anxiety/worry, and fatigue, were experienced several times per week. Frequency of these and other stress symptoms decreased significantly over the course of the semester. Perception of stress was moderate, and decreased significantly over the course of the semester. Stress coping skills and practices improved significantly during the course of the semester. This study showed that college students commonly experience feelings of stress and accompanying symptoms that negatively affect their quality of life. Offering a stress management course to college students can be an effective means of helping students reduce their stress and accompanying symptoms, and improve their stress coping skills.

KEYWORDS: College students; perceived stress; coping skills; anxiety; student health/wellness

INTRODUCTION

Stress is an inevitable part of the human experience. The negative effects of stress on health and well-being has been shown in a growing number of research studies over the past two decades. A survey from the American Psychological Association (2017) showed stress-related physical health symptoms affecting up to 80% of adults, with approximately one-third of adults reporting symptoms such as headaches, feeling overwhelmed, nervousness, anxiety, or sadness. High levels of stress are common in young adults and college students, affecting academic and health variables (Leppink et al. 2016; Ribeiro et al. 2018). Some researchers propose that stress levels will continue to increase among residents of contemporary industrialized societies, as daily and continuous contact with and interaction between people has become the norm (van de Zwan et al. 2015).

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THEORETICAL PERSPECTIVE

The lack of stress managment and coping skills in college students was grounded in theory of andragogy. This theory originated in the 1800s, and became popular in the field of education in the 1960s by Malcolm Knowles (Taylor and Kroth 2009). Knowles defined andragogy as "the art and science of helping adults learn," arguing that instructional methods used with children were not appropriate for adult education (1980: 43). Knowles' tested his theory in a variety of settings, including business, higher education, healthcare, government, elementary and secondary education (Henschke 2011). Andragogy suggested adult education be based on trust, respect, collaboration, and support (Henschke 2011).

The andragogy model was based on four initial assumptions about adult learners (Knowles 1980). First, a person's self-concept changes as they age from being dependent to being self-directed. They prefer to be part of the learning process and respected for their previous knowledge and their learning preferences (Fazel 2013). Second, adult learners have more life experience to use as a learning resource. They are interested in the practical application of what they are learning and how it will implemented into their work. The third assumption is readiness to learn. A person's readiness to learn changes throughout life as their social roles change, such as starting as a new employee and gaining knowledge and experience to move into management. Readiness to learn is also influenced by the student's perception of relevancy of the topic to be learned (Taylor and Kroth 2009). The fourth assumption is orientation to learn. As a learner matures, they prefer an immediate application of new knowledge and shift to being problem-centered or performance-centered (Fazel 2013). Adults often enter learning activities to gain new knowledge and skills to apply to a current problem they face (Knowles 1980). The fifth assumption suggested that adult learners are internally motivated and have a desire to achieve a goal rather than extrinsically motivated by grades. Recognizing and appreciating the adult student for their successes and contributions to the learning group feeds their intrinsic motivation (Knowles 1984). Finally, the sixth assumption indicated adult learners have a strong need to know the reason for learning a particular concept and its importance (Knowles 1984). When they understand the need to know, they will then put forth time and effort into learning (Fazel 2013).

ANDRAGOGY THEORY AND STRESS MANAGEMENT

This investigation of stress management education and coping skills in college students was viewed through the lens of the andragogy theory. College students are most often young adults with various life stressors and coping skills (experience assumption). The content of the stress management course is immediately applicable to their daily life (readiness to learn and orientation to learn assumptions). It is this researcher's belief that when college students understand the negative health effects of chronic stress and benefits of healthy stress management and coping techniques, they will view it as valuable to their health and quality of life (need to know assumption).

