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Comparison of Perceived Stress in First-Year Pre-Med Students and First-Year Medical Students at USD

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COMPARISON OF PERCEIVED STRESS IN FIRST-YEAR PRE-MED STUDENTS AND FIRST-YEAR MEDICAL STUDENTS AT USD

by

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ABSTRACT

Comparison of Perceived Stress in First-Year Pre-Med Students and First-Year Medical Students at USD

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Stress can be caused by many factors, including money, relationships, promotions, grades, and responsibilities. In college, these stressors can be exacerbated. This research dives into stress in both undergraduate students as well as medical students. Previous literature has indicated that high levels of stress are present in students, and it is likely to have negative effects on the students, whether that is their mental or physical well-being. Schools have put interventions in place to help combat the stress levels present in their students. At the University of South Dakota (USD) and USD Sanford School of Medicine (USD SSOM), perceived stress levels are relatively high. Perceived stress surveys are sent out to detect the levels of stress in both pre-med undergraduate freshmen and first-year medical students. After analyzing the results, the paper investigates the current interventions both USD undergraduate and USD SSOM have in place to encourage the well-being of their students.

KEYWORDS: stress, pre-med students, medical students, medical school

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CHAPTER ONE

Introduction

Stress occurs in everyone's life no matter the profession or way of life. Stress can come about in many ways and can be caused by many factors. According to an article regarding stress in medical students, stress comes in three different categories: frustrations, conflicts, and pressure. Frustrations occur when there is a set goal that cannot be achieved due to an external or internal obstacle. Conflicts arise when opposite needs occur simultaneously, and one blocks the achievement of the other. Third, pressure occurs externally or internally to increase pace, go about things differently, etc. (Nechita, Nechita, Pîrlog, Rogoveanu, 2014). Alongside these three categories of stress, the external environment can exacerbate existing stressors and introduce additional situations that intensify potential stress, such as emotional loss or prolonged emotional distress. Stress is present in both undergraduate students and medical students. Both groups are entering new environments, new schedules, and new responsibilities. Stress can have negative effects on students, both physically and mentally. Students have high levels of anxiety and depression, and their overall well-being can be negatively affected (McKerrow, Carney, Caretta-Weyer, Furnari & Miller Juve, 2020). Medical schools, as well as undergraduate universities, are building curricula and programs to address the negative effects of stress and promote mental health in the school. Due to the schools' efforts, students are becoming better equipped to handle the struggles and hardships that come their way during school (Thompson, Goebert, & Takeshita, 2010).

CHAPTER TWO

Literature Review – Stress in Medical School

Stress Present in Medical Students

Medical school is one of the most stressful periods in a future physician's life. Several factors contribute to stress including increased time spent at school studying and preparing for exams, less time spent with friends and family, competitive natures of medical students, less sleep, poor diets, and so much more (Nechita et al., 2014). The three categories of stress: frustrations, conflicts, and pressure can easily be seen in medical students (McKerrow et al., 2020; Nechita et al., 2014). One of the top stressors for first-year medical students is academic pressure. Many students note that there is an overwhelming amount of material to learn, and it is very fast paced (Hill, Goicochea & Merlo, 2018). Stress due to frustrations can be due to time constraints with studying and the inability to achieve a work-life balance (Hill et al., 2018). This might frustrate the students, causing significant stress that disrupts their ability to study for upcoming exams. There is also a tremendous amount of pressure on a medical student. It is both internal and external. There is internal pressure from the students themselves to do well, but also external from professors or admin to do well (Hill et al., 2018). Students also note a conflict about the fact that they are required to excel academically, but also "do research, participate in extracurriculars, volunteer, sacrifice personal time and interests, know how to deal with major illness and their families" (Hill et al., 2018, p. 5). This conflict of where to spend their time can cause an increase in stress. All these categories of stress are present in medical students.

First-year medical students are not the only ones with stress, though. Second through fourth years still have great deals of stress, but due to other causes. Examples of these can be the increase in the number of subjects in clinical practices, the competition to get into residency programs, and the fear of choosing the right specialty to go into. According to an article analyzing stress factors of medical students, authors find that "first and third years associated with higher levels of burnout and decrease in satisfaction, while fourth year is associated with greater resilience" (McKerrow et al., 2020, p. 1). This shows that the first years are not alone in this experience.

Another large stressor for medical students is the financial burden. Medical school is undeniably expensive. According to the Education Data Initiative, the average total cost for medical school is $218,792, with the average yearly cost being $57,574 (Hanson, 2023). This is just tuition, on top of that, there is rent, groceries, car payments, phone bills, personal healthcare costs, and so much more. At the University of South Dakota Sanford School of Medicine (USD SSOM), tuition for a South Dakota resident in 2023 for the first year of medical school was 34,696 dollars. In addition to tuition, the financial aid office budgets $5, 927 for expenses not billed by the University, and $22,753 for approved living expenses. Overall, the budget for a first-year medical student at the USD SSOM is $63, 376. For all four years, the total budget is $259,517 (Hemmingson, 2023). Undoubtedly, this financial burden induces stress in medical students.

How is the Stress Affecting Medical Students?

Stress has major physical and emotional effects on a medical student, and mental health is hugely affected by stress, leading to many issues. Effects are evident in medical students because they show "higher levels of anxiety, depression, and perceived stress

among medical students compared to age-matched non-medical student peers" (McKerrow et al., 2020, p. 1). McKerrow et al. want to see how a student's physical health, emotional health, and perceived stress are affected from acceptance into medical school to the end of their third year. To do this, the authors perform two surveys, a perceived stress scale and the SF-8, "an 8-item health-related quality of life survey that assesses three health domains: overall health (assessed as a single-item), emotional health, and physical health" (McKerrow et al., 2020, p. 3). Students did these surveys at orientation before classes started, and then at the end of every year. These findings prove what most people hypothesize: the students' overall health and well-being are lowest at the end of year one. The trends do rise back up in years two and three, but never reach the baseline from the survey taken at the orientation of medical school.

Perceived stress is moderately high and does not seem to increase or decrease during the three years. Although perceived stress does not overall change, reasons for stress can. In the first year, it can be due to students feeling that they cannot handle personal problems, or that they are not on top of their issues. In the third year, it appears that it is more due to situations that are out of their control. This can relate more to residency applications because it feels out of their control when it is all said and done.

Heinen, Bullinger, and Kocalevent examine stress in medical students compared to general populations and search for causes. The authors find that perceived stress is higher in medical students compared to the general population. Similarly, authors also find that first-year medical students had higher stress compared to second-year medical students, who were surveyed a few years earlier (Heinen et al., 2017). The authors suggest two possible reasons for this: perceived stress levels simply could have risen in

the past few years, or the first semester of medical school is a time when many life changes are occurring for a student. Some changes that are happening include possibly moving to a new city for school, being away from loved ones, establishing new relationships, and then the obvious of setting a new routine for studying for medical school exams (Heinen et al., 2017). This study also includes a PHQ-4 score, a brief questionnaire for depression and anxiety. These scores show that there are higher levels of symptoms of depression and anxiety in medical students compared to the general population. Despite having these higher scores, the students do have something going for them: higher levels of coping strategies and personal resources (Heinen et al., 2017). This might be because medical students are not new to stress and anxiety. They have been pre-med undergraduate students and gone through rigorous coursework and prerequisites for medical school and rounded out their resumes with volunteering, research, and leadership positions. There was undoubtedly stress in undergraduate school, so the students had to be able to cope with it to get to medical school.

It has been made clear that there is high stress in medical school, and that this stress can surely have negative effects on the student's well-being. This is not to say that the medical school and faculty are doing nothing to help. Medical schools have been working tirelessly to provide students with resources and strategies to handle the stress of medical school.

Programs Implemented in Medical Schools

Stress and anxiety from medical school are imminent, but medical schools are altering the curriculum and giving more resources to students to help them cope with the stress. Several medical schools have proposed and researched different strategies and

plans to implement resources to decrease symptoms of anxiety and depression. A pioneer medical school in this field is the University of Hawaii School of Medicine. At this school, the administration had given a survey analyzing the depression symptoms of third-year medical students. After receiving alarming results, the school realized they needed new and improved interventions for future physicians. The University of Hawaii first identifies the barriers to obtaining interventions, which include, "lack of time, fear of compromised confidentiality, stigma, cost, fear of documentation on academic record, and fear of unwanted intervention" (Thompson et al., 2010, p. 1636). It seems universal that medical students are mostly concerned about public perception of their willingness to get help. Medical schools first must overcome the misconceptions about receiving treatment and education for depression or anxiety. The way that the University of Hawaii School of Medicine does this is by increasing awareness for not only students but also faculty, so they can promote it as well. The school also offers complete confidentiality when students go through the school to receive counseling, and along with this, a greatly reduced cost. With faculty, the school emphasizes knowing your students and recognizing the signs of depression. The professors are educated on how to approach a student and maintain a one-on-one relationship with the student to address the depressive symptoms. One downfall with this can be that faculty involvement like this can be very difficult in large medical schools because the students far outnumber the faculty. Smaller medical schools would have an advantage with this approach. In addition to faculty education and involvement, the University of Hawaii School of Medicine also implements increased student counseling, with two options being a free counseling center on campus along with some community psychologists that are available at a reduced rate.

Next, the school improves education for the medical students on the signs and symptoms of depression and anxiety. The school added both a student wellness handbook and an hour-long education session. The student wellness handbook includes, "a self-assessment, a list of coping strategies, contacts for questions/concerns, and advice from upperclassmen. The topics ranged from dealing with relationship stressors, maintaining a life outside of school, and recognizing depression, to dealing with stress and test anxiety, maintaining physical health, and managing financial stressors" (Thompson et al., 2010, p.1636). After these implementations, the University of Hawaii School of Medicine conducts another depression survey. They find that over the course of one year, these interventions decrease suicidal ideations by a 10-fold decrease and cause a 35 percent drop in depressive symptoms (Thompson et al., 2010). This study finds that it was remarkedly effective to implement changes in the resources of medical students, encouraging other medical schools to partake in the change as well.

Another study about decreasing symptoms of depression and anxiety in medical students is done at Vanderbilt University. Here, the school developed the Vanderbilt Medical Student (VMS) Wellness Program to promote student mental health. Similar to the University of Hawaii, Vanderbilt begins first by identifying common stressors the medical students are experiencing, including, "times of transition (e.g., preparing for licensing exams, beginning clerkships) and many intellectual and physical challenges (e.g., clerkship hours)… and individual student's stressors (e.g., family death, divorce)" (Drolet & Rodgers, 2010, p. 103). By identifying these stressors, the school can now better help the students and identify resources that would benefit them the most. With a

collaboration of students and faculty, the VMS Wellness Program focuses on these three principles:

> 1. Mentoring and advising: Advisory relationships between junior and senior students as well as between students and faculty are vital for fostering personal growth and resiliency as students progress through their training.
> 2. Student leadership: Students are the consumers of Vanderbilt's educational program, and thus they have the best perspective on the stressful aspects of a Vanderbilt medical education. Additionally, students are creative and enthusiastic; their involvement brings a fresh energy to the process. Finally, involving students as leaders in the program better ensures buy-in from other students.
> 3. Personal growth: The process of becoming a professional within medicine is challenging. An appreciation for and understanding of one's psychological development in medical school is therefore of paramount importance. (Drolet & Rodgers, 2010, p.104)

These principles all have specific programs that follow. For mentoring and advising, four deans and eight appointed advisors are chosen to advise and help students academically. The faculty members all went through the same training so that every student would receive equal help and guidance. The mentoring system also has older medical students helping first and second-year students. The third- and fourth-year students have to apply and be chosen for this position. The advice from both the faculty members and older students focuses on two things: wellness and career counseling (Drolet & Rodgers, 2010). Both issues are identified as common stressors for students not only at Vanderbilt but also at the University of Hawaii. The committee for mentoring and

advising also does something unique called the “College Cup”. This special day is done to boost morale between faculty and students and give them a break from studying. Some of the events include a 5k, basketball, volleyball, trivia, and even an Iron Chef competition. The events promote both physical and mental wellness for students and receive great reviews.

The next principle was student leadership. Students come together to lead a group called the Student Wellness Committee (SWC). This group holds events as small as a study group to as large as some mental health forums for the whole school. This group increases awareness of wellness for students and allows students to take it into their own hands. It allows the students who are leaders in this group to design and create programming relating to student wellness. Because this committee is student-run, it is easier for them to identify issues that the students are facing and create events that are tailored to this. Some examples of events other than academic-related ones that the committee has put on include a running club, student-student mentoring, yoga, and mindful eating. One specific program the SWC puts on is called the Commodore Challenge, which encourages medical students to increase common wellness activities. The challenge requires “students to set goals (e.g., taking the stairs instead of an elevator or running/walking X miles daily) and to track adherence using a predefined scoring system (e.g., one point for each mile that the students walked or ran” (Drolet & Rodgers, 2010, p. 106). Based on the number of points the students receive, they can win small prizes such as movie tickets. All these events put on by the SWC promote well-being throughout the student body, giving many options to students depending on their hobbies and interests.

The final principle is all about the personal growth and psychological development of the students. The VMS LIVE is created to be a longitudinal curriculum focused on the personal development of medical students. These programs aim to "guide students in a process of self-discovery to identify their abilities, convictions, and values" (Drolet & Rodgers, 2010, p. 107). The programs take place at locations away from the medical school to give the students a sense of relaxation away from the classroom. Both the University of Hawaii School of Medicine and the Vanderbilt University School of Medicine have made great strides to decrease the negative effects of mental health issues for medical students, and it helps the students tremendously.

Vanderbilt has the ability to create programs for their students with help from funding from the university. The cost of an undergraduate education at Vanderbilt University has now reached $98,000 per year. The tuition is expected to reach $100,00 next year (Moody, 2024). Having extra funds will help create more events for students, but paying for tuition that large can also cause stress.

