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PA School and Relationship Satisfaction

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ABSTRACT

Physician assistant programs are rigorous, fast-paced, and time intensive, putting

significant stress on PA students themselves and their romantic relationships. Research has been

done on the effects of medical school on student mental health and romantic relationships, but

there is a lack of research on PA students who undergo a similar didactic education. Determining

the relationship between PA school stressors and relationship satisfaction may aid in the

development of coping mechanisms for couples, reduce student and partner stress, and improve

student well-being.

The study revealed students who were married, male, between the ages of 30-39,

cohabiting, or in long term relationships experienced the most impact of PA school on their

relationship satisfaction. The main stressors of PA school were identified as relating to the

academic demands of PA school. Several coping mechanisms were identified as being useful in

benefiting their romantic relationships such as communication, working as a team to accomplish

household tasks, and quality time. Encouraging PA students to use these mechanisms may help

them balance PA school and their romantic relationships as effectively as possible.

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Chapter 1: Introduction

Introduction

Physician assistant (PA) graduate programs are fast-paced programs and have been associated with a decrease in student well-being when comparing incoming students to new graduates (PAEA, 2019). A 2012 study on physician assistant students discovered "28.4% and 21% were likely to be diagnosed with a psychiatric disorder during the first and second semesters, respectively" (Childers, May, & Ball, 2012, p. 38). The startling result did not generate further research. In addition, there is a lack of literature on the various stressors PA students experience and the effects on romantic relationships. Determining the extent of the effect PA programs have on romantic relationships may aid in the development of coping mechanisms for couples, reduce student and partner stress, and improve student well-being. In Chapter 1, the concepts of relationship satisfaction as it pertains to PA students, a problem statement, the purpose of our study, our research questions, definitions of terms, and the relevance of our study will be discussed.

Background

Stress and its impact on human existence has long been of interest to researchers and philosophers. The common perception of stress is characterized by three elements: "the presence of a stressor, subjective appraisal of this stressor as harmful or aversive, and the stress response" (Mayditch et. al, 2017, p. 2). Certain amounts of stress are beneficial leading to adaptation but the problem occurs when the amount of stress or the duration of stress is overwhelming. The term allostasis is used to describe "the superordinate system by which stability is achieved

through change" (McEwen, 2005, p. 316). The body and brain achieve this change with several modifiers such as "hormones of the HPA axis, catecholamines and cytokines" (McEwen, 2005, p. 316).

In continuation, an allostatic "state" occurs when one of the systems is producing too much and other systems are not producing enough, leading to imbalance (McEwen, 2005). This state of imbalance can be safely maintained for a period of time as long as the resources available are sufficient to compensate (McEwen, 2005) The allostatic state leads to "wear and tear" on the body's systems which is referred to as "allostatic load" (McEwen, 2005, p. 317). The allostatic load can be beneficial in helping organisms handle stressful situations but when the amount of stress or duration of stress exceeds the body and mind's ability to handle it, it leads to "allostatic overload which serves no purpose and predisposes the individual to disease" (McEwen, 2005, p. 317). Allostatic overload can lead to memory impairment and an increase in neurons of the amygdala, contributing to fear, and thus rendering decision-making a difficult task (McEwen, 2005).

Stress and its impact on relationship satisfaction has long been of great concern to researchers. According to Randall and Bodenmann (2008), leading researchers in stress and relationships, "Stress in couples is always a dyadic phenomenon that affects both partners in some way" (Randall & Bodenmann, 2008, p. 106). Graduate school has been shown to cause significant stress on relationships as it forces couples to "rebalance, redefine, and realign their relationships" (Carter & McGoldrick, 2005, p. 8). In 2006, Gold conducted a study on graduate students and their partners, measuring dyadic stress levels. Both genders' average scores were

correlated with "conflict, frequent arguments, and difficulties resolving differences" (Gold, 2006, p. 489). Couples main concerns were "time together, reflecting lack of sufficient time for shared recreational activities and disagreement about finances" (Gold, 2006, p. 490). Unger, Sonnetag, Niessen, and Kuonath (2017) conducted a study on the importance of detaching from the stress of work to facilitate positive relationships at home. The researchers concluded "coping with stress largely depletes energetic resources and this, in turn, affects daily relationship interactions" (Unger et al., 2017, p. 81). The daily stressors of graduate school, but more specifically physician assistant education, will likely correlate with this principle of stress at work.

Financial stress is known to cause significant distress in relationships and is a relationship stressor on physician assistant students. The average cost of a state physician assistant program is $47,886 and a private school is $87,160 and can often cost more (PAEA, 2018). Gold (2006) studied a graduate student population and reported that male graduate students do not trust their partner's ability to handle finances and had disagreements about finances (Gold, 2006).

Intimacy in romantic relationships has been shown to be beneficial in stress management and recovery from stressful circumstances. A 2019 study measured the effects of "spontaneous expression of touch and physical proximity" (Ditzen et al., 2019, p. 22) on the couple's stress response and its impact on recovery. Both men and women saw reduction in cortisol levels (Ditzen et al., 2019). Further studies have confirmed the relationship between low intimacy and decreased relationship satisfaction for both members of the relationship (Laurenceau & Kleinmen, 2006; Finkbeiner, Epstein, & Falconier, 2013). Given the significant time

requirements of physician assistant programs it is likely that less time is spent giving and receiving such spontaneous expressions of touch and sharing intimate moments.

Physician assistant programs are rigorous, fast-paced, and require a significant amount of time, putting stress on both the students themselves and their romantic relationships. Unfortunately, there are very few studies on the impact of physician assistant education on the stress level of students. Some conclusions may be able to be drawn from the many studies on medical students' mental health and burnout since the similarities between the first several years of medical school and the didactic phase of physician assistant school would likely produce similar research, although more research is needed to confirm this. A study of medical students in Minnesota reported "45% of the medical students met the criteria for burnout on the Maslach Burnout Inventory" (Dyrbye et al., 2006, p. 375). Furthermore, Mazurkiewicz, Korenstein, Fallar, and Ripp's study on third year medical students discovered that 71% met the criteria for burnout (Mazurkiewicz, Korenstein, Fallar, & Ripp, 2012). An anonymous study of twenty-seven students in the Physician Assistant Program at the University of Texas concluded that 41% of students reported "moderate to significant amount of stress contributing to changes in their relationships" (Kuhn et al., 2005, p. 169). Additionally, Childers, May, and Bahl (2012) evaluated the psychological stress and symptoms of physician assistant students in the didactic year of two different physician assistant programs. The researchers found that "28.4% and 21% were likely to be diagnosed with a psychiatric disorder during the first and second semesters, respectively" (Childers, May, & Ball, 2012, p. 38). The most frequent disorders were depression, anxiety, and obsessive-compulsive disorder (Childers, May & Ball, 2012).

Stress management is a crucial skill required to succeed in high stress environments such as attending a PA program. Both partners in the relationship must find ways to cope with the high stress of the physician assistant education process together. Dyadic coping is the response of one partner to the other partner's stress and can be either negative or positive (Bodenmann et al., 2005). Research shows high levels of dyadic coping leads to an increase in relationship satisfaction (Bodenmann et al., 2005). Recent research suggests increased dyadic coping may decrease cortisol levels and improve physical health (Sharpley, Bitsika, McMillan, Jesulola, & Agnew, 2019). Lao, Randall, Duran, and Tau (2019) focused on the use of I-talk and we-talk when communicating with partners about their stress. Pagani et al. (2019) found that "perceived dyadic coping" was impacted by "explicit stress communication" and directly benefited relationship satisfaction (Pagani et al., 2019). These studies stress the importance of partner communication during periods of intense stress.