REVIEW OF RELEVANT LITERATURE

Stress among college students has been increasingly researched over the past several years. This population is studied due to the "high stress period" of their educational experience and their "sociodemographic age span in which stress-realted disorders are more common" (Ribeiro et al. 2018). Common stressors in college students include financial strain (Adams,

Meyers, and Beidas 2016; Neveu et al. 2012; Stallman and Hurst 2016), academic demands (Neveu et al. 2012; Stallman and Hurst 2016), work/school/home life balance (Stallman and Hurst 2016), daily hassles (Neveu et al. 2012), social relationships (Neveu et al. 2012), and lack of adequate coping skills (Ribeiro et al. 2018; Stallman and Hurst 2016). First generation college students face additional challenges, as their parents have not earned a 4 year degree and often are unsure of how to assist or advise their child to navigate the university setting (Adams et al. 2016). Sixty-seven percent of adolescents have multiple sleep issues, which impact the body's ability to handle stress and is unknown to the student (Milojevich and Lukowski 2016; Ribeiro et al. 2018). Additionally, moderate to heavy use of coffee and energy drinks further impact the students' ability to get adequate sleep (Sawah et al. 2015). Psychological issues such as perfectionism (Flett et al. 2016), low self esteem (Saleh, Camart, and Romo 2017), and low levels of resilience (American Psychological Association 2021) impact one's coping ability.

The stress of the "24/7 society with continuous contact and interaction between people" contributes to social stressors and sleep disruptions (van der Zwan et al. 2015). A study of first-year college students showed that 52.5% reported one traumatic experience (such as bully victimization or parental psychopathology) prior to college and at least one stressful life event (such as the breakup of a romantic partner or the death of a friend or family member) within the previous 12 months (Ebert et al. 2019). The average prevelance of depression in college students in 30% and can worsen with significant stress (Seo et al. 2018; Regehr, Glancy, and Pitts 2013). The cultural stigma of mental health adds additional stress and creates a barrier to access of services (Adams et al. 2016; van der Zwan et al. 2015; Milojevich and Lukowski 2016). Fifty percent of students who reported continuous mental health issues across assessments did not seek treatment (Milojevich and Lukowski 2016). In addition, the lack of sufficient services on campus and long wait lists deter students from seeking help (Adams et al. 2016; van der Zwan et al. 2015). Students identified as being the most stressed were transfer students, upperclassmen, and those living in off campus housing (Beiter et al. 2015).

There is evidence suggesting that stress can be related to more serious psychological disorders, such as depression or anxiety. A study of French college students found that between 73% and 86% of students reported anxiety, depression, and high levels of psychological distress (Saleh et al. 2017). Leppink et al. (2016) found that severe perceived stress was associated with worse academic achievement and worse physical health, as well as higher rates of psychiatric and impulsive disorders." Additionally, college students prone to depressive symptoms showed increased reactivity to stressors and pressures involving "social evaluation situations," such as giving oral presentations and speeches (Flett et al. 2016). Depression in college students is linked to lower academic performance, increased levels of anxiety, physical illness, decreased physical activity, and increased use of alcohol, tobacco, and other drugs (Ebert et al. 2019; Leppink et al. 2016; Milojevich and Lukowski 2016; Ribeiro et al. 2018; Sawah et al. 2015).

The relationship between stress and quality of sleep has also been examined. This interrelationship can be challenging to manage, as stress often causes poor sleep quality and poor sleep quality often causes stress. A study of podiatric medical students showed that an increased level of perceived stress was a significant predictor of poor sleep quality (Sawah et al. 2015). Milojevich and Lukowski (2016) evaluated the relationship between sleep quality and mental health in university students, noting the frequency of nighttime sleep disruptions was positively associated with increased report of anxiety and somatic symptoms. Poor sleep

quality was also associated with increased externalizing of problems (such as aggression), increased internalizing problems (such as anxiety), and somatic complaints (Milojevich and Lukowski 2016). Sleep problems are very prevalent in the college student population; however, students are unaware of the negative consequences (Ribeiro et al. 2018).

A variety of stress interventions and their effectiveness have been examined, and the use of self-help stress interventions may be effective in reducing stress and its related symptoms among college students (van der Zwan et al. 2015). Anxiety and depression symptoms have been shown to decrease significantly with cognitive, behavioral, and mindfulness-based interventions (Regehr et al. 2013). College students given 15 minutes of access to a therapy dogs showed significant reductions in systolic and diastolic blood pressure, and anxiety (Wood et al. 2018).