Are the Actions of Schools Proving Beneficial?

After medical schools like the University of Hawaii and Vanderbilt University published their studies, it encouraged many other medical schools to make similar changes. These changes have seemed to greatly help students. According to Slavin, Schindler, and Chibnall, curricular changes lead to "significantly lower levels of depressive symptoms, anxiety symptoms, and stress and significantly higher levels of community cohesion" (2014, p. 573). As previously stated, the University of Hawaii's study specifically shows that there is a 10-fold decrease in suicidal ideations and a 35 percent decrease in depressive symptoms (Thompson et al., 2010). At Vanderbilt

University, their new and improved programs all receive high praise from the medical students. For example, for the SWC programs, the students are surveyed, and "100% of students surveyed (n = 143; 68% response rate) reported participating in at least two SWC activities. In another sample, 95% of students (n = 116, 56% response rate) rated their experience with the program as positive" (Drolet & Rodgers, 2010, p. 106). Vanderbilt does not have an official way to measure the success of their program, but the school does survey its students at the end of the year, and they find that there is no direct correlation between participation in wellness programs and levels of burnout. Authors do, however, find that "when assessing the perceived degree of relief of burnout from the various components of the wellness program, trends suggest that as perception of the usefulness of the Wellness Program increased, burnout decreased" (Zackoff, Sastre, & Rodgers, 2012, p. 18). Their official end of the year survey also shows that there was an overall belief that there is a "culture of wellness" at Vanderbilt School of Medicine (Zackoff et al., 2012). In other studies, programs like the student-led activities at Vanderbilt also received good feedback (Edmonds, Chatterjee, Girardo, Butterfield, & Stonnington, C. M, 2022). Overall, according to survey results and feedback from students, changes that medical schools have implemented help with the symptoms of stress.

CHAPTER THREE

Literature Review – Stress in Undergraduate

Stress Present in Undergraduate Students

Entering college is something many teenagers look forward to, seeing it as one of the biggest turning points in their lives. It comes with freedom, responsibility, and a great education. As The Learning Center at the University of North Carolina (UNC) at Chapel Hill puts it, "College students commonly experience stress because of increased responsibilities, a lack of good time management, changes in eating and sleeping habits, and not taking enough breaks for self-care" (2022, para. 2). With these things comes stress. First comes freedom, being away from home and parents with their rules. Students can have anxiety about who they should be associating with, when to skip out on studying and do something fun, when to go back to their dorm, and so much more. College freshmen also have a newfound sense of responsibility in many aspects of their lives. Students are now responsible for planning their own meals, planning out their schedules every day, cleaning their dorms or apartments, etc. Coming from high school, every day was similar with structured periods and designated study time, having sports or band practice after school, coming home having dinner with their family, and doing it all over again. College is different because students can decide and change what they do every day. This can be stressful for students because they will inevitably make the wrong decisions sometimes, and that might result in negative consequences. Being away from their families, friends, and hometowns can also be lonely, causing stress, anxiety, and possibly even depression (The Learning Center at UNC Chapel Hill, 2022).

The cost of college can also contribute to stress. The average cost for a public, four-year university for in-state tuition in the United States is $26,027 per year or $104,108 over 4 years. Out-of-state tuition costs even more, amounting to $27,091 per year or $108,364 over 4 years. Private universities are another option. Students who attend private universities pay $55,840 per year or $223,360 over 4 years (Hanson, 2023). Many students and their families cannot afford to pay for tuition out of pocket, so students end up taking loans out. According to the Institute for College Access and Success, "In 2020, more than 2 million students completed a bachelor's degree and left college with an average of $30,467 in student loans. Graduates with debt represented 64 percent of all students graduating with a bachelor's degree in 2020" (Bruecker, 2023, para 1). Taking out loans can cause anxiety about the future because not only will pre-med students have to pay back loans from undergraduate, but they will also be taking more loans out for medical school.

How is Stress Affecting Undergraduate Students?

Similar to how stress negatively affects the minds and bodies of medical students, stress affects undergraduate students. As part of the World Mental Health Surveys International College Student project, a paper researching mental health in college freshmen was published. The authors want to close the gap in literature looking into the prevalence of mental health disorders and their effects on college freshmen. To do this, the authors do a survey called the Global Appraisal of Individual Needs Short Screener (GAIN-SS), which has 20 questions and 4 sub-screeners, allowing the researcher to quickly screen for emotional and behavioral health issues:

> The GAIN-SS consists of four sub-screeners, each indicative for one type of mental health problem, including: internalizing mental health problems (depression, anxiety, sleep problems, post-traumatic stress, and suicidal ideation), externalizing mental health problems (inattentiveness, hyperactivity, impulsivity, and conduct disorder), problems with substance use (problematic use, substance abuse, and dependence), and crime/violence-related problems (interpersonal, property, and drug related crimes). (Bruffaerts, Mortier, Kiekens, Auerbach, Cuijpers, Demyttenaere, Green, Nock, & Kessler, 2018, p. 99)

This survey is deployed to the freshmen, and the first result the researchers look at is the prevalence of mental health disorders. The authors find that about 34.9% of freshmen have a mental health disorder, and about 23.7% of those problems are internalizing problems, relating to depression and anxiety. About 18.3% of the mental health problems are externalizing problems, and even fewer are for substance use or antisocial problems. Another interesting point is that 36.1% of those who have at least one type of mental health problem also have a second (Bruffaerts et al., 2018).

The presence of any mental health problem may not directly associate with stress, but the presence of anxiety and its effects do. The authors find that internalizing and externalizing mental health problems are associated with significant decreases in academic functioning, with a decrease of 0.2-0.3 in GPA at the end of the year compared to those without mental health problems (Bruffaerts et al., 2018). This is where anxiety and stress become significant.

As an undergraduate student, stress arises from various factors, as mentioned earlier. However, as a pre-medical undergraduate student, the demands of rigorous

coursework may exacerbate this stress even further. Kaplan Test Prep surveys 400 students who have taken the Medical College Admission Test (MCAT), assessing the students' levels of stress. In their survey, the authors find that about 37%, or almost 4 in 10 students, have "seriously considered" switching majors to another career field because of the level of stress they experienced as a pre-med (Schaffer, 2020). The students identify long study hours, involvement in many extracurriculars, studying for the MCAT, and future worry about financing medical school as some of the top stressors for pre-med students.

If anxiety and stress are increasing, but a student's academic performance is decreasing, that will have a cascading effect of causing even more anxiety. This is because getting accepted to medical school is very challenging and competitive. If a student's academic performance is even slightly less than their peers, that severely decreases their chance of getting into medical school (Perez, Williams, Henderson, McGregor, Vapiwala, Shea, & Dine 2023). Overall, the increased stress, anxiety, and depression in undergraduate students, specifically pre-med undergraduate students, have negative effects that need to be addressed prior to medical school.

Programs Implemented in Universities

Similar to medical schools, universities around the world are implementing programs and activities to address wellness in college. Many universities implement both in-person and online counseling, lifestyle classes, cognitive-behavioral therapy, mindfulness, yoga, and meditation (Loiselle & Travis, 2021). Providing resources online helps increase interaction with students, especially in resources like counseling. A professor at the University of California Irvine noticed the need for resources for pre-

health major undergraduate students. He proposes lifestyle classes. In these classes, his central focuses are, “emotional intelligence, financial management, and nutritional and physical activity” (Jafari, 2017, p. 1). He wants to provide students with basic coping mechanisms for the stress that is coming their way. Pre- and post-surveys are sent out to analyze the effectiveness of the course. The results show that between 14-23% of the students believe they now make more positive lifestyle changes after the class, especially relating to, “exercising more, eating healthier by avoiding eating refined sugar and eating a well-balanced diet, managing their personal finances better and feeling less stressed through application of de-stressing methods presented in the class, such as regular sleep hours, outdoor activities, mindful volunteering and exercising” (Jafari, 2017, p. 7).

Loiselle and Travis propose Conscious-Based Education (CBE) for undergraduate universities. CBE incorporates many of the preventions previously stated, “It embraces self-care by offering instruction for a balanced daily routine of rest and activity including regular supervised meditation (Transcendental Meditation) sessions, both online and in-person counseling, classes with healthy lifestyle recommendations, and an on-campus cafeteria serving fresh organic food” (Loiselle & Travis, 2021, p. 2674). It also has curricular changes; “[CBE] utilizes a block system curriculum that allows students to focus on just one course at a time which could reduce students’ stress load of multiple simultaneous course requirements” (Loiselle & Travis, 2021, p. 2674). To test effectiveness, the authors survey students from freshmen to senior year with the Duke Health Profile. This is a survey that contains 11 subscales, “physical health, mental health, social health, general health, perceived health, self-esteem, anxiety, depression, anxiety-depression, pain, and disability” (Loiselle & Travis, 2021, p.2674-2675). From

freshmen to senior year, the Duke Health Profile scores show significant increases in physical, mental, and general health, self-esteem, and perceived health, and significant decreases in anxiety and depression (Loiselle & Travis, 2021). This study shows that if undergraduate universities perhaps involved extra resources to aid in their students' wellness, a decrease in stress and associated symptoms would occur.

CHAPTER FOUR

Sanford School of Medicine Perceived Stress Survey

The survey for the Sanford School of Medicine first-year students was completed by Dr. Craig Uthe. Dr. Uthe is the chief well-being officer at the USD SSOM, so he first did this survey to gauge levels of perceived stress in his students. He then educated the students on well-being and resources for when they need help. Dr. Uthe administered the survey to medical students at the start of the academic year, following their first week of orientation and classes. The second administration took place at the end of their first semester. The questions he wrote for his perceived stress survey are the same questions that are used in the undergraduate survey. Both surveys are performed on paper at the medical school. The results of the surveys will be presented in the results and discussion sections of this paper.

CHAPTER FIVE

USD Undergraduate Perceived Stress Survey

This survey was completed to research perceived stress levels in the freshmen pre-medical students at USD. This was done because previous literature suggested that freshmen undergraduate students have moderate levels of stress, but pre-med students have even higher stress. This survey was done to look at their levels of stress and see how it compared to the levels of stress in first-year medical students at USD SSOM. The first time the survey was sent out was during their first month of school at USD. The second round was the first month of their second semester at school. Both are done via Qualtrics. The results of the surveys will be presented in the results and discussion sections of this paper.

CHAPTER SIX

Rationale

After reviewing the current literature, it became apparent that there was insufficient data and discussion regarding the correlation and comparison of stress levels between freshman pre-medical students and first-year medical students. Therefore, a Perceived Stress Survey was sent out twice to both freshmen pre-med students and first-year medical students to explore the possibility of a connection. The survey intended to identify the levels of stress present in both cohorts of students and then perhaps propose causes and connections between the two groups. The purpose of this is to bring light to the levels of stress and highlight the necessity for programs to help increase student wellness.

CHAPTER SEVEN

Methods

Materials

The same Perceived Stress Survey was used for both the medical students and the undergraduate students. Dr. Craig Uthe first wrote the survey and gave the author permission to utilize it for further research with the undergraduate students. The surveys were approved by the Institutional Review Board (IRB) at the University of South Dakota. The medical student survey was conducted on paper at the Sanford School of Medicine. It was completed during a one-hour well-being session in the main lecture auditorium with Dr. Craig Uthe as the moderator. It was during their Monday noon hour the third week of their first year of medical school, the first week being orientation. The students have had classes for five and half days, including the gross anatomy cadaver lab. The undergraduate survey was conducted via Qualtrics, an online survey and data collection tool. It was first deployed in the first month of their first semester of school, and the second round was the first month of their second semester. The IRB approval for both surveys can be found in Appendix B. In the medical student survey, there are 10 questions pertaining to perceived stress. In the undergraduate student survey, these exact same 10 questions are present, along with a question asking about their major. All of these questions are multiple-choice, other than a fill-in-the-blank "other" option for a major if it was not listed as one of the options in the multiple-choice question.

Procedure

The survey is distributed via email to the undergraduate freshmen of USD. It was sent out via listservs to multiple departments, including Biology, Chemistry,

Neuroscience, Psychology, Health Sciences, Health Service Administration, and Honors. It was also sent out to a few organizations to be placed in news feeds for the members. A link to the consent form was sent out, which included a full description of the survey and its purpose. When the potential participants read through the entire document, they get to the Qualtrics link where the first question they are asked is, “Do you consent to this survey and are you a freshman student at USD, 18 years of age or older?”. If the participant answers no, the survey ends. If they answer yes, they continue onto the survey. The survey takes approximately 2-5 minutes. All participants of the undergraduate survey are freshmen or first-year students who deem themselves to be on the pre-medical track. No identifying questions are asked in the survey to ensure that all responses and participants are anonymous.