Problem Statement

Physician assistant programs are rigorous, fast paced, and time-intensive putting significant stress on PA students and their romantic relationships. Research has been done on the effects of medical school on student mental health and romantic relationships but there is a lack of research on PA students who undergo a similar didactic education. The few studies that have been done on PA students emphasize the need for further research to truly understand the impact of PA education on the romantic relationships of students.

Purpose of Study

The purpose of this study is to assess the extent to which PA programs affect romantic relationships. The current literature discusses a variety of graduate and medical programs in regards to effects on relationships, but there is a lack of focus on specifically PA programs. This study will survey recent PA graduates to assess their relationship experiences while being enrolled in PA programs.

Relevance of Study

Because the overall well-being of PA students decreases over the course of PA programs (PAEA, 2019), it is important to assess various aspects that may contribute to this decline in well-being in order to prevent burnout. Carter and McGoldrick (2005) found that graduate school puts stress on relationships where couples must adjust their relationships to meet the needs of their program. It is possible that this adjustment may contribute to the decrease in well-being. In addition, determining the effects of PA programs on relationships may give cause to implementing resources for PA students to find an essence of balancing both school and personal life.

Research Questions

To gain insight concerning the impact of PA student stress on romantic relationship satisfaction of PA students in Minnesota, the research was designed to answer the following questions:

1. Does the rigor and stress of PA education impact the relationship satisfaction of students?

2. What are the main stressors of PA education?

3. What coping mechanisms are PA students using to benefit their romantic relationships?

Definitions

For consistency and understanding, terms relevant to this study must be defined.

1. Relationship satisfaction is defined as an "interpersonal evaluation of the positivity of feelings for one's partner and attraction to the relationship" (Rusbult & Bram, 1993, p.177).

2. Dyadic stress is defined as "stress resulting from a specific event, situation, or transition that directly or indirectly threatens both spouses and prompts coping responses from both spouses" (Bodenmann, 2005, p. 35).

3. Dyadic coping is defined as the response of one partner to the other partner's stress and can be either negative or positive (Bodenmann et al., 2005)

4. Spillover effect is defined as "generalization of behaviour, emotions, attitudes, or stress of one life domain to another life domain" (Wilensky, 1960, p. 544).

5. A romantic relationship is defined as two people who are dating, engaged, or married.

Conclusion

Determining the extent of the effect PA programs have on relationships may aid in the development of coping mechanisms for couples, reduce student and partner stress, and improve student well-being. In the next chapter, we will further explore the current literature that exists on relationship satisfaction and the stressors that affect PA students.

Chapter 2: Literature Review

Introduction

Physician assistant (PA) programs are fast-paced and often have high time-commitment requirements. In a student report released by PAEA, incoming students and recent graduates were asked to complete a survey to reflect on the PA student experience (PAEA, 2019). When assessing factors of well-being, recent graduates scored lower in all categories compared to incoming students (PAEA, 2019). There are no known data on the percent of PA students in relationships who are not married, but it was reported that 21.3% of incoming PA students and 27.1% of graduating PA students are married (PAEA, 2019). Because support systems are critical to managing stressful times, romantic relationships likely play a large role in PA students' lives.

Physician Assistant Student Stress

While there was a lack of studies on the stress experienced by PA students, many studies have been done evaluating the impact of medical school on the mental health of students. Mental health has been shown to decrease in the first year of medical school and continue throughout. A study conducted on five hundred and forty five medical students in the state of Minnesota reported that "45% of the medical students met criteria for burnout on the MBI" (Dyrbye et al., 2006, p. 375). The study also reported an increase in risk of depression and alcohol abuse during the first several years of medical school with the highest rate of depression occurring in the second year (Dyrbye et al., 2006). The similarities between the first several years of medical school and the didactic phase of physician assistant school would likely produce similar results although there is limited research available to support this.

An anonymous study conducted on twenty-seven students in the Physician Assistant Program of the University of Texas measured the stress level and its impact during the first semester of the program. The survey concluded that 70% of the students reported "changes in eating and sleeping habits" (Kuhn, Kranz, Koo, Cossio, & Lund, 2005, p. 169). Furthermore, 41% of students also reported a "moderate to significant amount of stress contributing to changes in their relationships" (Kuhn et al., 2005, p. 169). Childers, May, and Bahl (2012) evaluated the psychological stress and symptomatology of didactic phase physician assistant students from two different programs. They found "a significant amount of stress in that 28.4% and 21% were likely to be diagnosed with a psychiatric disorder during the first and second semesters, respectively" (Childers, May, & Ball, 2012, p. 38).

Burnout is defined as "a psychological syndrome of emotional exhaustion, depersonalization, and impaired personal accomplishment induced by repeated workplace stressors" (Mazurkiewicz, Korenstein, Fallar, & Ripp, 2012, p. 189). A study conducted on third year medical students showed 71% met the criteria for burnout (Mazurkiewicz, 2012). Fares, Al Tabosh, Saadeddin, El Mouhayyar, and Aridi (2016) surveyed medical students who reported the main stressors of medical school to be "academic demands, exams, an inability to cope, helplessness, increased psychological pressure, mental tension, excessive workload, curricular factors, personal life events and the learning environment" (Fares, Al Tabosh, Saadeddin, El Mouhayyar, & Aridi, 2016, p. 76). Furthermore, "feelings of reduced personal accomplishment, overwork and emotional commitment to medicine can lead to depersonalization" (Fares et al., 2016, p 77). The high levels of stress medical students undergo causes burnout to begin before

students enter the clinical year as they are overwhelmed with information and facts that must be learned in an extremely short amount of time (Fares et al., 2016). Once again, these circumstances appear to correlate with the stresses of the didactic phase of physician assistant education, but there is a lack of research to support this idea.

Financial Stress

Financial stress has been known to significantly impact and add stress to relationships. Attendance of a physician assistant program results in decreased income as the student does not work at all or works minimally. On top of that, many students must take out significant student loans to fund their education. The average cost of a state physician assistant program is $47,886 and the average cost of a private school is $87,160 (PAEA, 2017). Many programs' tuition can be significantly more. According to the study conducted by Gold in 2006, male graduate students report "greater concern regarding finances, a lack of confidence in the way one's partner handles finances, and arguments with one's partner regarding finances" (Gold, 2006, p. 489).

Types of Romantic Relationships

There are different levels of romantic relationships the researchers are addressing in this study: dating, cohabiting, engaged, and married. The potential differences between each level must be addressed and considered in the final results as they may impact stressors and relationship satisfaction. A study conducted by Halliday and Lucas, compared cohabiting and married couples in their twenties. They reported that cohabiting couples had "lower levels of affection and higher levels of conflict… and lower family adjusted income" (Halliday & Lucas, 2010, p. 1149) than their married counterparts. Financial stability and access to resources are a

likely cause of this difference as more resources are available for married couples but that idea is not confirmed (Halliday & Lucas, 2010).