The effects of physical activity, mindfulness meditation, and heart rate biofeedback as stress management techniques showed significant positive effects on stress, anxiety, depression, and psychological well-being among participants (van der Zwan et al. 2015). Mindful meditation was shown to significantly improve sleep quality, and the number of participants scoring in the clinical range for anxiety was significantly reduced over time (van der Zwan et al. 2015). Mindfulness calms the body's stress response, which can have many positive effects on the physical symptoms of stress (American Psychological Association 2019). Adults ages 45-64 increased their use of meditation three-fold from 2012-2017 (Clarke et al. 2018). Mindfulness meditation has shown to be a promising method for reducing stress and anxiety in college students, as well as overall psychological stress (Bamber and Schneider 2016; Galante et al. 2018; Reavley 2017).

The need and projected benefits of stress management education and skill building has been noted in the literature. One suggestion included universities providing "preventative interventions that have the potential to reach larger groups of students and not merely rely on individual counseling services to meet student needs" (Regehr et al. 2013). Stress management techniques aimed at improving personal resilience, including reactions to failure and interpersonal problems, would benefit college students (Flett et al. 2016; Galante et al. 2018). Perceived stress was identified as an important intervention target, and any prevention or intervention strategies implemented at the college level could improve academic, social, and mental health outcomes among students (Adams et al. 2016). The benefits of such programming goes beyond the individual student, but expands to "enhancing student experience and reducing health service costs resulting from student mental health problems" (Regehr et al. 2013). "It is vital that colleges continually evaluate the mental health of their students and tailor treatment programs to specifically target their needs" (Beiter et al. 2015). Training should be available to students to "develop adaptive coping strategies to prevent the harmful consequences of a high perceived stress level" (Neveu et al. 2012).These coping strategies will continue to benefit students as they transition into the workforce and experience other challenging life transitions (Reavley 2017).

While most of the research examining stress management in college students has focused on one-time or short-term interventions, there is little research examining more long-term stress management education. The current study aimed to address this issue. Thus, the purpose of this study was two-fold: (1) to examine college students' perceptions of stress, physical and psychological symptoms experienced as a result of stress, and stress coping skills,

and (2) to explore the impact of a stress management college course on students' perceptions and symptoms of stress and stress coping skills.

MATERIALS AND METHOD

This study was a cross-sectional exploratory examination of a convenience sample of undergraduate college students at a mid-size university in northwest Pennsylvania. Participants included students enrolled in a 200-level stress management course that served as a free elective (not required for the student's major program of study). The primary investigator for this study was the course instructor. Data were comprised of information collected as part of the required course activities. Students completed a packet that included three instruments, including an individual stress profile identifying physical symptoms of stress, a perceived stress scale, and a stress coping self-assessment. Student packets were completed at the beginning and the end of the 15-week course, allowing for a pre-test/post-test study design. Upon completing the post-test, students were given the consent form to participate in the study. Given that study participation was voluntary and unrelated to student grades, the primary researcher/course instructor coded student packets of those who chose to participate after final grades had been submitted. The secondary researcher entered the data from the coded packets to ensure the maximum level of anonymity possible for the participants.

The three instruments used for this study include the Symptoms of Stress Scale, the Perceived Stress Scale, and the Stress Coping Resources Inventory (Matheny and McCarthy 2000). The Symptoms of Stress Scale assesses the frequency of 12 physical and psychological symptoms of stress. Symptoms indicated on the Scale include headaches; tense muscles, sore neck and back; fatigue; anxiety, worry, phobias; difficulty falling asleep; irritability; insomnia; bouts of anger/hostility; boredom, depression; eating too much or too little; diarrhea, cramps, gas, constipation; and restlessness, itching, tics. Each of the seven frequency choices on the instrument was assigned a score by the researchers to allow for quantitative analysis. The frequency choices, with their assigned scores, included almost all day, every day (score of 1); once or twice daily (score of 2); every night or day (score of 3); 2-3 times per week (score of 4); once a week (score of 5); once a month (score of 6); and never (score of 7).