CHAPTER EIGHT

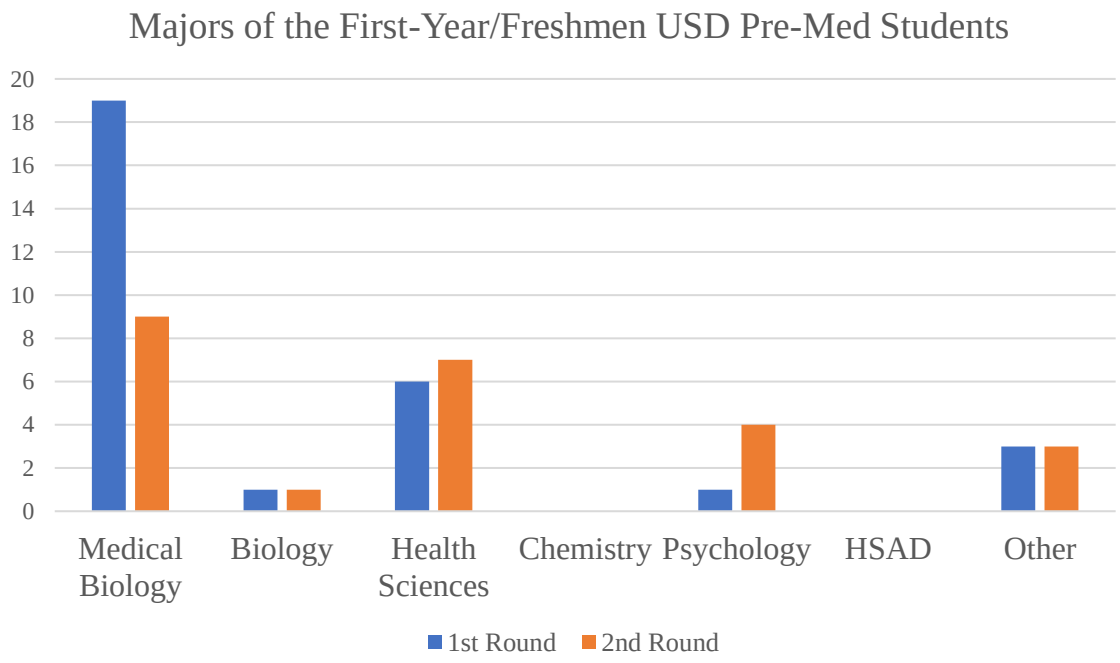
Results

Participants

Participants for the undergraduate survey have to be 18 years of age, a first-year/freshman at USD, and be on the pre-medical track. The total number of participants in both surveys is 55 students. In the first round of surveys, n=30. In the second round, n=24. The students can be of any major. The participant's majors are shown in Figure 1.

For the medical school survey, participants have to be a class of 2027 first-year medical student at the USD Sanford School of Medicine. Both surveys were taken by 70 of the 71 students in the class, so round one of the surveys, n=70, and round two, n=70. One student is missing in each round of surveys.

Figure 1



Survey Data

Table 1

Perceived Stress Levels in USD Undergrad Freshmen

Perceived Stress Level	First Round	Second Round
Low (0-13)	8	3
Moderate (14-26)	22	17
High (27-40)	0	4

Table 2

Perceived Stress Levels in Sanford School of Medicine First-Year Students

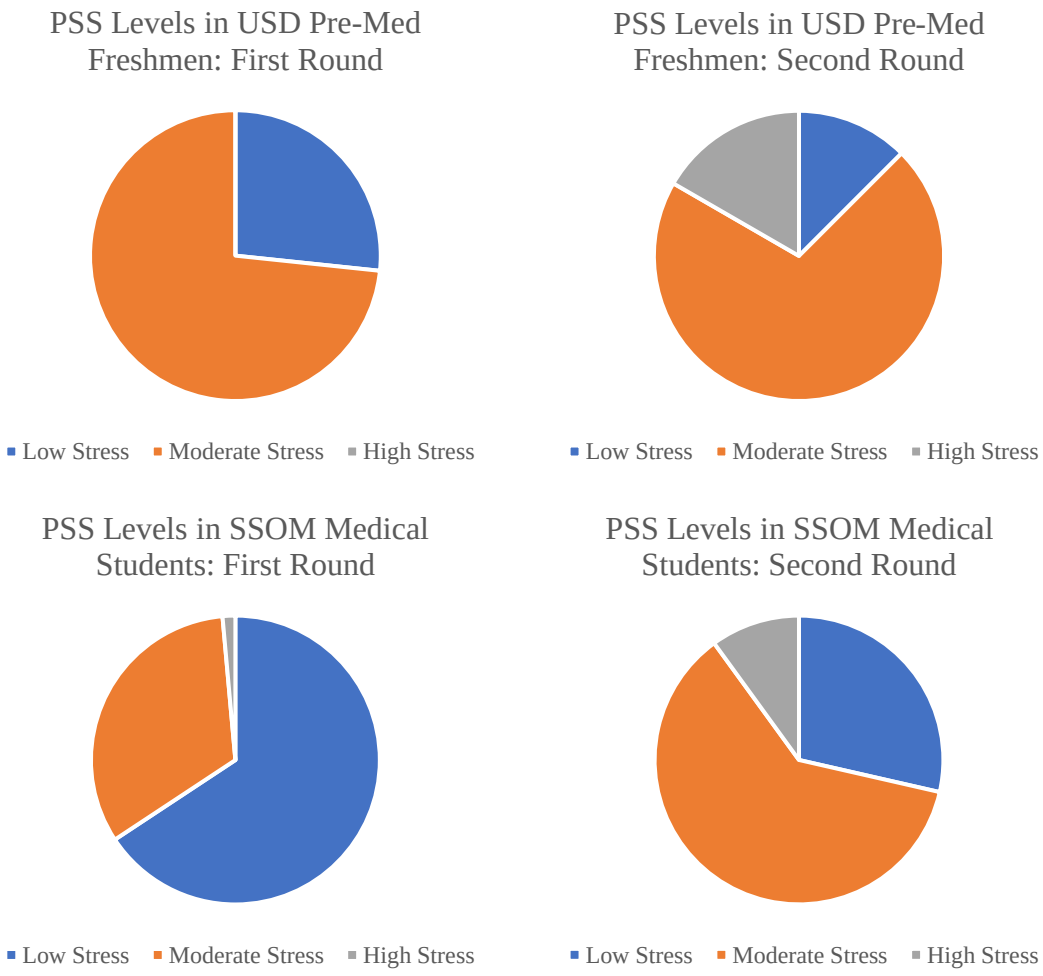
Perceived Stress Level	First Round	Second Round
Low (0-13)	46	20
Moderate (14-26)	23	43
High (27-40)	1	7

CHAPTER NINE

Discussion

The findings from the perceived stress surveys seem to align with the previous research that has been done on medical students and undergraduate students, simply stating the fact that the students are stressed, and the stress increases throughout the school year. Percentage-wise, undergraduate pre-med students at USD appear to be more stressed than medical students at the beginning of their first year. For USD freshmen, about 27% of students have low perceived stress, and about 73% have moderate stress. None of the students have high stress. For the medical students, about 66% have low levels of perceived stress, 33% have moderate, and less than 1% (only one participant) have high stress (Figure 2). From this data, it appears that USD freshmen have higher perceived stress at the beginning of their first semester. In the second round of surveys, the freshmen pre-med students appear to be even more stressed, with 12% indicating low perceived stress levels, about 71% having moderate, and about 17% having high perceived stress (Figure 2). In the first round, none of the students have high stress levels, and now the second round has 17%. This can be because the students have gone through their first semester of pre-med classes, and although they have built a routine, they know how hard the classes can be, so they are stressed about what is to come. The medical students are also more stressed in the second round of surveying. The medical students report 29% having low perceived stress, 61% having moderate perceived stress, and 10% having high perceived stress. The stressors can be similar to the undergraduate students. The medical students know how difficult medical school is, and it is only going to continue to increase in difficulty.

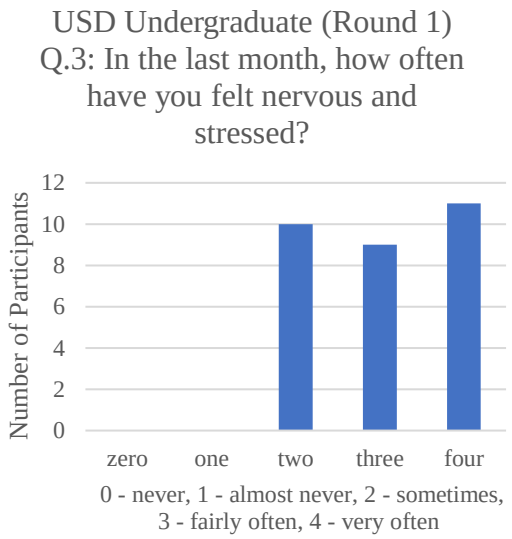
Figure 2

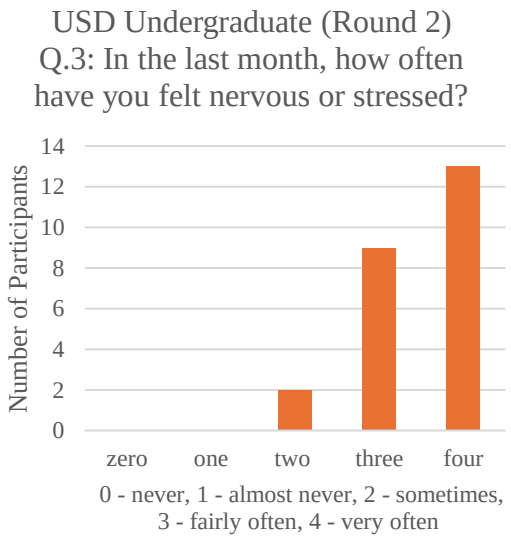


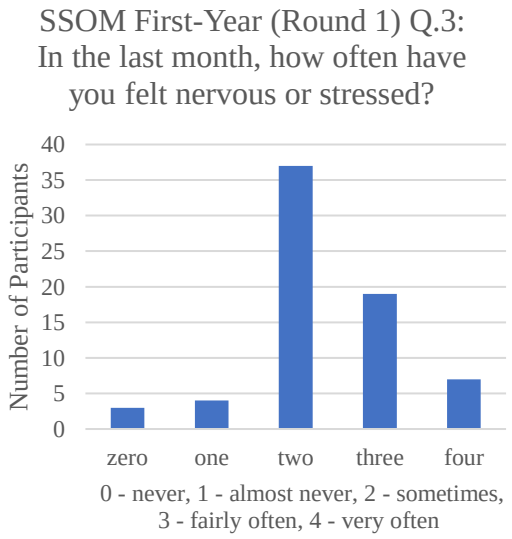
Certain questions within the survey are interesting to analyze. Question 3 on the perceived stress survey asked, “In the last month, how often have you felt nervous and stressed?” Participants answer with a number using this scale: 0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often. This question is a clear indicator of stress, possibly linked to the stress of studying or being in a new environment at the beginning of the school year. In the undergraduate students, 33% report a 2, or sometimes, 30% report a 3, or fairly often, and 37% report a 4, or very often (Figure 3). In medical students, around 4% report 0, and 6% report 1, indicating never or almost never. About

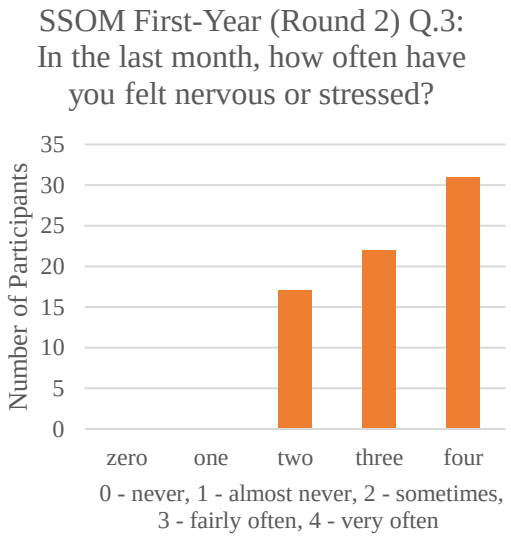
53% report 2 or sometimes, 27% report 3, fairly often, and 10% report a 4, or very often (Figure 3). Both of the charts show a different distribution. The undergraduate students skew toward the higher reports of feeling nervous and stressed, and the medical students are more evenly distributed, with the middle answer of 2, or sometimes, being the most popular.

Figure 3





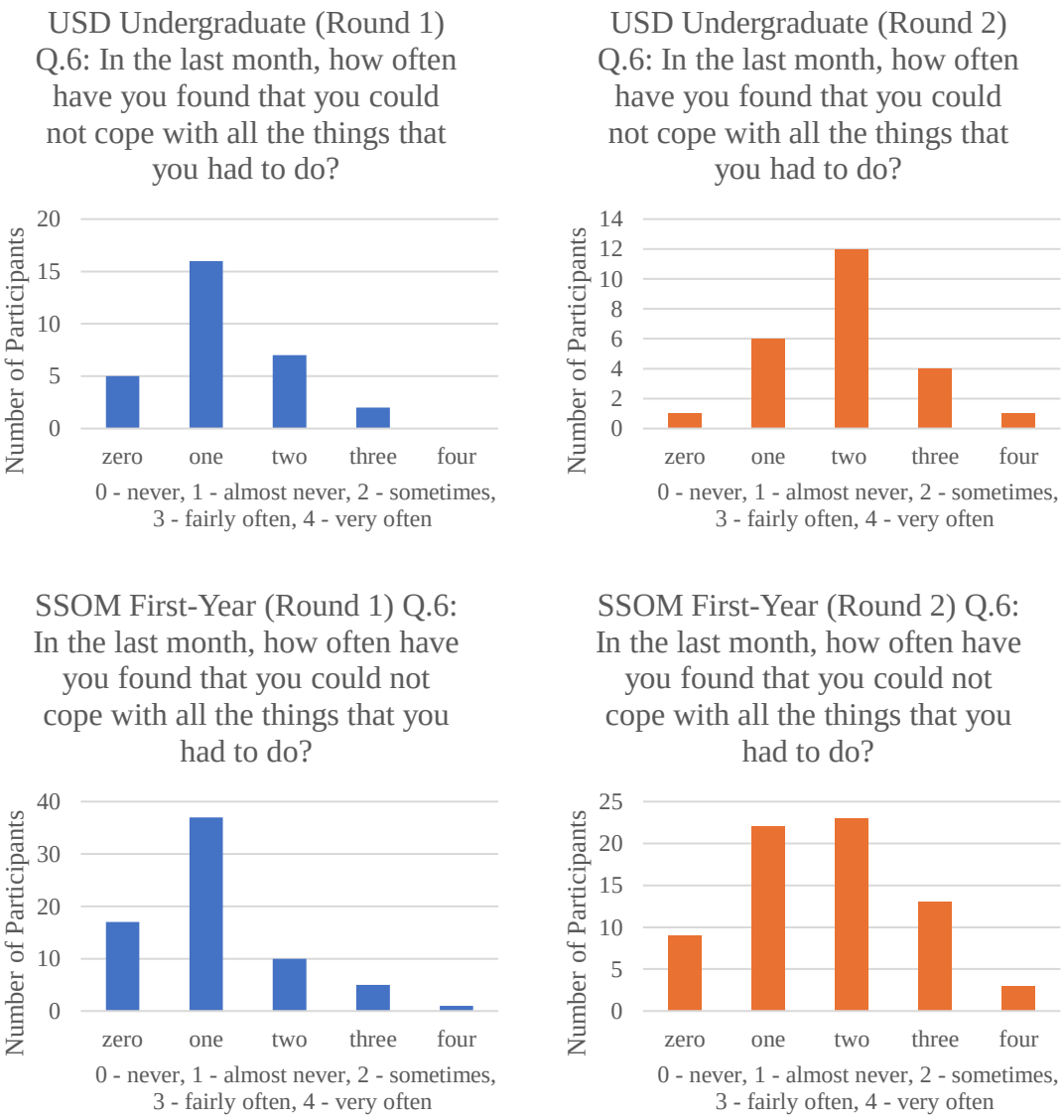




In the second round of surveys, the trend seems to be fairly similar for undergraduate freshmen. Students lean toward 2-4, suggesting that they feel nervous or stressed fairly often. For the medical students, it appears to skew a little further towards the right, suggesting that they are starting to find that they cannot cope with everything going on in their lives. This can be different circumstances for every student, but perhaps has to do with increased testing, the stress of finding out where they are going to be moving for their second pillar, or even relationship stressors.