Barr and Simons conducted a study focused on differences between married, cohabiting, and dating couples focusing on their impact on health. They discovered that "partner hostility" had a significantly stronger impact on "self-reported health" of married and cohabiting couples versus dating couples (Barr & Simons, 2014, p. 457). here was no significant difference between any couple type in regards to partner warmth or partner hostility on an individual's psychological distress (Barr & Simons, 2014). At no point in this study was a significant difference detected between married and cohabiting couples suggesting that "residence/degree of physical proximity is actually becoming more significant than is legal [marital] status in terms of understanding and intervening in close relationships" (Barr & Simons, 2014, p. 458). This idea is strengthened by Stafford and Canary who came to the conclusion that "individuals in close relationships perceive greater use of assurances and sharing tasks than those who have just begun dating" (2016, p. 234).

Intimacy and Stress

To date, no known studies have examined PA school relationships and intimacy. In one mixed-method study, qualitative thematic analysis found five common themes when undergraduate students over the age of 25 were asked to comment on the impact of school on their romantic relationships: having less time and/or different schedules, feeling too tired, experiencing increased stress and distractions, experiencing personal growth from returning to school, and using sex as a distraction to improve school performance (Van Rhijn, Murra, &

Mizzi, 2015). Quantitative analyses showed that parental status, family support, partner support, and sexual desire significantly predicted relationship satisfaction (Van Rhijn, Murra, & Mizzi, 2015). The relationship between low intimacy and low relationship satisfaction has been confirmed in other studies as well (Laurenceau & Kleinmen, 2006; Finkbeiner, Epstein, & Falconier, 2013).

Intimacy appears to play a significant role in reducing stress. In a 2019 study, researchers focused on physical aspects of intimacy and "investigated whether spontaneous expression of touch and physical proximity in the laboratory before and after a standard couple–external stressor would reduce endocrine stress responses and ameliorate stress recovery in women and men" (Ditzen et al., 2019). The study found that after being exposed to a stressful event, both men and women benefited from expressions of intimacy from their partner through a reduction in cortisol levels (Ditzen et al., 2019). Not having time for intimacy may prevent this critical reduction in stress that is beneficial for relationships.

Stress and Relationship Satisfaction

Stress and its negative effect on relationship satisfaction has been an ongoing concern that has been approached in many different ways. Three ways are generally thought to be necessary in order to assess the effect of stress on relationship satisfaction. The three factors are: major versus minor events, acute versus chronic stress, and lastly internal versus external stress (Randall & Bodenmann, 2008). All of these factors must be considered in order to accurately assess the association. According to Randall (2008), "Stress in couples is always a dyadic phenomenon that affects both partners in some way" (p. 106). "In order to create a study to do

this correctly, it must include the intensity, duration, and the origin of the stressors". (Randall, 2008, p. 106).

Physician assistant education programs have a significant impact on the student and the relationship with a significant other. While the completion of physician assistant school is the dream of many, the distress placed on relationships is significant. Graduate school requires families and relationships to "rebalance, define and realign their relationships" (Carter & McGoldrick, 2005, p. 8). Attending a physician assistant program requires a significant shift in roles and responsibilities as it is an intense program that requires time and energy. This time and energy is taken away from significant others and causes distress to the relationship (Gold, 2006, p. 486). In the study conducted by Gold (2006), both genders' average scores on the measure of global distress were in the "possible problem category" (Gold, 2006, p. 489). These scores correlate with "conflict, frequent arguments, and difficulties resolving differences" (Gold, p. 489). Both genders reported dissatisfaction with problem solving skills which includes "a failure to resolve minor difficulties, lack of specific problem-solving skills, and an over-sensitivity of one's partner, and an inability to discuss and resolve sensitive topics" (Gold, 2006, p. 492). Both genders main concerns were about "time together, reflecting lack of sufficient time for shared recreational activities, and about disagreement about finances" (Gold, 2006, p. 490). The time required outside of class such as studying, research, and writing papers also reduces the amount of time couples are able to spend together (Gold, 2006).

One theory for the correlation between stress and a decrease in relationship satisfaction has been attributed to the detachment concept. It emphasizes the importance of detaching from

work in order to truly engage and participate in the home life with your significant other. The detachment allows for an increase in affectionate interactions (Debrot, 2017) which in turn leads to higher relationship satisfaction and overall well being. Research shows that a stressful day blocks the ability to detach from work as it is more difficult to remove yourself from it (Debrot, 2017). A domino effect occurs as the inability to detach leads to a decrease in affectionate interactions and also an increase in stress spillover and crossover onto the significant other (Debrot, 2017). Furthermore, it leads to exhaustion and a negative outlook which will directly affect the relationship (Debrot, 2017). According to a study by Unger, Sonnetag, Niessen, and Kuonath (2017), "failing to detach from work may leave less resources for self-regulation and thus intensify reactions to negative relationship events" (p. 80). Research by Unger et al. (2017) concluded "coping with stress largely depletes energetic resources and this, in turn, affects daily relationship interactions" (Unger et al., 2017, p. 81).

A 2004 study by Neff and Karney, looked into the effects on different cognitive methods and maintenance to manage the effect of stress on relationships. While there were many methods mentioned, one key point made the case that "external stress may affect relationship satisfaction by giving rise to negative perceptions within the relationship and, independently, by limiting spouses' ability to process and organize those perceptions in a relationship-enhancing manner" (Neff & Karney, 2004, p. 135). Neff and Karney concluded that "on average, increases in external stressors were significantly associated with decreases in marital satisfaction for wives" (Neff & Karney, 2004, p. 141). Surprisingly, there was no spillover effect of stress from

husbands onto their wives or decreases in marital satisfaction for the husbands (Neff & Karney, 2004).

Dyadic stress is a term that is commonly used in relationship stress and satisfaction research. Bodenhamm, a leading researcher of these ideas, defined dyadic stress as "stress resulting from a specific event, situation, or transition that directly or indirectly threatens both spouses and prompts coping responses from both spouses" (Bodenmann, 2005, p. 35). Bodenmann also defined dyadic coping as "a joint process of responding to dyadic stress, based on the interdependence of spouses in a shared social context" (p. 34). Fuenfhausen and Cashwell further expanded on these ideas with a study of 191 counseling graduate students and evaluated the factors that impact marital satisfaction. The study defined graduate school as a source of dyadic stress as it impacts both members of the relationship and requires coping to navigate the stress (Fuenfhausen & Cashwell, 2013). Fuenfhausen and Cashwell evaluated the importance of the attachment theory which determines how individuals respond to stressful circumstances in terms of their relationships (2013). They discovered that individuals who have an avoidant coping mechanism, more isolative, were not able to utilize dyadic coping well and it had a negative impact on their marital satisfaction. Conversely, anxiety attached individuals with an increased need of their partner experienced a decrease in marital satisfaction as they felt their needs were not being met (Fuenfhausen & Cashwell, 2013).

Coping Mechanisms

In order to manage the associated stress that comes with PA school, it is important that couples find ways to cope with the added stressors. Dyadic coping occurs when one partner

responds to the other partner's stress and can be done in a helpful or harmful manner (Bodenmann et al., 2005). The different forms of dyadic coping are as follows: negative dyadic coping which is defined as responding to a partner's stress with sarcasm, dismissal, or not believing there is stress present; supportive dyadic coping which involves helping a partner manage stressors; delegated dyadic coping which requires one partner to take on additional stress to minimize the stress on the other partner; and common dyadic coping which refers to both partners working together to manage stressful events (Bodenmann et al., 2005). When dyadic coping is high, relationship satisfaction increases (Bodemann et al., 2005). Dyadic coping may have implications outside of the relationship as well as one study by Sharpley, Bitsika, McMillan, Jesulola, and Agnew (2019) suggests that increased dyadic coping may reduce cortisol levels and benefit physical health.