The Perceived Stress Scale is designed to help the taker understand how different situations affect one's feelings and perceived stress (Matheny and McCarthy 2000). Takers are instructed to assign a value of 0 (never), 1 (almost never), 2 (sometimes), 3 (fairly often), or 4 (very often) to each of 10 questions. The introduction "In the last month, how often have you…" starts the beginning of each question. Questions include the following: (1) …been upset because of something that happened unexpectedly; (2) …felt that you were unable to control he important things in your life; (3) …felt nervous and stressed; (4) …felt confident about your ability to handle your personal problems; (5) …felt that things were going your way; (6) …found that you could not cope with all the things that you had to do; (7) …been able to control irritations in your life; (8) …felt that you were on top of things; (9) …been angered because of things that happened that were outside of your control; and (10) …felt difficulties were piling up so high that you could not overcome them. After scoring all 10 questions, takers are instructed to reverse their scores on questions 4, 5, 7, and 8, and then add up their scores. Final total scores may range from 0 to 40, with higher scores indicating higher perceived stress. The Perceived Stress Scale designates scores in the 0-13 range as "low stress;" scores of 14-25 as "moderate stress;" and scores of 26-40 as "high stress." To allow for quantitative data

analyses, the researchers assigned the "low stress" range a score of 1; the "moderate stress" range a score of 2; and the "high stress" range a score of 3.

The Stress Coping Resources Inventory is a 32-question survey that assesses the degree to which an individual has behaviors or beliefs that relate to healthy coping (Matheny and McCarthy 2000). Each question has four answer options that rates, on a four-point scale, the taker's responses. The Stress Coping Resources Inventory scoring legend allows the taker to assess their coping score on each of six scales (Wellness; Thought Control; Active Coping; Social Ease; Tension Reduction; and Spiritual Practice), followed by a total overall coping score. The Wellness scale is comprised of seven questions, and includes questions such as "how frequently do you moderately exercise" and "how often do you get a full, restful night of sleep." The Thought Control scale is comprised of six questions, and includes questions such as "when highly stressed, how capable are you of changing your thinking to calm down" and "when things are not going well, how likely are you to view the situation as being temporary rather than permanent." The Active Coping scale contains seven questions, including questions such as "when confronted with a stressful situation, how likely are you to wait passively for events to develop rather than to take charge" and "to what extent do you believe that events in your life are merely the result of luck, fate, or chance." The Social Ease scale contains six questions, and includes questions such as "how easily do you make friends in a strange situation" and "how often are you confused about the intentions of others toward you." The Tension Reduction scale is comprised of two questions, and includes the questions "to what extent are you aware of practical, healthy ways of relaxing" and "how frequently do you pursue some highly relaxing practice." The Spiritual Practice scale contains four questions, including questions such as "how connected do you feel to your conception of a higher power or to a worthy cause" and "to what extent do you believe your life has purpose." Each scale score, as well as the overall score, yields a final result of anywhere from 1 to 4. According to the Stress Coping Resources Inventory, a score of 3.5 suggests that the taker is a "superior stresscoper;" a score of 2.5-3.4 describes a person who is an "above average stresscoper;" a score of 1.5-2.4 describes an "average stresscoper;" and a score of less than 1.5 suggests that the taker may be a "below average stresscoper."

This study received IRB approval from the University-Wide Human Subjects Review Board prior to data collection. Data were analyzed using SPSS 27.0 for Windows. Statistical analyses consisted of frequency and *t* test analyses.

RESULTS

A total of 264 undergraduate male and female students were asked to participate in the study at the conclusion of the course. Thirty two surveys were incomplete/consent form not returned; and 0 surveys were completed by graduate students. A total of 232 surveys were therefore used for this study; 82 (35.3%) respondents were male and 150 (64.7%) respondents were female. The ages of the participants ranged from 18 to 53, with a median age of 20.0. Other demographic characteristics of the participants are presented in Table 1.

Table 1 – Demographic Characteristics of Participants

Demographic Characteristic	Total N=232 n (%)
Gender	
Male	82 (35.3)
Female	150 (64.7)
Age (years)	
19-21	74 (31.9)
22-23	129 (55.8)
24 and up	29 (12.3)
Academic Major	
Health & Physical Education	65 (27.9)
Social Work	29 (12.7)
Business	20 (8.8)
Biology & Pre-professional	18 (7.8)
Criminal Justice	15 (6.4)
Psychology	15 (6.4)
Total of all other majors	70 (30.0)
Academic standing	
Freshman	10 (4.4)
Sophomore	43 (18.4)
Junior	81 (34.8)
Senior	98 (42.4)