Another interesting question to look at is question 6, which asked, “In the last month, how often have you found that you could not cope with all the things that you had to do?” This question can pertain to feelings like moving away from home, starting difficult courses, finding new friends, and having so much more to cope with. In USD freshmen pre-med students, about 17% report 0, 53% report 1, 23% report 2, around 7% report 3, and 0 participants report a 4 (Figure 4). This is a more promising outlook because although the freshmen are stressed, it appears they have the ability to cope with everything going on in their lives. In the medical students, 24% report 0, 53% report 1, 14% report 2, 7% report 3, and 1% report 4 (Figure 4). This suggests that medical students also have the ability to cope with most of the stressors coming their way.

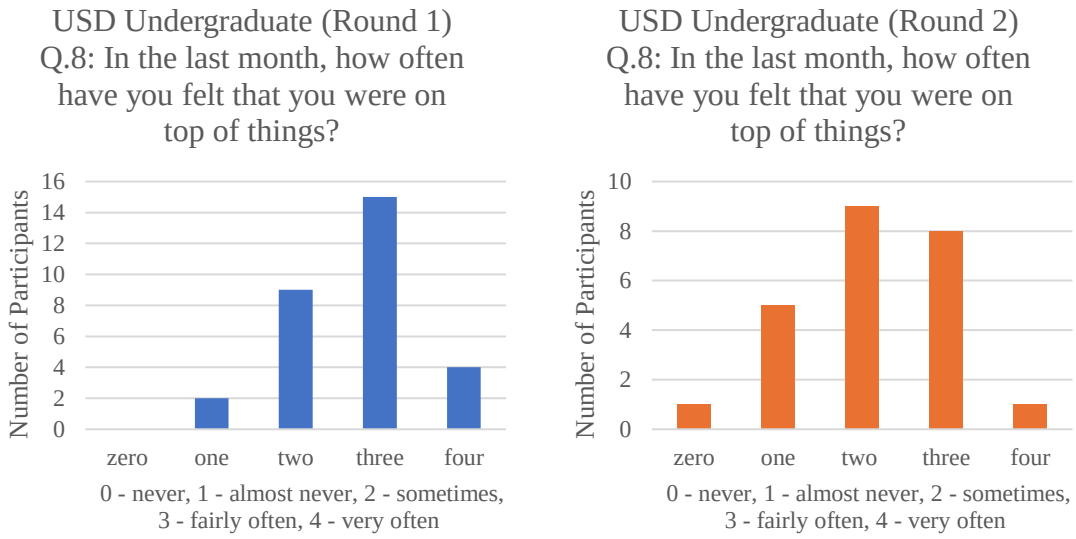
Figure 4

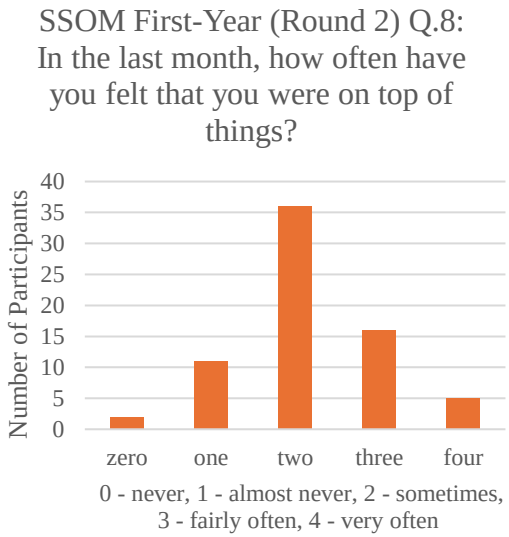


During the second semester, it appears that the freshmen pre-med students have an increased tendency to report having a harder time coping with everything going on in their lives. This can again be because of difficult courses, but also perhaps because of increased participation in clubs or organizations or trying to find a job to pay for school. For the medical students, a similar trend also ensues. More students report higher numbers, indicating they struggle to cope with everything they have to do.

A final question to look at is question 8, “In the last month, how often have you felt that you were on top of things?” This question is looking for more positive answers, so a 4, or very often, would contribute to a lower perceived stress score. In the freshmen pre-med students, 0 students report 0, about 7% report 1, 30% report 2, 50% report 3, and 13% report a 4 (Figure 5). A majority of freshmen indicate that they are on top of things at the beginning of the year. In the medical students, 0 students report 0, about 3% report 1, 19% report 2, 59% report 3, and 20% report 4 (Figure 5). This again shows that a majority of medical students feel as though they are on top of things at the beginning of their medical education.

Figure 5





During the second round of surveying, the pre-med students have 4% reporting 0, 21% reporting 1, about 35% reporting 2, 33% reporting 3, and 4% reporting 4 (Figure 5). Again, higher numbers suggest better outcomes for this question, stating that the student feels like they are on top of things. For their second round, a majority of students report 2 and under, suggesting that they are not always on top of things. In medical students, about 3% report 0, 16% report 1, 51% report 2, 23% report 3, and 7% report 4 (Figure 5). The majority of medical students answer 2 or 3, indicating that sometimes or fairly often, they are on top of things. Thus, once again, undergraduate students seem to have higher levels of perceived stress.

Throughout the entire first round of the survey, the undergraduate students appear to have higher perceived stress levels than the medical students. Both the undergraduate students and the medical students feel they are able to cope with everything going on in their lives. In the second round of surveys, both the undergraduate students' and medical students' stress increase. The medical students seem to have a more drastic change from low levels of perceived stress to either moderate or high levels compared to the

undergraduate students. All survey results can be found in Appendix C. Overall, it is clear that both cohorts of students feel more stressed after completing a semester of school than they are during their first week of school.

Limitations

Although this survey has great data to study and learn from, it also has some limitations. If there is more time and funding in the future, it would be beneficial to study one group of students starting in their first year of undergraduate as a pre-medical student all the way to the end of their medical education, thus eliminating any questioning of different students having different levels of stress because these would be the same students.

The data from the two surveys is also acquired in two different fashions. The medical student survey is on paper and done while the whole class is together. The undergraduate survey is done online via Qualtrics and done at the student's discretion. Not every pre-med freshman at USD can take the survey. This difference can affect the number of responses that are received.

CHAPTER TEN

Solutions

Interventions in Place

The University of South Dakota and the Sanford School of Medicine have already put interventions and resources in place to help their students combat the stress of life and school. Undergraduate students have access to a few different resources for mental health, including the Student Counseling Center, the Opportunity Center, and Student Health. Professors for undergraduate courses at USD are sent a resource guide, *The Coyote Resource Guide* (2023), at the beginning of the year as well. This is sent out to educate professors on where to send their students if they come to them for help. It includes a response protocol, including deciding whether the student is in immediate danger to themselves or others. If the professor believes the student is in danger, they can report the concern to the Behavior Intervention Team or by calling the University Police Department (UPD). If the professor does not believe the student is in immediate danger, they can refer them to the Student Counseling Center, where there are group appointments, couples counseling, or individual counseling, both online and in person. A student can get up to 8 one-on-one sessions a semester. The counseling center also makes clear that counseling is confidential under HIPAA, so the student can remain anonymous. This resource guide also contains a section called “See Something. Say Something. Do Something.” This teaches the professor what to do if they see a student is in distress and what their role as a professor can be, and when to refer the student to other resources. Other than the Student Counseling Center, professors are given resources such as Charlie’s Cupboard, the student food pantry on campus, Disability Services to help with

academic accommodations, the Learning Specialist to help with study habits, managing time, and identifying learning styles, and many more.

At the University of South Dakota Sanford School of Medicine (USD SSOM), there are several programs in effect to combat stress levels in medical students. Their motto is "Well Students, Well Doctors, Well Patients" (*Medicine,* n.d.). In this program, several medical students are appointed as wellness officers, and they directly work with the USD SSOM Office of Medical Student Affairs. This committee focuses "on the intellectual, environmental, emotional/spiritual, interpersonal, and physical well-being of the student throughout his/her medical education" (*Medical Student Affairs,* n.d.). Together, the Office of Medical Student Affairs and the wellness officers host a wide variety of events, including yoga classes, self-defense classes, and study sessions.

One unique program that USD SSOM offers is called the Healer's Art Course. This is an elective that can be taken in the fall of the first year of medical school. In the USD SSOM Class of 2027, 64 of 71 first-year medical students participated in Healer's Art. It is designed to rekindle the purpose of why students are in medicine. There are five sessions including, "Discovering and Nurturing Your Whole-ness; Honoring Loss; Sharing Grief: The Healing of Loss; Beyond Analysis: Allowing Awe in Medicine; and The Care of the Soul: Service as a Way of Life" (*Medical Student Affairs,* n.d.). Similar to some of the other programs in medical schools across the country, the Sanford School of Medicine also offers career advising and mentoring and stress management and resilience training (*Medical Student Affairs,* n.d.).

Future Suggestions

It is clear that the University of South Dakota and the Sanford School of Medicine both have many resources available to students if they are struggling, however, from the survey data, students still are experiencing high levels of stress, whether they are in their undergraduate or medical education career. The students may not be utilizing the resources as much as they should be. Perhaps one of the biggest barriers to getting help is fear of having it on their permanent record, just as students felt in the published research about the University of Hawaii and Vanderbilt. It would be beneficial if, in the Student Counseling Center, there would be one counselor dedicated to both pre-medical and medical students. This counselor would ideally have a background in healthcare so they can offer solutions and interventions that students would be able to integrate into their everyday lives. There would also have to be encouragement to attend and promote the fact that it is both free and anonymous. It would not go on the student's official records that they went to receive mental health counseling. Another beneficial opportunity can be having mentoring between medical students and pre-medical students. There is high stress among the freshmen pre-med students. If a student were paired with a medical student for mentoring, they could receive advice on classes, research, volunteer opportunities, or just college in general. This support might help ease the stress in undergraduate students while also providing a sense of fulfillment to medical students. Having navigated that stage in their lives, the medical students can now offer knowledge to those currently experiencing it. There can also be a general promotion of all things well-being in both the undergraduate and medical schools at USD. Not only does there have to be promotion, but students must engage in it, so maybe it would look like

professors posting a well-being tip in their newsfeed so students can do it at home, or maybe it is a yoga class at the Wellness Center. Having a pre-medical undergraduate or a medical professor promoting well-being can encourage the student even more than just hearing it from a friend. In the end, USD and SSOM have great resources, but they need to be better utilized by students to help reduce the stress that is present.

This study can be furthered in the future to get even more data and responses from students. Collecting demographic data on students can be beneficial for gaining insight into the factors contributing to their perceived stress levels. Some examples of demographics collected are age and gender. It would be interesting to look at whether males or females have higher perceived stress levels. Perceived stress levels could also be affected by age. Not every student gets accepted into medical school right out of undergraduate, so perhaps being older and going through more life experiences might influence perceived stress levels. Non-traditional students could also have different perceived stress levels because they have been out of school, and are now coming back for medical school and need to learn to be a student again. All of these points would be beneficial to study in the future.

CHAPTER ELEVEN

Conclusion

Almost every student, no matter if they are in an undergraduate or a post-graduate career, experiences stress. The student might perceive this stress as low levels, or very high levels. In this paper, it was demonstrated that throughout the entire country, students are experiencing stress due to an endless number of factors, including moving away from friends and family, learning how to study, taking exams, relationships, and so much more. This can have negative effects on a student's mental health. At the University of South Dakota, two rounds of surveys are deployed to both undergraduate pre-med students and medical students. It appears that undergraduate pre-med students have higher perceived stress levels compared to medical students, perhaps due to being away from home for the first time or never having to study prior to college. That is not to say that medical students have low stress levels; both medical students and pre-med students had alarmingly increased stress levels going into their second semester of school, most likely due to the knowledge that school was getting increasingly difficult, and they had to get through yet another semester before another break. USD and the SSOM have resources for their students, but despite the resources and interventions in place, students still feel high levels of stress. USD and the SSOM need to promote these resources, encouraging student involvement, and having professors play a role in that can potentially be highly beneficial for decreasing the levels of stress, and thus the negative side effects coming with it for students. As future physicians, pre-medical and medical students must be in a positive, healthy mindset to deliver the best possible care to their future patients, and research such as this study contributes to that vital objective.