One study by Lao, Randall, Duran, and Tau (2019) went further and "tested whether partners' observed engagement in stress communication and dyadic coping, more specifically in the form of language use, would contribute to their perceptions of quality of their real-time interactions about external stressors" (p. 9). The researchers found that when communicating stress, the listening partner responded with less we-talk. This positively predicted the interaction quality (Lao, Randall, Duran, & Tau, 2019). The researchers also found that partners engage in less I-talk when attempting to cope with his/her partner because of a belief that the focus should be on their partner's stress (Lao, Randall, Duran, & Tau, 2019). Pagani et al. (2019) found that "perceived responsiveness in dyadic coping with daily stressors was facilitated by explicit stress communication and that this contributed to the effectiveness of dyadic coping behaviors in

fostering partners' relationship satisfaction" (p.1). These studies highlight the importance of communicating with a partner experiencing stressful events and doing so effectively to minimize the stress.

COVID-19

In the face of the coronavirus disease 2019 (COVID-19), the world has come to a halt and nearly every aspect of life has changed. In July 2020, 31.3 million people reported being unable to work because of COVID-19, and 1 in 4 employed individuals were teleworking (Bureau of Labor Statistics, 2020). Since the financial stress of PA school is already significant (PAEA, 2017), the addition of a partner losing a job or getting reduced hours could add significant stress on a relationship. Those with children may have to seek out alternative schooling options with 4 states and the District of Columbia having statewide school closures as of August 24, 2020 (Education Week, 2020).

Mental health has taken a toll from such a drastic change in life. Having to change, postpone, or cancel life's most treasured moments - weddings, graduations, holidays - has become the new norm (Imber-Black, 2020). Studies have already been completed showing quarantine caused overall feelings of confusion, fear, anger, grief, numbness, and anxiety-induced insomnia (Brooks et al., 2020). Belarusian university students showed a more positive emotional outlook and less substance abuse than Russian counterparts who had more quarantine restrictions (Gritsenko et al., 2020). There has also been a 9% increase in contacts to the National Domestic Violence Hotline compared to 2019 (Chaker, 2020). Only time will tell

the long-term effects COVID-19 will have on mental well-being, but if past pandemics are any evidence, it will be extensive (Soklaridis et al., 2020).

With respect to research, studies have been put on hold, in-person data collection has become near impossible, researchers and participants are experiencing heightened stress, and researchers may not have as much time to dedicate towards their studies (Brock & Laifer, 2020). It is now imperative to consider these concepts when conducting research and analyzing data. Many studies are now including tools in the research such as the Epidemic-Pandemic Impacts Inventory (Grasso et al., 2020) to determine the impact of COVID-19 on everyday life or changing the core concepts of studies to better match the ongoing changes that come with a pandemic (Brock & Laifer, 2020). The researchers will attempt to keep these "high levels of between-subject variability in objective and subjective stress" (Brock & Laifer, 2020) in mind as we move forward in our research.

Conclusion

In conclusion, PA students face life changing stressors due to the sheer academic rigor, time commitment, financial stress, and less time with their partners. There is a lack of research on the effects that these stressors may have on romantic relationships and how the PA student population copes with the changes they experience. The goal of this study is to determine the impact PA school has on relationship satisfaction while identifying these stressors in order to provide future researchers the materials they need to develop resources for couples. In the next chapter, the methods of the study will be discussed as well as limitations and delimitations.

Chapter 3: Methodology

Introduction

The purpose of this study was to determine the impact of physician assistant student

stress on relationship satisfaction. The research addressed the following questions:

1. Does the rigor and stress of PA education impact the relationship satisfaction of students?

2. What are the main stressors of PA education?

3. What coping mechanisms are PA students using to benefit their romantic relationships?

The study collected information about the impact of stress on relationship satisfaction of

PA students and recent graduates of Bethel University and St. Scholastica PA programs in

Minnesota. Augsburg University and Saint Catherine's PA programs were also contacted but

they did not participate. The objective of this chapter is to explain the methodology of the study

which encompasses study design, population, experimental procedure, data collection, and the

limitations and delimitations of the study.

Study Design

This was a mixed-methods, exploratory study surveying current PA students as well as

recent PA program graduates of Bethel University and St. Catherine's University. Quantitative

data included age, duration of relationship, couples satisfaction score, and stressor impact scores.

Qualitative data included additional demographic questions about the participant and their

relationship and additional stressors experienced during PA school. By utilizing both quantitative

and qualitative data, the researchers had the opportunity to statistically analyze the correlations

between stress and relationship satisfaction while obtaining additional insight into coping

mechanisms that have not yet been extensively studied.

Population

The population chosen for this study was composed of two groups pulled from St. Catherine's University and Bethel University PA programs: current PA students and recent PA program graduates. Permission to include the students and recent graduates in the survey was obtained from both program directors (see appendices A & B). The recent graduates of the PA programs were used as a control group for relationship satisfaction given they are the most similar population to current PA students outside of incoming students, which are too variable of a population to collect data on since the class is often not finalized until right before starting the program. The inclusion criteria was current students of the previously mentioned PA programs of any age who have been in a romantic relationship while in PA school and recent graduates from the same programs currently in a romantic relationship. PA students who responded to the survey who have not been in romantic relationships while in PA school were included in the study for portions pertaining only to student stress. All surveys that were submitted and met the inclusion criteria were included in the analysis. Bethel has a class size of 32, and St. Catherines has a class size of 30. With the possibility of being able to reach three separate class years of students (estimated 186 students overall), we expect to have at least 60 responses from this group. The pool of recent graduates is smaller with an estimated 64 individuals, so the goal is 20 responses.

Experimental Procedures

A Google Forms survey (see appendix C) was sent out through email to the population of choice via a contact person at both PA programs. The survey was live from October 12, 2020 to

October 26, 2020, and allowed ample response time. Section 1 of the survey addressed the required informed consent (see Appendix D) page where the participant was asked to confirm that they have read the informed consent and agree to participate in our research study. The questions following the informed consent were not required to be answered to progress through the survey or to submit the survey in order to maintain participant autonomy. Section 2 asked, "Are you a PA student or PA graduate?". Answering placed the participant in his or her respective study group. If the participant answered "PA student", he or she was moved to section 3 and asked, "Have you been in a relationship during PA school?". If the participant selected "yes", he or she then completed the relationship demographics question in section 4: duration of relationship (<3 months, 3-6 months, 6-12 months, 1-3 years, 3-5 years, 5+ years), type of relationship (dating, engaged, married), if the relationship was current, and the living arrangements. Section 5 included a question regarding the effects of COVID-19 on relationship satisfaction.