On the Symptoms of Stress Scale, the most common stress symptom reported by the participants was anxiety/worry (pre-test score of 3.7), followed closely by tense or sore muscles (pre-test score of 3.9). Both of these scores indicate that students experienced these symptoms, on average, every 1-3 days. Symptoms with pre-test scores ranging from 4.0 (2-3 times per week) and 5.0 (once per week) included fatigue (4.1), difficulty falling asleep (4.2), eating too much/too little (4.3), irritability (4.4), headaches (4.8), and boredom and/or depression (4.8). Symptoms with pre-test scores ranging from 5.0 (once per week) and 6.0 (once per month) included anger/hostility (5.2), insomnia (5.4), gastrointestinal problems (5.4), and restlessness/itching/tics (5.5). Post-test scores for all 12 stress symptoms indicated improvement (in the form of decreased frequency) over the course of the semester. Eleven of the stress symptoms showed statistically significant change at the $p<.01$ level, while one stress symptom showed statistically significant change at the $p<.05$ level. Table 2 illustrates these and other findings from the Symptoms of Stress Scale.

Table 2 – Frequency of Stress Symptoms Among Participants

Symptom	Pre-test score	Post-test score
Headaches**	4.8	5.1
Tense or sore muscles**	3.9	4.5
Fatigue**	4.1	4.6
Anxiety/worry**	3.7	4.5
Difficulty falling asleep**	4.2	4.7
Irritability**	4.4	5.1
Insomnia**	5.4	5.8
Anger/hostility**	5.2	5.8
Boredom, depression**	4.8	5.3
Eating too much/too little**	4.3	4.9
Gastrointestinal problems*	5.4	5.7
Restlessness/itching/tics**	5.5	5.9

Statistically significant at *p<.05, **p<.01

The Perceived Stress Scale scores showed an overall decrease in perceived stress among the participants over the course of the semester. The average pre-test score among participants was 19.86, indicating a moderate stress level in the middle of the 14-26 score range for that stress level designation. The average post-test score among participants was 15.42, indicating a moderate stress level at the lower end of the 14-26 score range for that stress level designation. This change in Perceived Stress Scale scores was statistically significant at the p<.01 level.

On the pre-test, students scored as "above average" stress copers on the Stress Coping Resources Inventory in all six categories; stress coping categories showed scores ranging from 2.5 to 2.8, with an overall score of 2.7. Post-test scores increased in all six categories, with scores ranging from 2.7 to 3.1, and an overall score of 2.9. These increases in Stress Coping Resources Inventory scores indicated that students' stress coping resources and skills improved over the course of the semester. One stress coping category (spiritual practice) showed an increase that was not statistically significant, while two categories (wellness and social ease) showed statistically significant improvements at the p<.05 level. Three of the categories (thought control, active coping, and tension reduction), as well as the overall score, showed statistically significant improvements at the p<.01 level. These results, with additional details, are illustrated in Table 3.

Table 3 – Participant Scores on the Stress Coping Resources Inventory

Stress Coping Category	Pre-test score	Post-test score
Wellness*	2.8	2.9
Thought Control**	2.5	2.8
Active Coping**	2.6	2.7
Social Ease*	2.8	2.9
Tension Reduction**	2.6	3.1
Spiritual Practice	2.6	2.8
Overall Score**	**2.7**	**2.9**

Statistically significant at *p<.05, **p<.01

DISCUSSION

Although there has been an increasing level of awareness about the negative effects of stress and the need for people to practice effective stress management, there remains clear evidence of the need for continued educational and practical programming about stress education, stress management, and coping skills. Findings from this study contribute to the current body of research indicating many college students experience moderate to severe levels of stress with accompanying physical and psychological symptoms that negatively impact their lives on a regular basis, and they often lack the skills and resources needed to effectively cope with stress (Ebert et al. 2019; Leppink et al. 2016; Milojevich and Lukowski 2016; Ribeiro et al. 2018; Sawah et al. 2015). Evidence is presented showing a college course in stress management reduced the perception of stress, stress symptoms, and improved stress coping skills among college students.

Post-test scores for all 12 stress symptoms on the Symptoms of Stress Scale indicated improvement (in the form of decreased frequency) over the course of the semester. Eleven stress symptoms (headaches, tense/sore muscles, fatigue, anxiety/worry, difficulty falling asleep, irritability, insomnia, anger/hostility, boredom/depression, eating too much/too little, and restlessness) showed statistically significant change ($p<.01$). One stress symptom (gastrointestinal problems) showed statistically significant change at the $p<.05$ level. Knowing the signs and symptoms of stress reactivity in their bodies assisted students in identifying a stress reaction and modifying or managing the stress response effectively.