APPENDICES

APPENDIX A

Final IRB Approval

Subject: IRB-23-174 - Initial: Exempt Approval
Date: Tuesday, September 12, 2023 at 7:30:48 AM Central Daylight Time
From: do-not-reply@cayuse.com
To: South-Winter, Carole A, Uthe, Craig J, Turgeon-Drake, Jamie, Derner, Maggie Gilson
Attachments: ATT00001.png, ATT00002.png, ATT00003.png, ATT00004.png, ATT00005.jpg

UNIVERSITY OF SOUTH DAKOTA

Date: September 11, 2023

University of South Dakota
414 E. Clark Street
Vermillion, SD 57069

PI: Jamie Turgeon-Drake
Student PI:Maggie Derner
Re: Initial - IRB-23-174 *First-Year/Freshmen Pre-Med Students Perceived Stress Compared to First-Year Medical Students at USD*

The University of South Dakota Institutional Review Board has rendered the decision below for this study. Because this study is exempt, its approval does not expire. Please submit a closure form to the IRB when this study is complete.

Decision: Exempt
Category: Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;

Research Notes: Online survey study; consent by email; waiver of signature on consent; recruiting email

Dear Jamie Turgeon-Drake,

The proposal referenced above has received an exempt review and is approved according to the procedures of the University of South Dakota Institutional Review Board.

A date-stamped consent form can be found on the "Attachments" tab of your study in Cayuse. Please make sure to use the date-stamped consent when sending potential participants your consent form.

In your application, you described obtaining consent by email, and that is the procedure we have approved for this

study. If you decide you want to change the consent procedure (for example, by making the consent form part of the survey that participants have to agree to before taking the survey), please submit a modification in Cayuse.

Annual continuing review is not required for this exempt study. However, two years after this approval is issued, on about September 10, 2025, we will contact you to request an update on the status of this study.

When the study is complete, you must submit a closure form to the IRB. You may close your study when you are finished collecting data, no longer have contact with the subjects, and the data have been de-identified. You may continue to analyze the existing data on the closed project.

Please promptly report to the IRB any proposed changes or additions (e.g., protocol amendments/revised informed consents. site changes, etc.) in previously approved human subjects research activities BEFORE you put those changes into place.

Any modifications to the approved study must be submitted for review through Cayuse IRB. All approval letters and study documents are located within the study details in Cayuse IRB.

If you have any questions, please contact: irb@usd.edu or (605) 658-3743.

Sincerely,

University of South Dakota Institutional Review Board

Marc Guilford, J.D.
Director, Office of Human Subjects
University of South Dakota
(605) 658-3767

APPENDIX B

First-Year Undergraduate Perceived Stress Survey Informed Consent

UNIVERSITY OF SOUTH DAKOTA
Institutional Review Board
Informed Consent Statement

Title of Project: First-Year/Freshmen Pre-Med Students Perceived Stress Compared to First-Year Medical Students at USD

Principal Investigator: Jamie Turgeon-Drake, 228 Center for Health Education, Vermillion SD 57069
(605) 658-5955 Jamie.Turgeon-Drake@usd.edu

Other Investigators: Maggie Derner, 120 Old Main, Vermillion, SD 57069

Invitation to be Part of a Research Study

You are invited to participate in a research study. In order to participate, you must be 18 years of age or older and a first-year/freshman pre-medical student at USD. Taking part in this research project is voluntary. Please take time to read this entire form and ask questions before deciding whether to take part in this research project.

What is the study about and why are we doing it?

The survey component of this study is to assess perceived stress level in first-year/freshmen pre-medical students at USD. The other part of this study is comparing perceived stress levels to first-year medical students and compare the results.

What will happen if you take part in this study?

If you agree to take part in this study, you will be asked to take a brief 11 question online survey. The questions will be formatted in a multiple-choice response. The questions pertaining to perceived stress will be asking you to rate how often you are feeling a certain way from 0 to 4.

This study will involve questions that may be considered sensitive information. For example, you will be presented with questions about how often you feel nervous or stressed, or how often you feel like you could not cope with your current situation.

If at any time you feel uncomfortable answering a question, you may skip that question or discontinue the survey.

What risks might result from being in this study?

There are some risks you might experience from being in this study. Some of the questions are personal and might cause discomfort. If you would like to talk to someone about your feelings regarding this study, you are encouraged to contact The University of

South Dakota's Student Counseling Center at 605-658-3580 which provides counseling services to USD students at no charge.

How could you benefit from this study?

Although you will not directly benefit from being in this study, others might benefit due to a better understanding of the perceived stress levels of first-year/freshmen pre-medical students. This might allow researchers to suggest different stress-relieving techniques to help cope with the stress.

How will we protect your information?

The records of this study will be kept confidential to the extent permitted by law. Any report published with the results of this study will remain confidential and will be disclosed only with your permission or as required by law. To protect your privacy we will not include any information that could identify you.

It is possible that other people may need to see the information we collect about you. These people work for the University of South Dakota and other agencies as required by law or allowed by federal regulations.

How will my information be used after the study?

After this study is complete, your deidentified data may be stored indefinitely in secure cloud storage and shared with other researchers through an open access repository without asking for additional consent from you. Your deidentified data will NOT include your name or other personal information that could directly identify you.

Your Participation in this Study is Voluntary

It is entirely up to you to decide to be in this research study. Participating in this study is voluntary. Even if you decide to be part of the study now, you may change your mind and stop at any time. You do not have to answer any questions you do not want to answer.

Contact Information for the Study Team and Questions about the Research

The researchers conducting this study are Maggie Derner and Jamie Turgeon-Drake. You may ask any questions you have now. If you later have questions, concerns, or complaints about the research please contact Maggie Derner at maggie.derner@coyotes.usd.edu or Jamie Turgeon-Drake at Jamie.Turgeon-Drake@usd.edu.

If you have questions regarding your rights as a research subject, you may contact The University of South Dakota- Office of Human Subjects Protection at (605) 658-3743 or irb@usd.edu. You may also contact this office with problems, complaints, or concerns about the research. Please contact this office if you cannot reach research staff, or you wish to talk with someone who is an informed individual who is independent of the research team.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. Keep this copy of this document for your records. If you have any questions about the study later, you can contact the study team using the information provided above.

Qualtrics Survey:
https://southdakota.sjc1.qualtrics.com/jfe/form/SV_6Mv3tUCQyJS1PKu

APPENDIX C

Student Survey and Results

Perceived Stress Scale (PSS):

To take this survey, you need to be 18 years of age, a first-year/freshman student at the University of South Dakota with a pre-med designation.

Your Current Major
_____ 1. Medical Biology
_____ 2. Biology
_____ 3. Health Sciences
_____ 4. Chemistry
_____ 5. Psychology
_____ 6. Health Service Administration
_____ 7. Other, list major _____
_____ 8. Prefer not to say

For each question choose from the following alternatives:
0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

_____1. In the last month, how often have you been upset because of something that happened unexpectedly?

_____2. In the last month, how often have you felt that you were unable to control the important things in your life?

_____3. In the last month, how often have you felt nervous and stressed?

_____4. In the last month, how often have you felt confident about your ability to handle your personal problems?

_____5. In the last month, how often have you felt that things were going your way?

_____6. In the last month, how often have you found that you could not cope with all the things that you had to do?

_____7. In the last month, how often have you been able to control irritations in your life?

_____ 8. In the last month, how often have you felt that you were on top of things?

_____9. In the last month, how often have you been angered because of things that happened that were outside of your control?

_____10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Survey Results

Figure 6

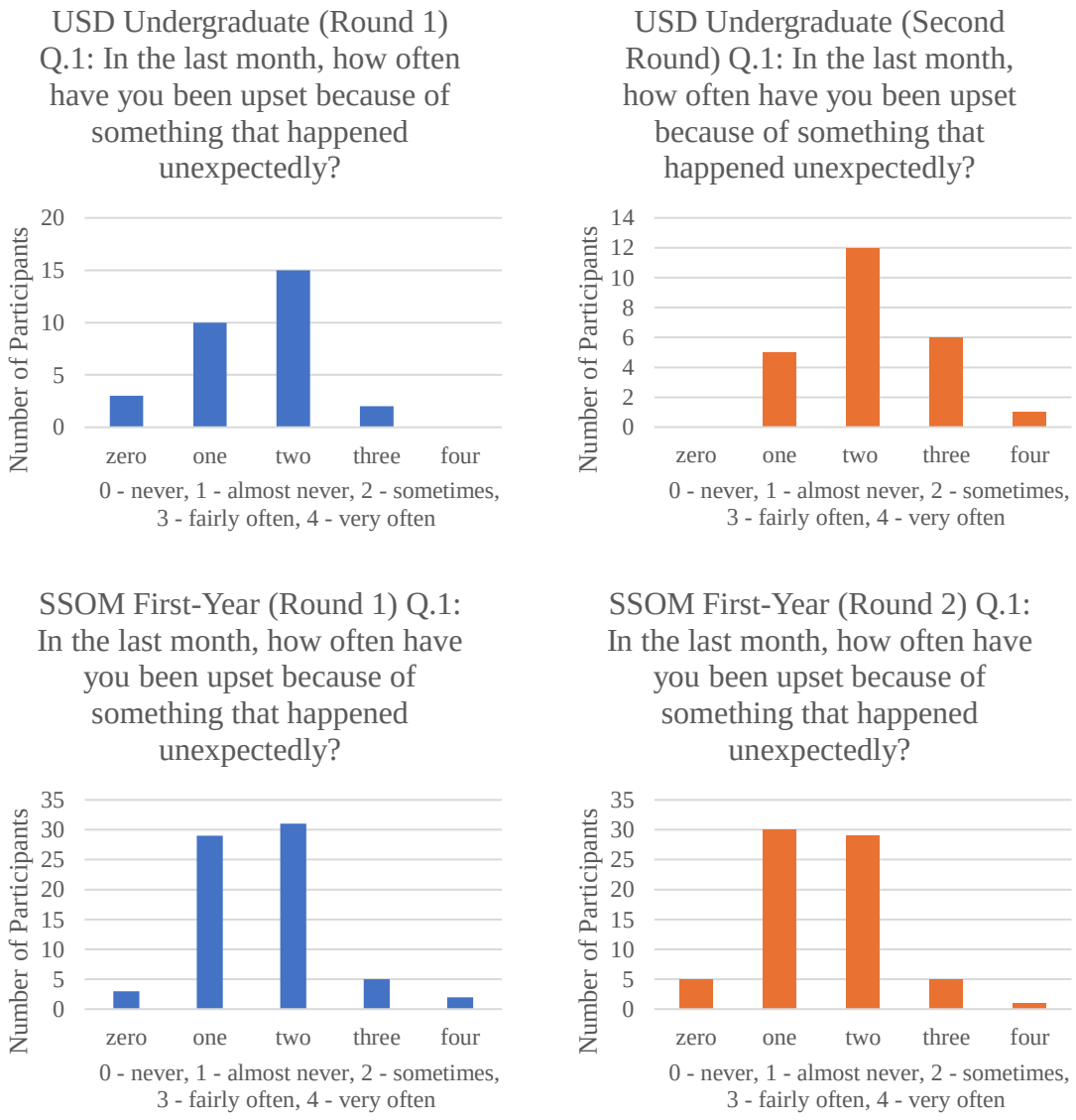
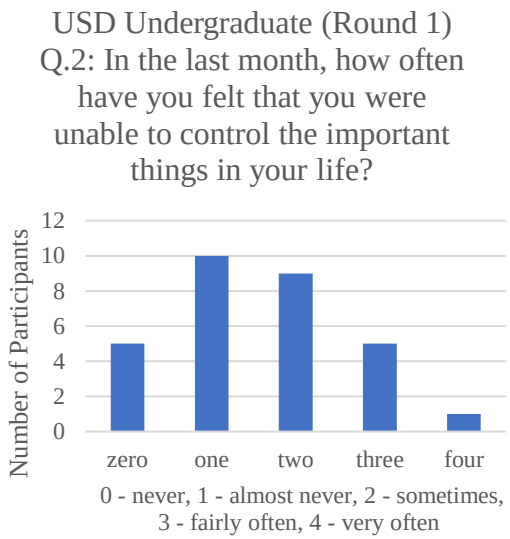
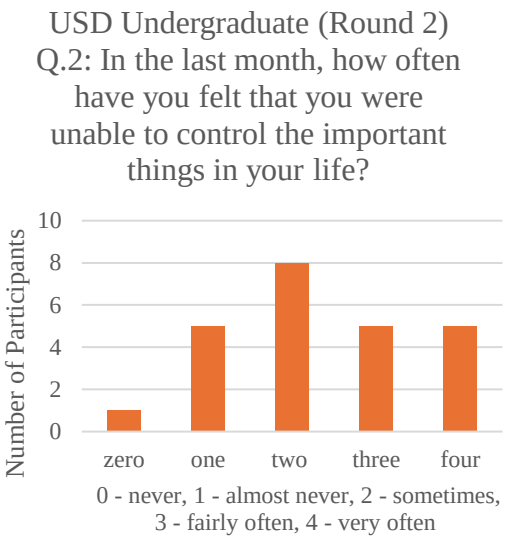
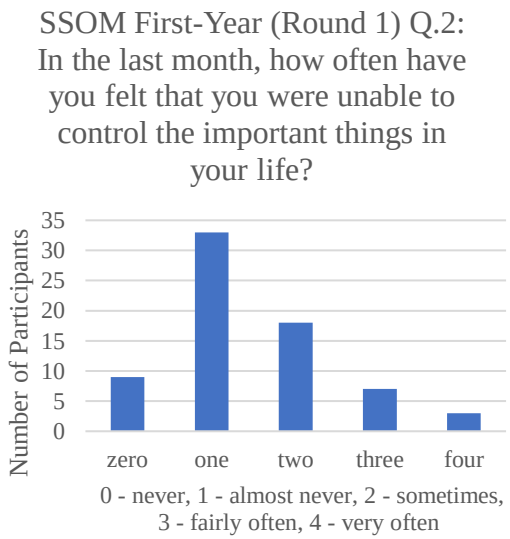