The participant proceeded to the Couple Satisfaction Index (CSI-32), which was found in sections 6-13 of the survey. The CSI-32 (Appendix E) was a validated survey that assessed relationship satisfaction via scoring participants' responses on a scale from 0 to 161. A textbox was provided in section 25 of the survey where participants discussed the coping mechanisms they used to manage the stress of PA school with respect to their romantic relationship. Section 26 includes 7 likert scales on the main PA school stressors consisting of academic workload, performance pressure/exam stress, difficulty balancing school and personal relationships, impact on mental/physical health, financial concerns, and COVID-19. The impact of the stressors were

ranked along the following scale: 1- insignificant impact, 2 - minor impact, 3 - moderate impact, 4 - major impact, and 5 - severe impact. In addition, there was an open textbox for participants to list any additional stressors they experienced in PA school. Finally, section 27 ended with demographic information on age category (20 to 29, 30 to 39, 40 to 49, 50 to 59, and 60+) and gender (male, female, write-in option). If the participant had not been in a romantic relationship while in PA school, they were asked to rate the main stressors of PA school on the same likert scale, the open ended stress question, and demographics which concluded their survey.

If the participant selected "PA graduate", he or she was asked, "Are you currently in a romantic relationship?" in section 14. If they selected "yes" they were asked to complete relationship demographics questions (section 15), the effects of COVID-19 on relationship satisfaction (section 16), and the CSI-32 for their current relationship (section 17-24). They concluded the survey by answering the 2 demographics questions mentioned above (section 27).

The scores of each participant's CSI-32 were totaled out of 161 possible points. Participants who scored below 104.5 were considered to have "significant relationship dissatisfaction". Using Python and data analysis packages, two-tailed t-tests were used to compare the CSI-32 scores between the PA students and the recent graduates while also looking at various subpopulations of both groups such as those who are married, have a relationship >5 year, or are in a particular age bracket.

The PA student average stresor scores were also calculated from the 7 stressor questions. Pearson's correlation coefficients were calculated comparing the average stressor scores and the CSI-32 scores using Python and data analysis packages with an alpha of 0.05. Subpopulations

were also examined to determine if certain groups had more significant correlations. The process was repeated for each individual stressor question with subpopulations to determine if certain stressors correlated with the CSI-32 scores. Average scores for each stressor were calculated to see which stressor had the highest and lowest score. Coping mechanisms and additional stressors were informally analyzed for common themes.

The participants personal information was protected by the anonymous nature of the survey, and the population was expanded to include two different PA programs in Minnesota to further protect the identity of the participants. The informed consent addressed the potential risk of emotional distress the participants experienced.

The electronic data, while being collected, was stored on Google Drive. While stored on Google Drive, the data was only shared with and accessible to the researchers. After collection was complete, the data was exported to Python for analysis and was kept on password-protected computers owned by the researchers. After the completion of the study, the data was kept on an external storage device locked in the PA program office for a minimum of five years, per securing requirements for Bethel University's Physician Assistant Program.

Data Collection

Relationship satisfaction was measured using the 32-scale Couple's Satisfaction Index (CSI-32). This tool was chosen as it was found to "have higher precision of measurement (less noise) and correspondingly greater power for detecting differences in levels of satisfaction" (Funke & Rogge, 2007). The CSI-32 was scored by summing up the number values of all the responses. The number values were not visible to the participants nor were they able to see their

scores at the end. The CSI -32 test had a score of 0-161 with scores that fell below 104.5 indicative of significant relationship dissatisfaction (Funk & Rogge, 2007).

The average score of the PA school stressors as well as the average score of each stressor question was calculated using Python and data analysis packages. The main stressors were chosen using a study by Hill, Goicochea, and Merlo (2018) on the stressors medical students face with the addition of a question on COVID-19 and an optional textbox for discussing additional stressors not covered.

The write in text box for coping mechanisms looked for common themes used by participants. The main stressors and coping mechanisms portion of the survey was presented to an expert panel of Bethel PA graduates who graduated before 2019 to provide feedback on this portion of our research questionnaire that has not been verified. All suggestions were taken into consideration.

Limitations and Delimitations

Our study population included current students and recent graduates from the PA programs of Bethel University and St. Catherine University. Current students from the two PA programs of Minnesota were chosen to ensure the population was large enough to be significant and concealed the identities of the participants. Both of the PA programs are private schools and are within the state of Minnesota, and thus the findings may not be generalized on a national level or to public school PA programs. Being an exploratory study, the data collected may aid in the development of more extensive studies in the future that may address this delimitation.

The recent graduates of the two programs were chosen to be a control group for the variable of relationship satisfaction. They were chosen as a population as they share similarities with current PA students and provide as accurate and accessible of a control group as possible. A significant delimitation of this study was the differences such as age, gender, marital status, and personality differences between the current PA students and PA graduates. Another inherent limitation of the study was the risk for recall bias since this study asked student participants to potentially recall information on past relationships. In addition, our goal was to obtain responses from approximately 30 percent of the overall study population in order to gain an adequate representation of the study population.

Conclusion

In conclusion, this study was conducted to determine if there is an effect of PA school on relationship satisfaction, the main stressors of PA school, and the use of coping mechanisms on relationship satisfaction. The following chapter displays the results of the study along with a statistical analysis. Finally, chapter five will discuss the results of the study and identify the reliability and validity of the information collected. The shortcomings of the study will also be discussed and ideas for further research will be suggested.

Chapter 4: Results

Introduction

Chapter 4 goes into detail about the results from the quantitative results collected via the questionnaire mentioned in chapter 3 composed of demographic questions, CSI-32, and PA school stressor values. Qualitative results will be discussed briefly in this chapter as well, but will not be formally analyzed. Participants included both Minnesotan PA students and recent Minnesotan PA graduates.

Participants

There were a total of 123 respondents to the survey. Of those respondents, 29 were recent graduates, of which 23 were eligible to participate in the study (See Figure 1). Graduate participants were primarily female (91.3%) and in the 20-29 age bracket (87%). Additional demographic data can be found in Table 1.