Perceived stress among the participants decreased significantly ($p<.01$) over the course of the semester, as illustrated through the results of the Perceived Stress Scale. This result, in conjunction with the improvement of stress symptoms, supports the findings of Leppink et al. (2016) indicating that perceived stress was associated with worse physical health. This study is also consistent with Milojevich and Lukowski (2016), who found that poor sleep quality was associated with an increase in anxiety and somatic symptoms. Perceived stress was identified as an important intervention target, and any prevention or intervention strategies implemented at the college level could improve academic, social, and mental health outcomes among students (Adams et al. 2016).

Students' stress coping resources and skills improved over the course of the semester, as indicated by an increase in Stress Coping Resources Inventory scores. The wellness category (exercise, sleep, etc.) and the social ease category (making friends, identifying intention, etc.) showed statistically significant improvements at the $p<.05$ level. Three categories (thought control, active coping, and tension reduction), as well as overall scores, showed statistically significant improvements at the $p<.01$ level. These coping skills cross many areas of the students' lives and empowers them to take an active role in their well being.

There were several limitations to this study that may affect the validity of the findings. The participants for this study consisted of a convenience sample of students, and may not be applicable to college students in general. A second limitation is that of any survey research, as the results of this study are dependent on the accuracy of the participants' responses, and response or recall bias is certainly a possibility. Third, the gender distribution of the study participants does not represent the general population. This study had 64.7% female and 35.3% male participation verus the US population of 50.52% female and 49.48% male (United Nations 2019). A final limitation is that because the survey instruments were completed as part of a college course requirements and not anonymous at the time of consent, participants may have provided inaccurate information due to social desirability bias.

Results from this study clearly reinforce the need for stress management educational programming on college campuses. Campus policies and practices should be routinely evaluated for current best practices as noted in the literature. School officials can review academic programs and the campus learning environment to identify major academic stressors for students and implement systematic change to benefit the students, staff, and faculty (Neveu et al. 2012).

Prevention and intervention strategies implemented at the college level can help to improve student success as well as social and mental health outcomes (Adams et al. 2016; Beiter et al. 2015; Flett et al. 2016; Galante et al. 2018; Neveu et al. 2012). Colleges and universities are "promising venues" for prevention and intervention of mental health disorders and as opportunities "to intervene before mental health difficulties or attrition occurs" (Adams et al. 2016). Openly accessible programming targeting the "well student" population has been suggested to support all students on campus, not exclusively the ones with risk factors for stress-related issues (Galante et al. 2018). The literature is mixed on whether to focus on incoming freshmen, high risk students, or the school's general population.

Efforts to routinely evaluate the mental health of the student population and adapting programming to meet the specific student needs are encouraged (Adams et al. 2016; Beiter et al. 2015). This will require additional staff and resources to collect and evaluate such data, as well as develop, implement, and evaluate programming. Given the high rates of perceived stress and somatic stress symptoms in this population, it is unrealistic to expect the campus counseling services to meet this demand (Regehr et al. 2013). Additional therapists are needed for those students with mental health disorders, while the general population can benefit from the variety of programs to promote healthy coping skills and destigmatize the difficulty handing stress as being 'weak.' Collaborations between the student health center, counseling staff, as well as nursing, psychology, counseling, health education, and social work programs could be established.

Programming on college campuses should take a braod approach to teaching students stress management skills. Learning the physiology of the stress response helps them to better understand how their body responds to stress and that it varies between individuals. Normalizing the human experience of facing stressful situations reduces the shame and reluctance to ask for help. Activities surrounding self esteem, self efficacy, building resilience, and reacting to failure have been suggested by the literature (Flett et al. 2016; Saleh et al. 2017). Self reflection is necessary to see what techniques the students have developed over the course of their life, which ones are effective, and which ones no longer serve the student. Exposing students to a wide variety of techniques and allowing them experience and practice them empowers them to choose strategies that best work for them and their lifestyle. Using such self-help interventions also help those waiting to begin professional counseling or who are limited based on the cost of mental health care (van der Zwan et al. 2015). Providing designated campus space for quiet and calm would encourage students to participate and benefit from the interventions, such as the mood rooms presented in an episode of the popular tv program 'Grey's Anatomy.'