Figure 7


USD Undergraduate (Round 1)
Q.2: In the last month, how often have you felt that you were unable to control the important things in your life?
Number of Participants
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2)
Q.2: In the last month, how often have you felt that you were unable to control the important things in your life?
Number of Participants
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1) Q.2: In the last month, how often have you felt that you were unable to control the important things in your life?
Number of Participants
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

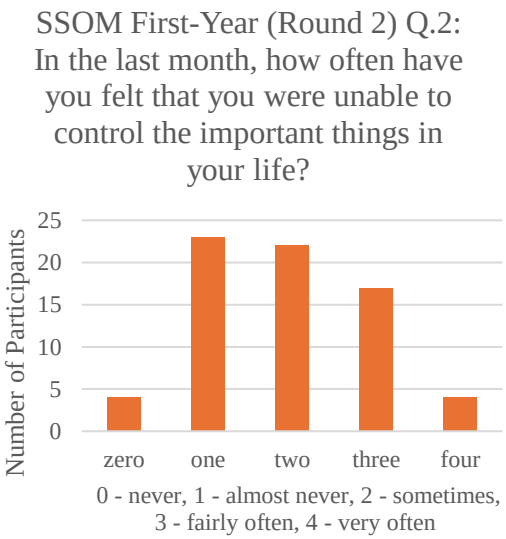
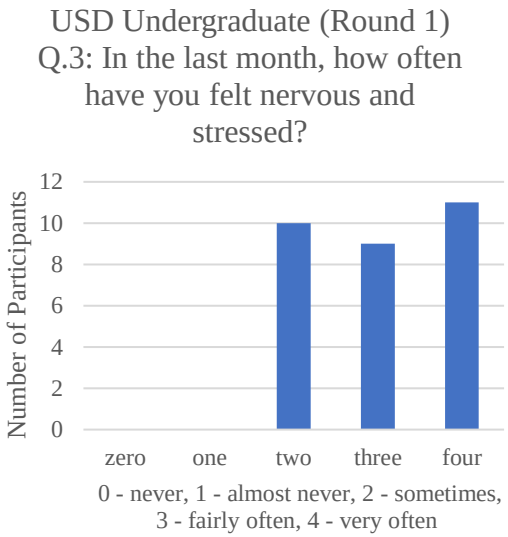
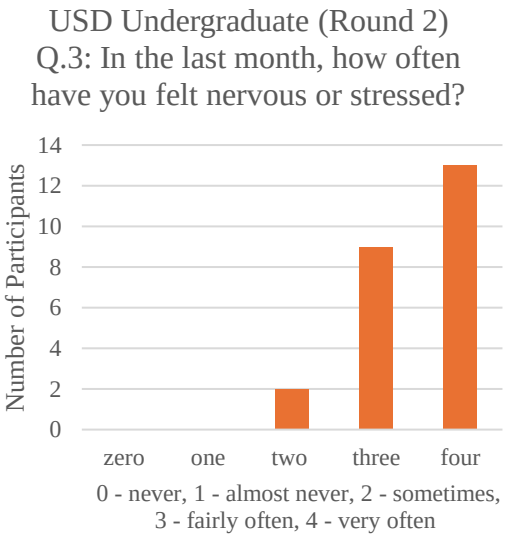
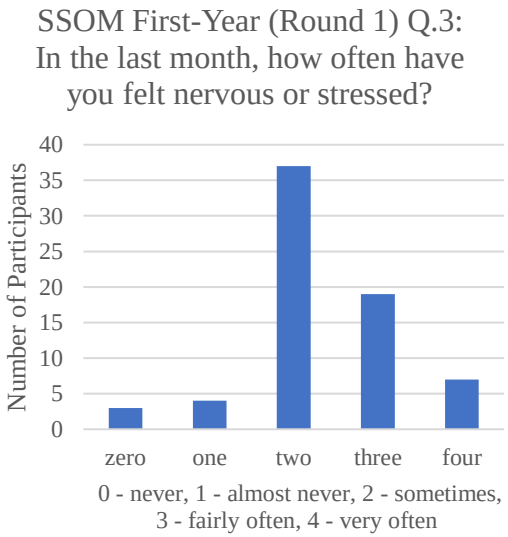

SSOM First-Year (Round 2) Q.2: In the last month, how often have you felt that you were unable to control the important things in your life?
Number of Participants
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

Figure 8


USD Undergraduate (Round 1)
Q.3: In the last month, how often have you felt nervous and stressed?
Number of Participants
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2)
Q.3: In the last month, how often have you felt nervous or stressed?
Number of Participants
14
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1) Q.3:
In the last month, how often have you felt nervous or stressed?
Number of Participants
40
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

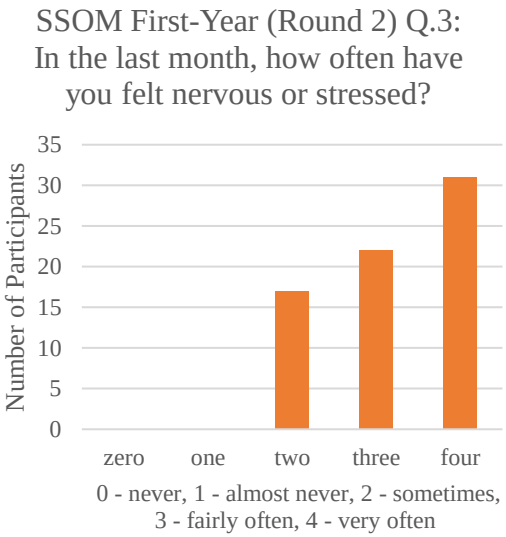
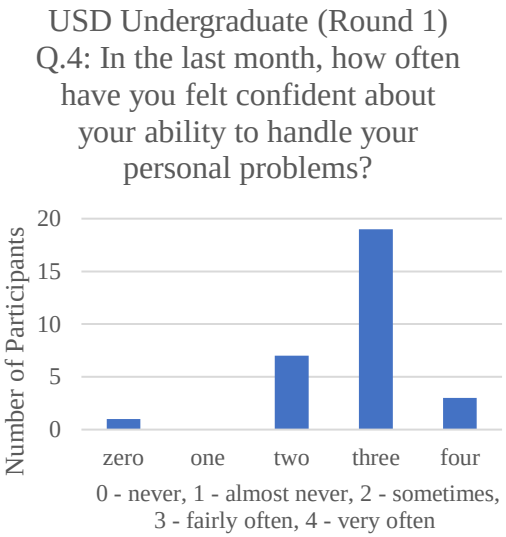
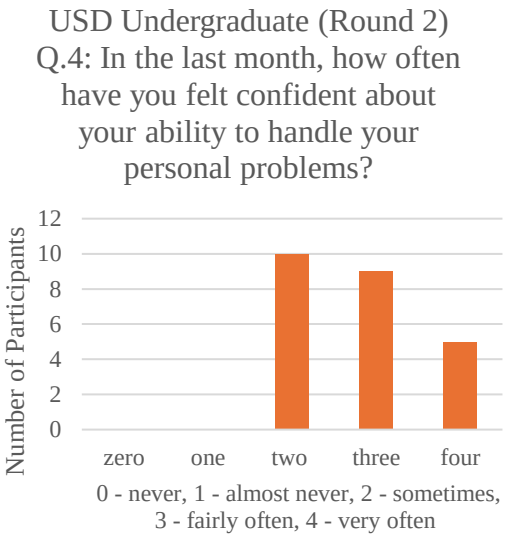
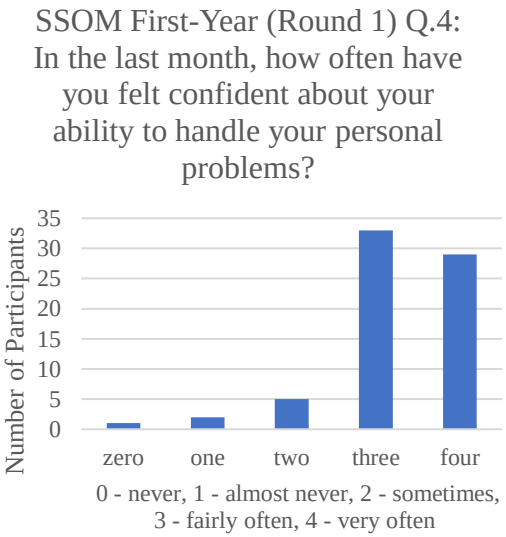

SSOM First-Year (Round 2) Q.3:
In the last month, how often have you felt nervous or stressed?
Number of Participants
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

Figure 9


USD Undergraduate (Round 1)
Q.4: In the last month, how often have you felt confident about your ability to handle your personal problems?
Number of Participants
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2)
Q.4: In the last month, how often have you felt confident about your ability to handle your personal problems?
Number of Participants
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1) Q.4: In the last month, how often have you felt confident about your ability to handle your personal problems?
Number of Participants
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

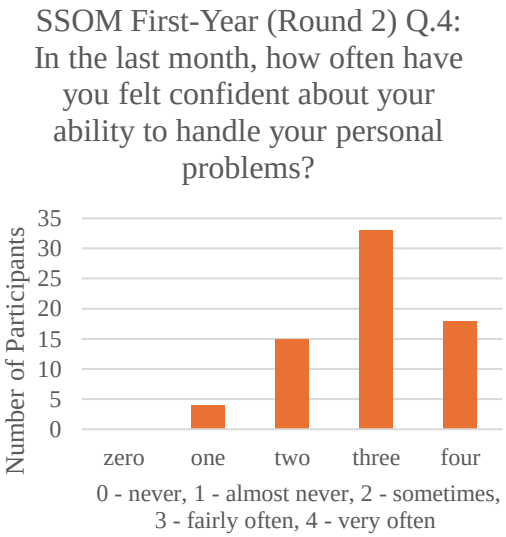
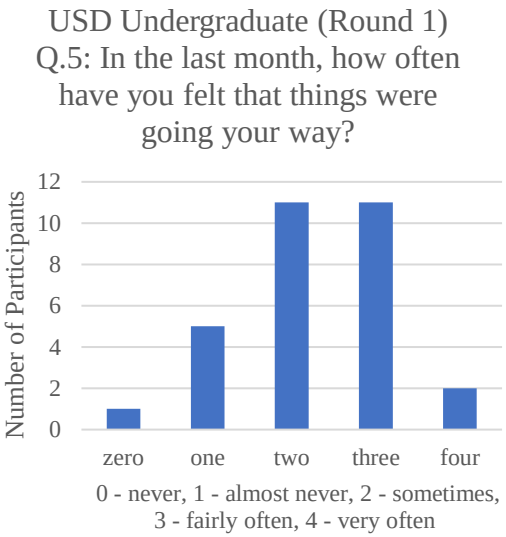
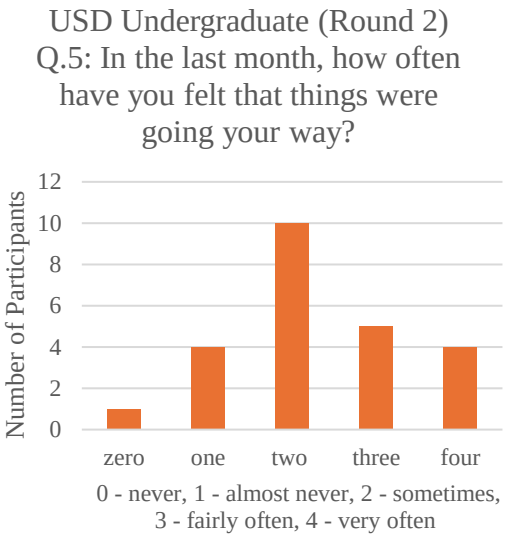
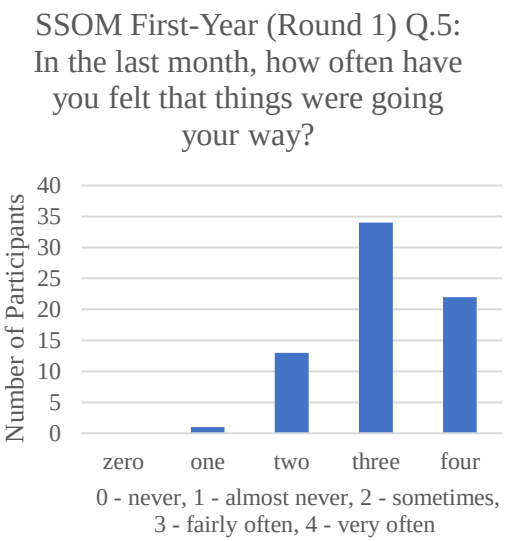

SSOM First-Year (Round 2) Q.4: In the last month, how often have you felt confident about your ability to handle your personal problems?
Number of Participants
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

Figure 10


USD Undergraduate (Round 1) Q.5: In the last month, how often have you felt that things were going your way?
Number of Participants
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2) Q.5: In the last month, how often have you felt that things were going your way?
Number of Participants
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1) Q.5: In the last month, how often have you felt that things were going your way?
Number of Participants
40
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