A total of 94 respondents were students, of which 92 were eligible for data analysis (See Figure 2). Twelve of the student respondents were never in a romantic relationship while in PA school, so data were collected only on the stressors which were not used in analysis for this population. Student participants were primarily female (87%) and in the 20-29 age bracket
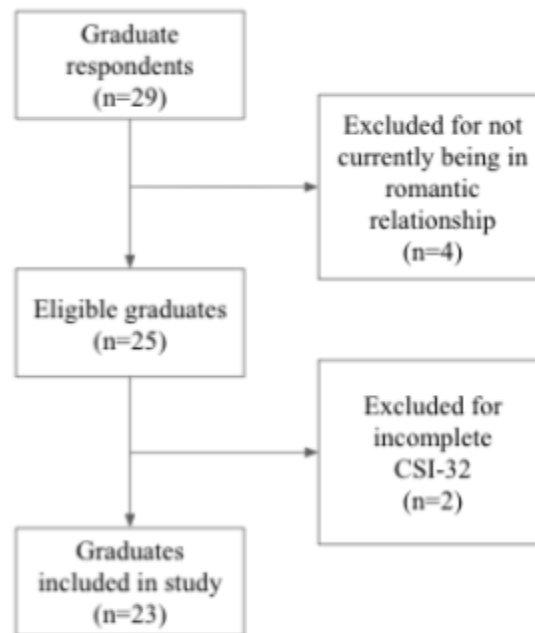
Figure 1. Inclusion criteria for recent graduate respondents
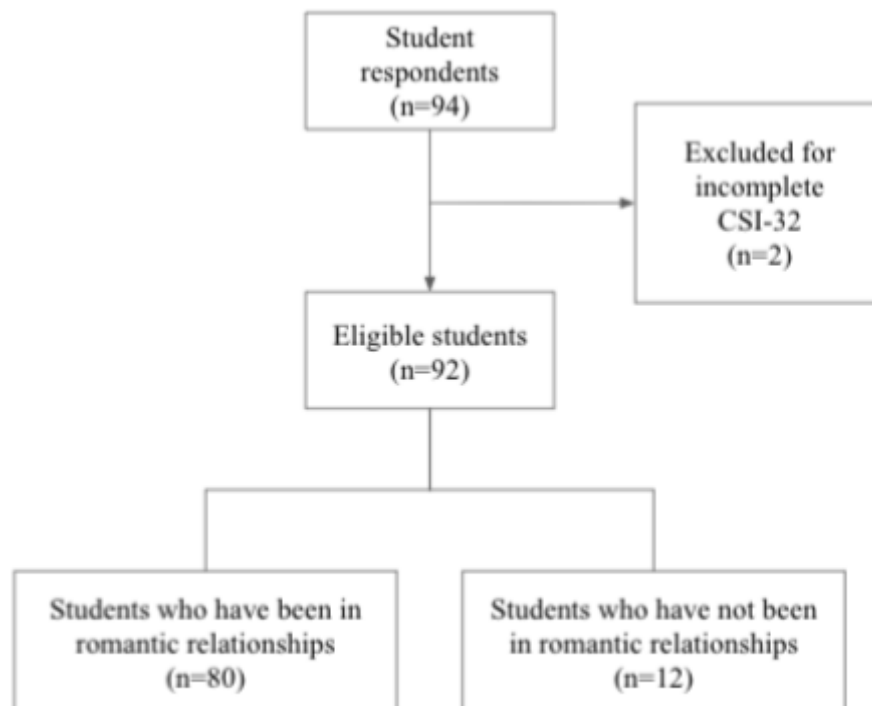
Figure 2. Inclusion criteria for student respondents

(77.2%). Additional demographic data can be found in Table 1.

Table 1. Demographics Data

	PA Students	Recent Graduates
Gender		
Female	80	21
Male	11	2
Age		
20 - 29	71	20
30 - 39	20	3
40 - 49	2	0
Duration of relationship		
< 3 months	1	0
3 - 6 months	3	0
6 - 12 months	5	0
1 - 3 years	19	4
3 - 5 years	13	10
5+ years	41	9
Relationship type		
Dating	29	5
Engaged	10	2
Married	43	16
Living situation		
Living together	49	21
Not living together and	13	2

not-distance		
Not living together and long distance	20	0

Student vs Graduate CSI

Using Python and data analysis packages, a two-sided T-test was used to compare the CSI-32 scores of the PA students and recent graduates as whole populations. Additional two-sided T-tests were used to compare PA students to recent graduates within different sub-populations (See Table 2). Significant differences were not found between student and recent graduates as whole populations or within any of the applied parameters. Overall, the graduate population had 2 of 23 respondents and the student population had 5 of 80 respondents who were considered dissatisfied in their romantic relationship.

Table 2. Comparison of CSI-32 scores between PA students and recent graduates

	Number of Students	Number of Recent Grads	p-value
All Respondents	80	23	0.637
Relationship > 5 Years	41	9	0.826
Relationship < 5 Years	39	14	0.368
Married	42	16	0.671
Non-Married	38	7	0.161
Living Together	48	22	0.736

Not Living Together	32	1	NA
COVID-19 Change - More Satisfied	25	6	0.894
COVID-19 Change - No Change	42	16	0.441
COVID-19 Change - Less Satisfied	13	1	NA
Females	68	21	0.703
Males	11	2	0.681
Age 20-29	58	20	0.356
Age 30-39	20	3	0.739
Age 40-49	2	0	NA

Student CSI vs Stress

Additionally, a Pearson's correlation coefficient was calculated between PA student's

CSI-32 scores and average stressor scores on the basis of the whole population and various

sub-populations (Figure 3). For the PA student population as a whole, CSI-32 scores and average

stressor scores are weakly negatively correlated, $r(77) = -0.335$, $p = 0.003$. Significant weakly

negative correlations were found between CSI-32 scores and stressor scores in the following

sub-populations: PA students who identify as female, $r(65) = -0.285$, $p = 0.019$; and PA students

in the 20-29 age bracket, $r(55) = -0.279$, $p = 0.035$. Significant moderate correlations were found

between CSI-32 scores and stressor scores in the following sub-populations: PA students with

relationships greater than 5 years in length, $r(38) = -0.459$, $p = 0.003$; PA students who are

married, $r(40) = -0.444$, $p = 0.003$; PA students who live with their partner, $r(45) = -0.481$, $p =$

0.001; and PA students who did not notice a change in their relationship satisfaction due to COVID, $r(40) = -0.412$, $p = 0.007$.

Figure 3. CSI-32 score (Y-axis) vs average student stress (X-axis)

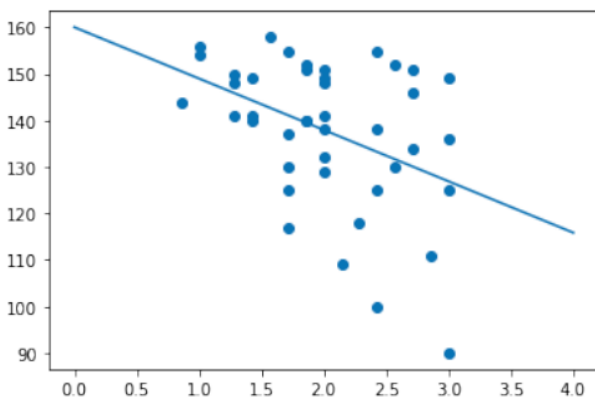All Students (n=79)
Coef: -0.335 | PValue: 0.002