Based on the findings from this study, it is evident that college courses (and perhaps other, shorter-term educational and intervention programs) focusing on stress management are effective in helping students mitigate the negative effects of stress in their lives, ultimately improving their health and well-being. Expanding programming will require additional financial and facility investment. Funding sources will be needed for student populations to access programming and interventions (Reavley 2017). The overlapping impact of improved social and mental health outcomes on student attrition rates and academic success makes this additional investment a promising endeavor.

REFERENCES

Adams, Danielle .R., Steven A. Meyers, and Rinad S. Beidas. 2016. "The Relationship Between Financial Strain, Perceived Stress, Psychological Symptoms, and Academic and Social Integration in Undergraduate Students." *Journal of American College Health* 64(5): 362-370. doi: 10.1080/07448481.2016.1154559.

American Psychological Association. 2017. "Many Americans Stressed About Future of Our Nation, New APA Stress in America Survey Reveals." Retrieved June 30, 2020 (https://www.apa.org/news/press/releases/2017/02/stressed-nation).

American Psychological Association. 2019. "Mindfulness Meditation: A Research-Proven Way to Reduce Stress." Retrieved January 26, 2022 (https://www.apa.org/topics/mindfulness/meditation).

American Psychological Association 2021. "Stress in America 2021: Stress and Decision-Making During the Pandemic." Retrieved January 26, 2022 (https://www.apa.org/news/press/releases/stress/2021/october-decision-making).

Bamber, Mandy D. and Joanne K. Schneider. 2016. "Mindfulness-Based Meditation to Decrease Stress and Anxiety in College Students: A Narrative Synthesis of the Research." *Educational Research Review* 18: 1-32. doi: 10.1016/j.edurev.2015.12.004.

Beiter, Rebecca, Ryan Nask, Melissa McCrady, Donna Rhoades, Mallori Linscomb, Molly Clarahan, and Stephen Sammut. 2015. "The Prevalence and Correlates of Depression,

Anxiety, and Stress in a Sample of College Students." *Journal of Affective Disorders* 173(1): 90-96. doi:10.1016/j.jad.2014.10.054.

Clarke, Tainya C., Patricia M. Barnes, Lindsey I. Black, Barbara J. Stussman, and Richard L. Nahin. 2018. "Use of Yoga, Meditation, and Chiropractors Among U.S. Adults Aged 18 and Over." *NCHS Data Brief 325*. *National Center for Health Statistics.*

Ebert, David D., Claudia Buntrock, Philippe Mortier, Randy Auerbach, Kiona K. Weisel, Ronald C. Kessler, Pim Cuijpers, Jennifer G, Green, Glenn Kiekens, Matthew K. Nock, Koen Demyttenaere, and Ronny Bruffaerts. 2019. "Prediction of Major Depressive Disorder Onset in College Students." *Depression and Anxiety* 36: 294-304. doi: 10.1002/da.22867.

Fazel, Pendar. 2013. Teacher-coach-student coaching model: A vehicle to improve efficiency of adult instruction. *Procedia Social and Behavioral Sciences* 97, 384-391.

Flett, Gordon L.,Taryn Nepon, Paul L. Hewitt, and Kristine Fitzgerald. 2016. "Perfectionism, Components of Stress Reactivity, and Depressive Symptoms." *Journal of Psychopathology Behavioral Assessment* 38: 645-654. doi: 10.1007/s10862-016-9554-x.

Galante, Julieta , Geraldine Dufour, Maris Vainre, Adam P. Wagner, Jan Stochl, Alice Benton, Neal Lathia, Emme Howarth, and Peter B. Jones. 2018. "A Mindfulness-Based Intervention to Increase Resilience to Stress in University Students (The Mindful Student Study): A Pragmatic Randomized Controlled Trial." *Lancet Public Health* 3. doi: 10.1016/S2468-2667(17)30231-1.

Henschke, John A. 2011. Considerations regarding the future of andragogy. *Adult Learning,* 22, 35. doi:10. 1177/104515951102200109

Knowles, Malcolm S. 1980. *The modern practice of adult education: Andragogy versus pedagogy.* Englewood Cliffs, NY: Prentice Hall/Cambridge.