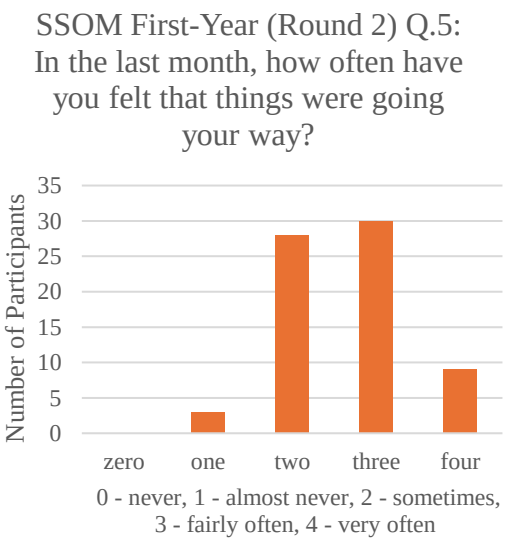
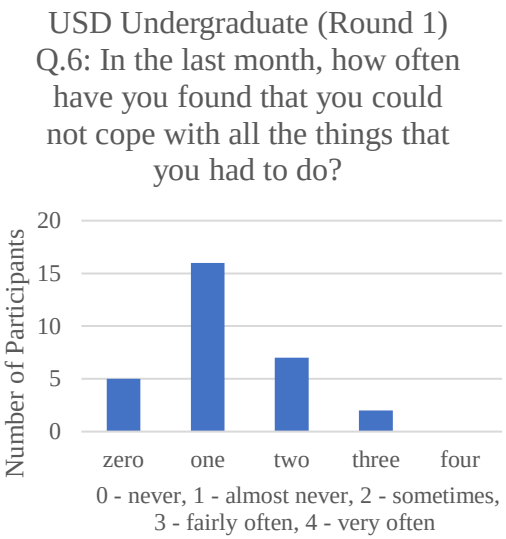
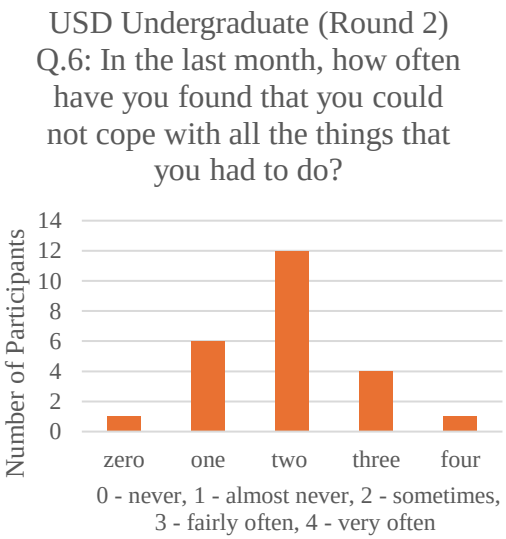
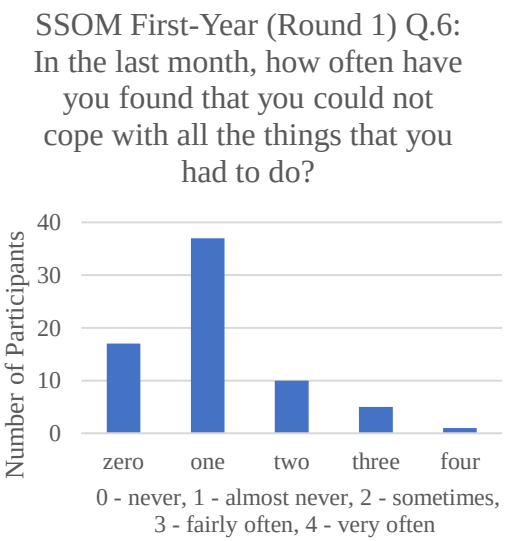

SSOM First-Year (Round 2) Q.5: In the last month, how often have you felt that things were going your way?
Number of Participants
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

Figure 11


USD Undergraduate (Round 1)
Q.6: In the last month, how often have you found that you could not cope with all the things that you had to do?
Number of Participants
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2)
Q.6: In the last month, how often have you found that you could not cope with all the things that you had to do?
Number of Participants
14
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1) Q.6: In the last month, how often have you found that you could not cope with all the things that you had to do?
Number of Participants
40
30
20
10
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

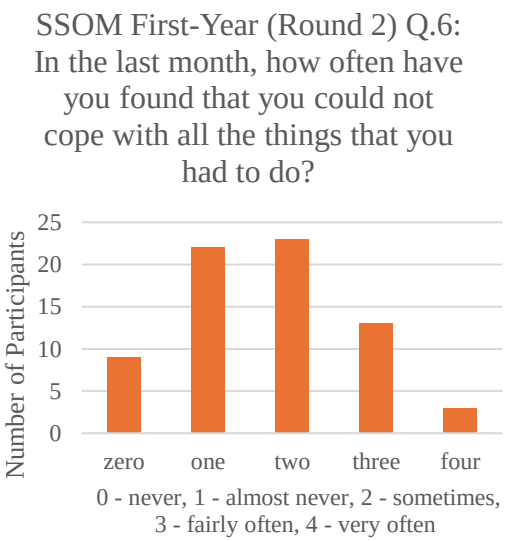
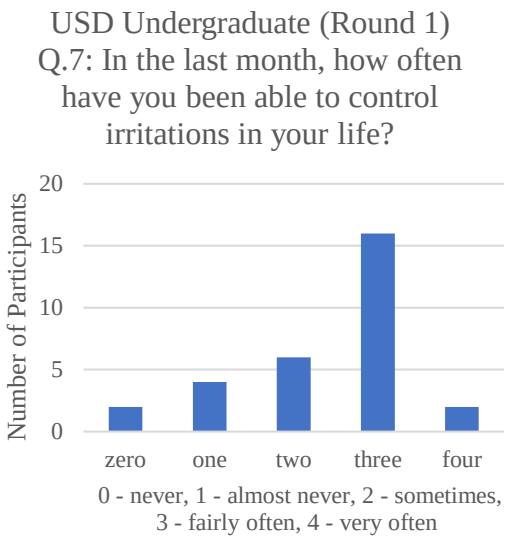
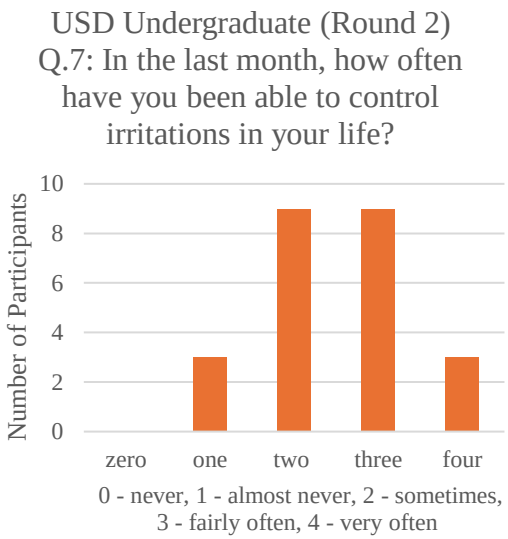
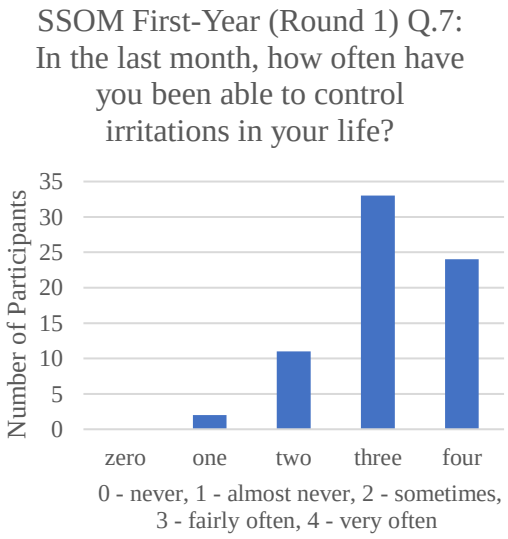

SSOM First-Year (Round 2) Q.6: In the last month, how often have you found that you could not cope with all the things that you had to do?
Number of Participants
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

Figure 12


USD Undergraduate (Round 1)
Q.7: In the last month, how often have you been able to control irritations in your life?
Number of Participants
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2)
Q.7: In the last month, how often have you been able to control irritations in your life?
Number of Participants
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1) Q.7:
In the last month, how often have you been able to control irritations in your life?
Number of Participants
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

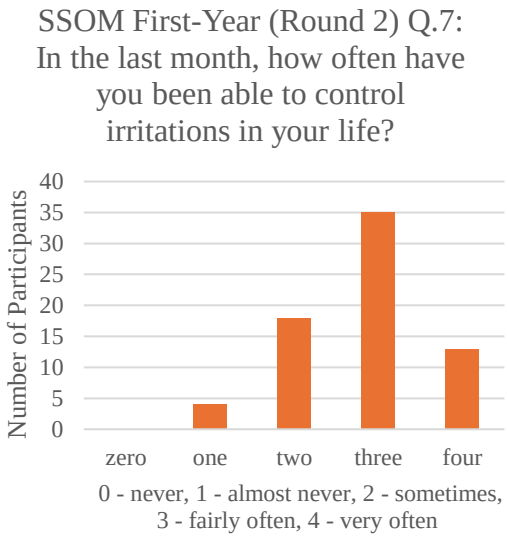
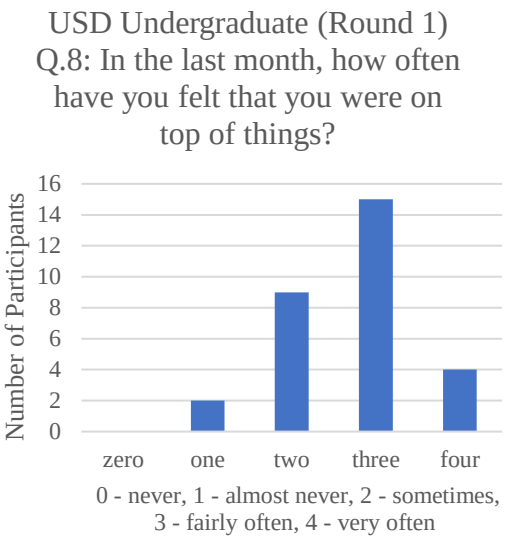
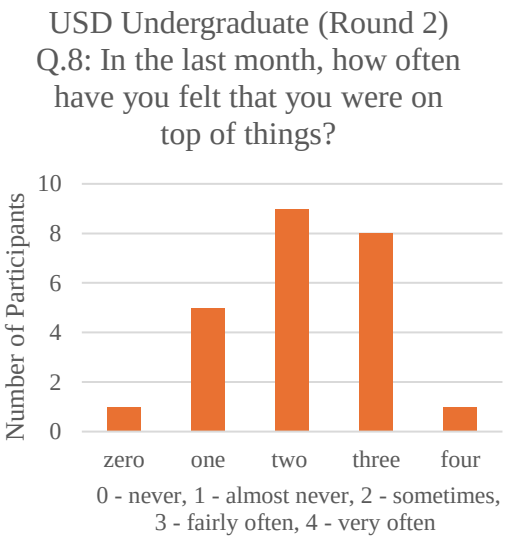
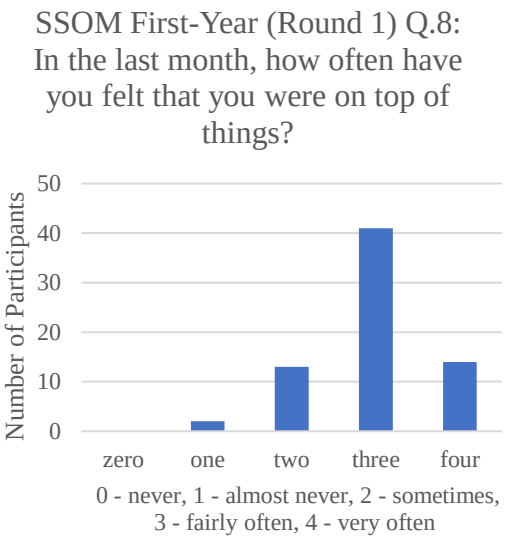

SSOM First-Year (Round 2) Q.7:
In the last month, how often have you been able to control irritations in your life?
Number of Participants
40
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

Figure 13


USD Undergraduate (Round 1) Q.8: In the last month, how often have you felt that you were on top of things?
Number of Participants
16
14
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2) Q.8: In the last month, how often have you felt that you were on top of things?
Number of Participants
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1) Q.8: In the last month, how often have you felt that you were on top of things?
Number of Participants
50
40
30
20
10
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