Relationship > 5 years (n=40)
Coef: -0.459 | PValue: 0.003

Relationship < 5 years (n=39)
Coef: -0.141 | PValue: 0.392

Married (n=42)
Coef: -0.444 | PValue: 0.003
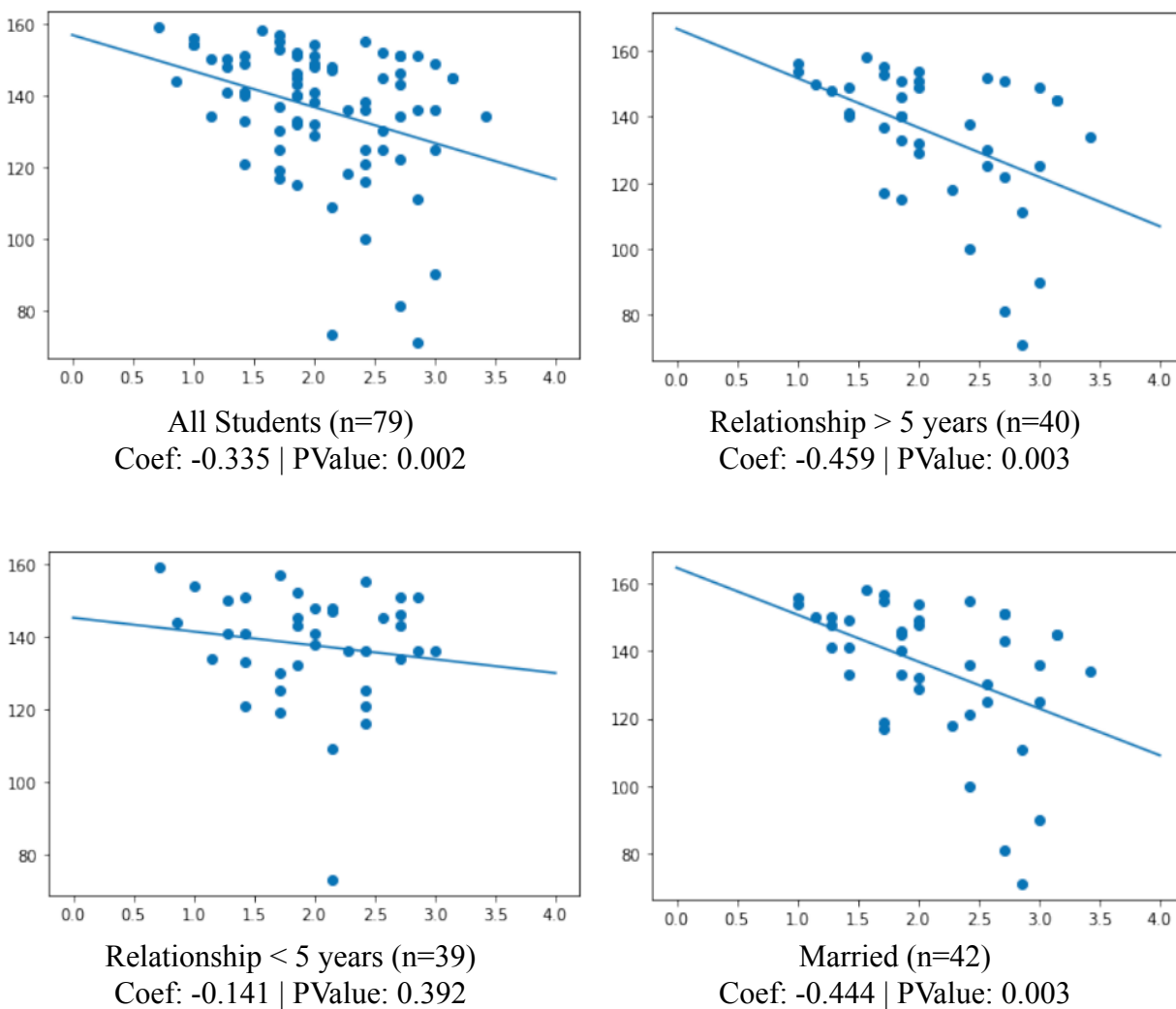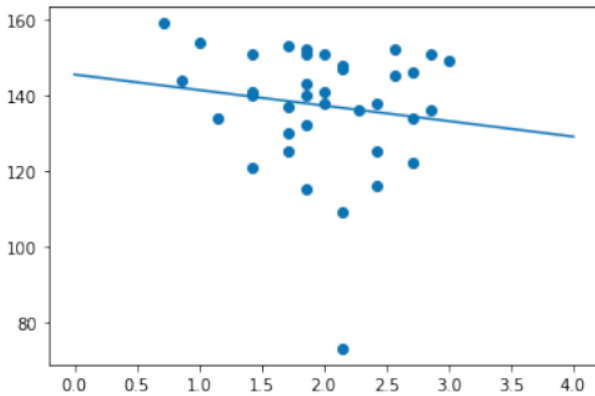
Not married (n=37)
Coef: -0.144 | PValue: 0.395
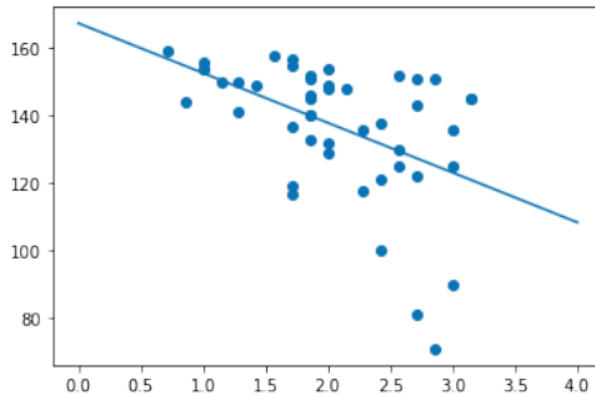
Living together (n=47)
Coef: -0.481 | PValue: 0.0006
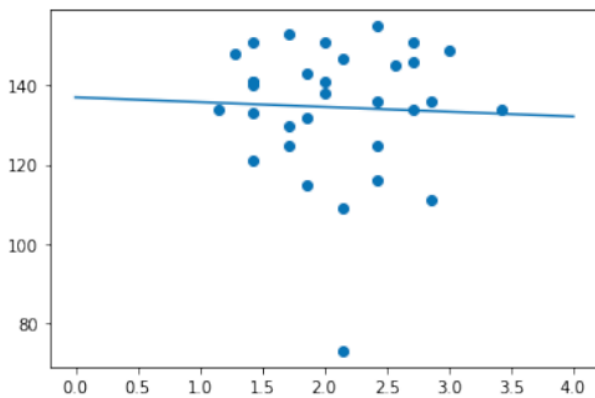
Not living together (n=32)
Coef: -0.0419 | PValue: 0.82
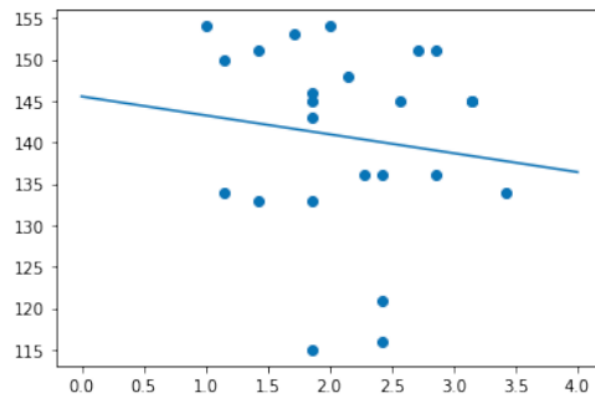
More satisfied due to COVID-19 (n=24)
Coef: -0.134 | PValue: 0.533