Knowles, Malcolm S. 1984. *Andragogy in action*. San Francisco, CA: Jossey-Bass.

Leppink, Eric W., Brian L., Odlaug, Katherine Lust, Gary Christenson, and Jon E. Grant. 2016. "The Young and the Stressed: Stress, Impulse Control, and Health in College Students." *Journal of Nervous and Mental Disease* 204(12): 931-938. doi:10.1097/NMD.0000000000000586.

Matheny, Kenneth B. and Christopher J. McCarthy. 2000. *Write Your Own Prescription for Stress.* Oakland: New Harbinger Publications.

Milojovich, Helen M. and Angela F. Lukowski. 2016. "Sleep and Mental Health in Undergraduate Students with Generally Healthy Sleep Habits." *PLoS ONE* 11(6). doi:10.1371/journal.pone.0156372.

Neveu, D., Doron, J., Visier, L., Boiche, J., Trouillet, R., Dujols, P., and Ninot, G. 2012. "Students Perceived Stress in Academic Programs: Consequences For Its Management." *Revue d'Epidemiologie et de Sante Publique* 60: 255-264. doi: 10.1016/j.respe.2012.01.008.

Reavley, Nicole. 2017. "Mindfulness Training in Higher Education Students." *The Lancet* 3. doi:10.1016/S2468-266(17)30241-4.

Regehr, Cheryl, Dylan Glancy, and Annabel Pitts. 2013. "Interventions to Reduce Stress in University Students: A Review and Meta-Analysis." *Journal of Affective Disorders* 148: 1-11. doi: 10.1016/j.jad.2012.11.026.

Ribeiro, Icaro J.S., Rafael Pereira, Ivana V. Freire, Bruno G. de Oliveira, Cezar A. Casotti, and Eduardo N. Boery. 2018. "Stress and Quality of Life Among University Students: A

Systematic Literature Review." *Health Professions Education.* 4: 70-77. doi:10.1016/j.hpe.2017.03.002.
Saleh, Dalia, Nathalie Camart, and Lucia Romo. 2017. "Predictors of Stress in College Students." *Frontiers in Psychology* 8(19): doi: 10.3389/fpsyg.2017.00019.
Sawah, Mohomad A., Naeemah Ruffin, Mohammed Rimawi, Carmen Concerto, Eugerio Aguglia, Eileen Chusid, Carmennta Infortuna, and Fortunato Battaglia. 2015. "Perceived Stress and Coffee and Energy Drink Consumption Predict Poor Sleep Quality in Podiatric Medical Students: A Cross-Sectional Study." *Journal of the American Podiatric Medical Association* 105(5).
Seo, Eun J., Jeong-Ah Ahn, Laura L. Hayman, & Chun-Ja Kim. 2018. The association between perceived stress and quality of life in university students: the parallel mediating role of depressive symptoms and health-promoting behaviors. *Asian Nursing Research* 12:190-196. Doi: 10.1016/j.anr.2018.08.001
Stallman, Helen M. and Cameron P. Hurst. 2016. The University Stress Scale: Measuring domains and extent of stress in university students. *Australian Psychologist* 52: 128-134. Doi:10.1111/ap.12127
Taylor, Bryan and Michael Kroth. 2009. Andragogy's transition into the future: Meta-analysis of andragogy and its search for a measurable instrument. *Journal of Adult Education* 38(1), 1.
United Nations. 2019. "World Population Prospects 2022." Department of Economic and Social Affairs. Retrieved August 8, 2022 (https://population.un.org/wpp/Download/Standard/Population/).
van der Zwan, Judith E., Wieke de Vente, Anja C. Huizink, Susan M. Bogels, and Ester I. deBruin. 2015. "Physical Activity, Mindfulness Meditation, or Heart Rate Variability Biofeedback for Stress Reduction: A Randomized Controlled Trial." *Applied Psychophysiology and Biofeedback* 40: 257-268. doi: 10.1007/s10484-015-9293-x.
Wood, Emily, Sally Ohlsen, Jennifer Thompson, Joe Hulin, and Louise Knowles. 2018. "The Feasibility of Brief Dog-Assisted Therapy on University Students Stress Levels: The PAwS Study." *Journal of Mental Health* 27(3): 263-268. doi: 10.1080/09638237.2017.1385737.

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