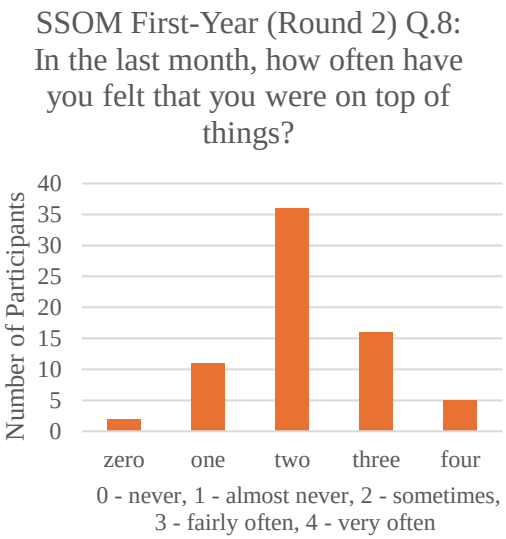
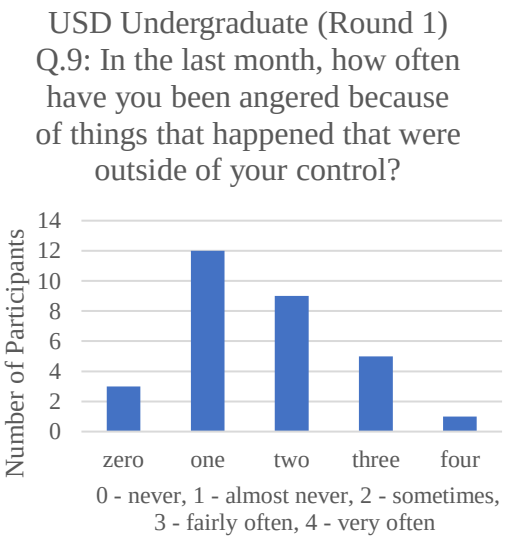
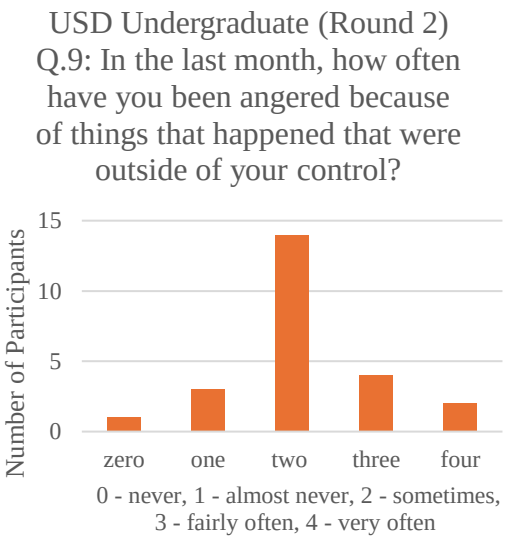
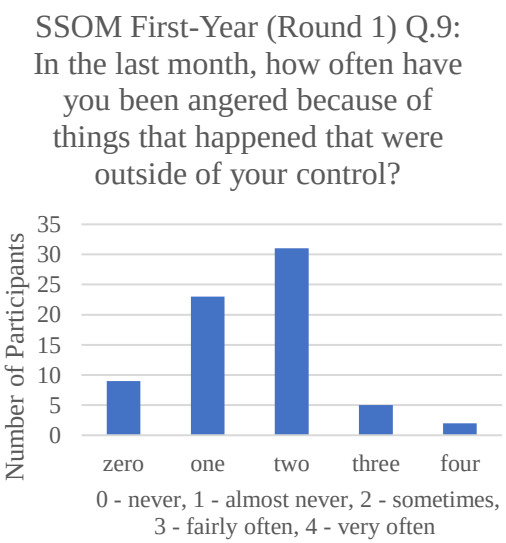

SSOM First-Year (Round 2) Q.8: In the last month, how often have you felt that you were on top of things?
Number of Participants
40
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

Figure 14


USD Undergraduate (Round 1) Q.9: In the last month, how often have you been angered because of things that happened that were outside of your control?
Number of Participants
14
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2) Q.9: In the last month, how often have you been angered because of things that happened that were outside of your control?
Number of Participants
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1) Q.9: In the last month, how often have you been angered because of things that happened that were outside of your control?
Number of Participants
35
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

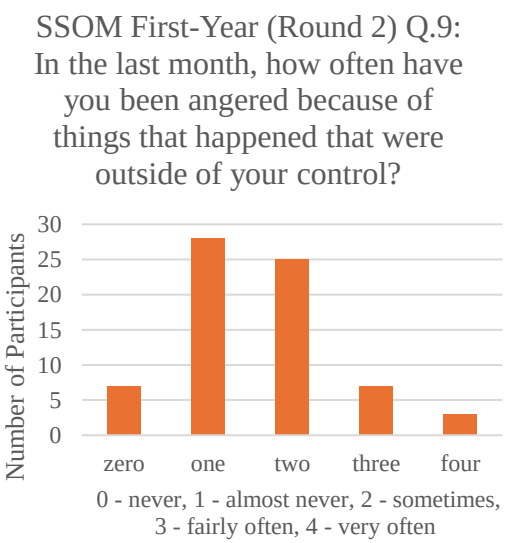
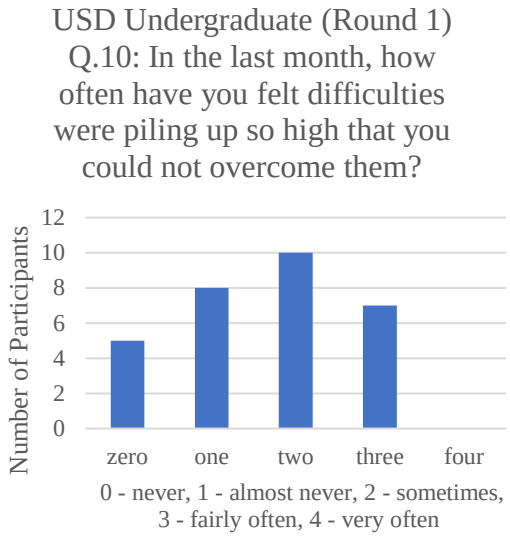
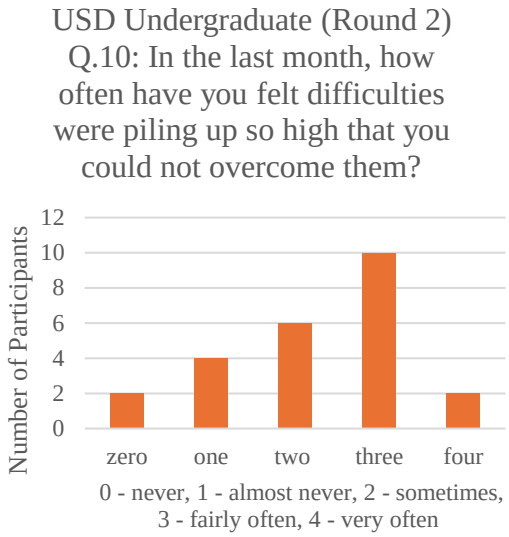
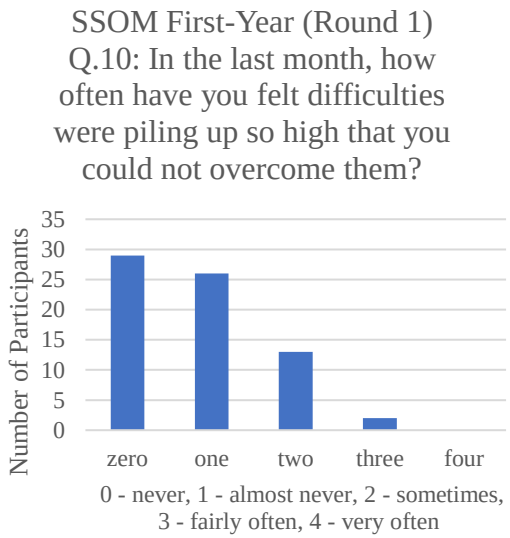

SSOM First-Year (Round 2) Q.9: In the last month, how often have you been angered because of things that happened that were outside of your control?
Number of Participants
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

Figure 15


USD Undergraduate (Round 1)
Q.10: In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
Number of Participants
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


USD Undergraduate (Round 2)
Q.10: In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
Number of Participants
12
10
8
6
4
2
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 1)
Q.10: In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
Number of Participants
35
30
25
20
15
10
5
0
zero
one
two
three
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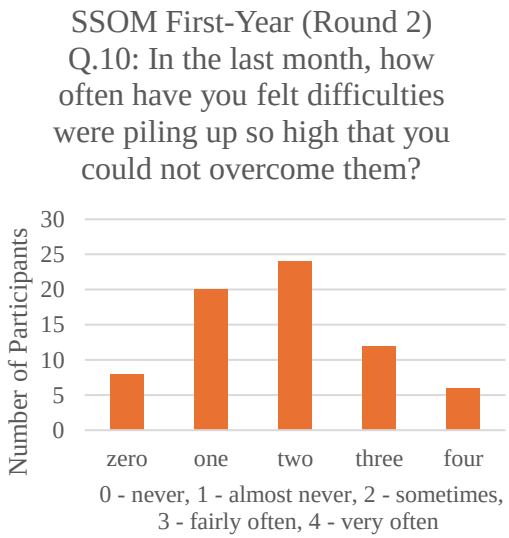
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often


SSOM First-Year (Round 2)
Q.10: In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
Number of Participants
30
25
20
15
10
5
0
zero
one
two
three
four
0 - never, 1 - almost never, 2 - sometimes, 3 - fairly often, 4 - very often

REFERENCES

Bruecker, E. (2023, December 15). *New Analysis Highlights Current State of Student Debt*. The Institute for College Access and Success. https://ticas.org/affordability-2/student-aid/student-debt-student-aid/new-analysis-highlights-current-state-of-student-debt/

Bruffaerts, R., Mortier, P., Kiekens, G., Auerbach, R. P., Cuijpers, P., Demyttenaere, K., Green, J. G., Nock, M. K., & Kessler, R. C. (2018). Mental health problems in college freshmen: Prevalence and academic functioning. *Journal of Affective Disorders, 225*, 97–103. https://doi.org/10.1016/j.jad.2017.07.044

Drolet, B. C., & Rodgers, S. (2010). A Comprehensive Medical Student Wellness Program—Design and implementation at Vanderbilt School of Medicine. *Academic Medicine, 85*(1), 103–110. https://doi.org/10.1097/acm.0b013e3181c46963

Edmonds, V. S., Chatterjee, K., Girardo, M. E., Butterfield, R. J., & Stonnington, C. M. (2022). Evaluation of a novel wellness curriculum on Medical Student Wellbeing and engagement demonstrates a need for student-driven wellness programming. *Teaching and Learning in Medicine, 35*(1), 52–64. https://doi.org/10.1080/10401334.2021.2004415

Hanson, M. (2023, July 12). *Average cost of medical school [2023]: Yearly + total costs*. Education Data Initiative. https://educationdata.org/average-cost-of-medical-school

Hanson, M. (2023, November 18). *Average cost of college [2023]: Yearly tuition + expenses*. Education Data Initiative. https://educationdata.org/average-cost-of-college

Heinen, I., Bullinger, M., & Kocalevent, R.-D. (2017). Perceived stress in first year medical students - associations with personal resources and emotional distress. *BMC Medical Education, 17*(1). https://doi.org/10.1186/s12909-016-0841-8

Hemmingson, C. (2023, December 15). *Financial Aid 101* [PowerPoint Slides]. Financial Aid, University of South Dakota Sanford School of Medicine. https://www.dropbox.com/sh/tg8tno3pqppf5pq/AACy3nX3LB0-P3HEDeOJ5iTya?dl=0&preview=Financial+Aid+presentation.ppt

Hill, M. R., Goicochea, S., & Merlo, L. J. (2018). In their own words: stressors facing medical students in the millennial generation. *Medical Education Online*, 23(1). https://doi.org/10.1080/10872981.2018.1530558

Isla McKerrow, Patricia A. Carney, Holly Caretta-Weyer, Megan Furnari & Amy Miller Juve (2020) Trends in medical students' stress, physical, and emotional health throughout training, *Medical Education Online*, 25:1, 1709278, DOI: 10.1080/10872981.2019.1709278

Jafari, M. (2017). Life101 Enhances Healthy Lifestyle Choices in Pre-Health Undergraduate Students. *Journal of University Teaching & Learning Practice*, 14(3). https://ro.uow.edu.au/jutlp/vol14/iss3/4

Loiselle, M., & Travis, F. (2021). Improving physical and mental health of college students through Consciousness-based education. *Journal of American College Health, 71*(9), 2673–2678. https://doi.org/10.1080/07448481.2021.1984245

Medical Studens Affairs. University of South Dakota. (n.d.). https://www.usd.edu/Academics/Colleges-and-Schools/sanford-school-of-medicine/Offices/Medical-Student-Affairs

Medicine. Graduate Medicine | University of South Dakota. (n.d.). https://www.usd.edu/Academics/Graduate-Programs/Medicine

Moody, J. (2024, April 3). *Inching toward the $100,000 sticker price*. Inside Higher Ed | Higher Education News, Events and Jobs. https://www.insidehighered.com/news/business/revenue-strategies/2024/04/03/inching-toward-100000-sticker-price

Nechita, F., Nechita, D., Pîrlog, M. C., & Rogoveanu, I. (2014). Stress in medical students. *Romanian journal of morphology and embryology*, *55*(3 Suppl), 1263–1266. https://www.rjme.ro/RJME/resources/files/551314126312 66.pdf

Perez, M. A., Williams, C., Henderson, K., McGregor, R., Vapiwala, N., Shea, J. A., & Dine, J. C. (2023). Association of applicant demographic factors with medical school acceptance. *BMC Medical Education*, *23*(960). https://doi.org/10.1186/s12909-023-04897-8

Schaffer, R. *Kaplan Test Prep survey: Nearly 40 percent of pre-med students say stress almost caused them to drop their plans to become doctors: Kaplan test prep*. Practice Tests, Tutoring & Prep Courses. (2020, March 4). https://www.kaptest.com/blog/press/2020/03/04/kaplan-test-prep-survey-nearly-40-percent-of-pre-med-students-say-stress-almost-caused-them-to-drop-their-plans-to-become-doctors/

Slavin, S. J., Schindler, D. L., & Chibnall, J. T. (2014). Medical Student Mental Health 3.0. *Academic Medicine*, *89*(4), 573–577. https://doi.org/10.1097/acm.0000000000000166

Student Counseling Center. (2023). *Coyotes Resource Guide.* University of South Dakota. https://www.usd.edu/-/media/Project/USD/DotEdu/About/Departments-Offices-and-Resources/Student-Counseling-Center/Coyote-Resource-Guide.pdf?rev=a31e026ba43a42a0a6966b207ce1f51a&sc_lang=en&hash=44A7313491E78500FC3521C8E6E102F8

The Learning Center at the University of North Carolina at Chapel Hill. (2022, July 25). *College Stress*. Learning Center. https://learningcenter.unc.edu/tips-and-tools/managing-college-stress/

Thompson, D., Goebert, D., & Takeshita, J. (2010). A program for reducing depressive symptoms and suicidal ideation in medical students. *Academic Medicine*, *85*(10), 1635–1639. https://doi.org/10.1097/acm.0b013e3181f0b49c

Zackoff, M., Sastre, E., & Rodgers, S. (2012). Vanderbilt Wellness Program: Model and implementation guide. *MedEdPORTAL*. https://doi.org/10.15766/mep_2374-8265.9111