No change due to COVID-19 (n=42)
Coef: -0.412 | PValue: 0.007
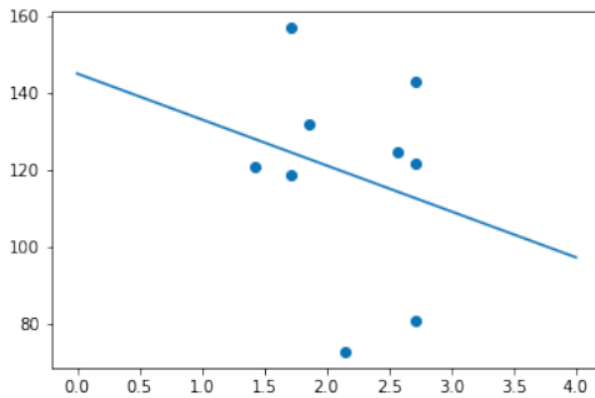
Less satisfied due to COVID-19 (n=9)
Coef: -0.228 | PValue: 0.556
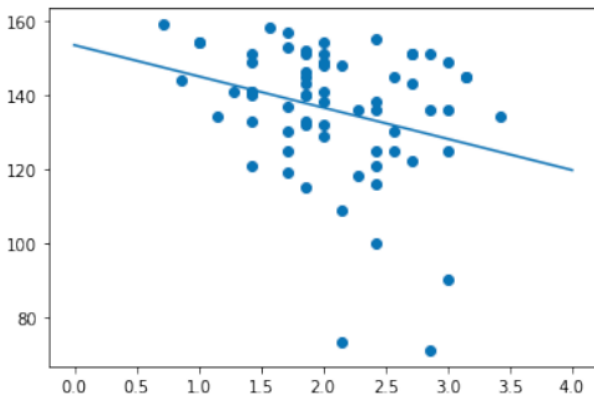
Female (n=67)
Coef: -0.285 | PValue: 0.019
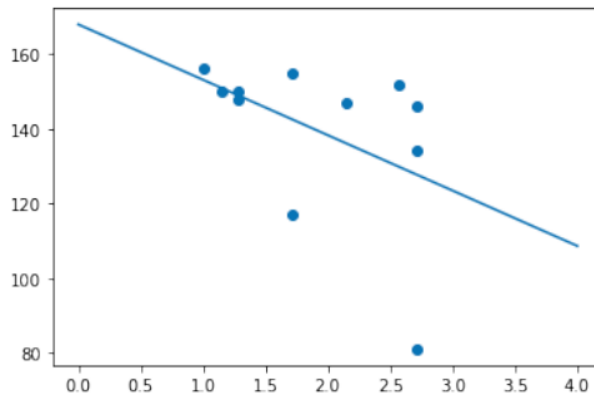
Male (n=11)
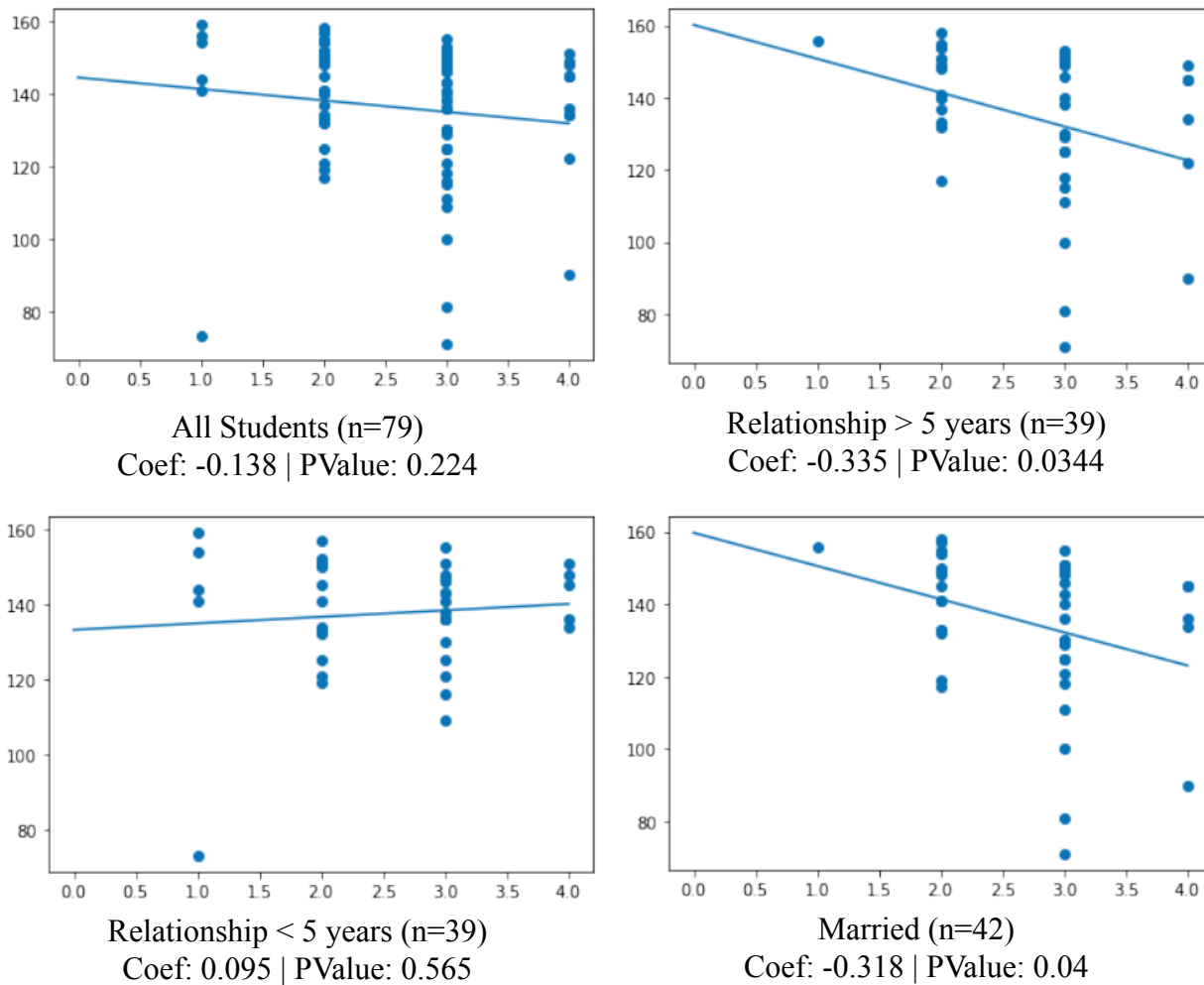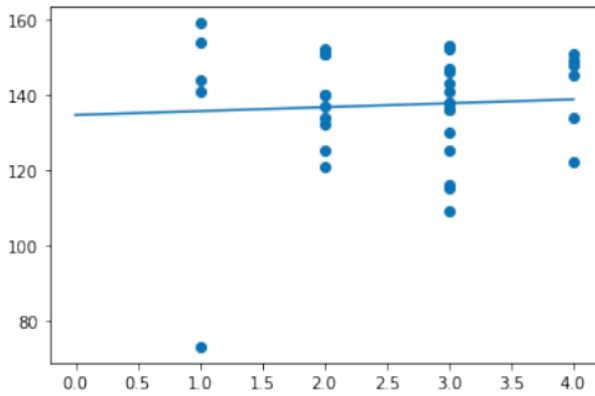Coef: -0.454 | PValue: 0.161
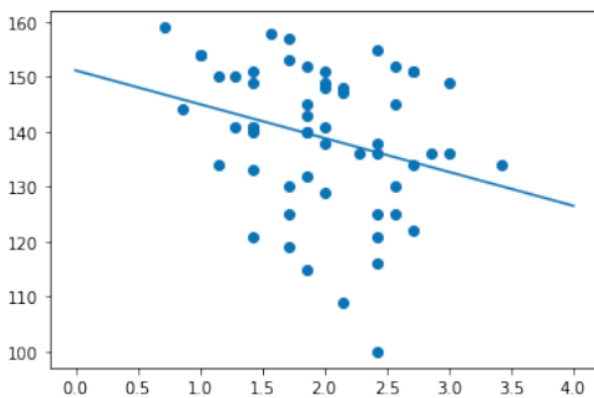
Age 20 - 29 (n=57)
Coef: -0.279 | PValue: 0.035
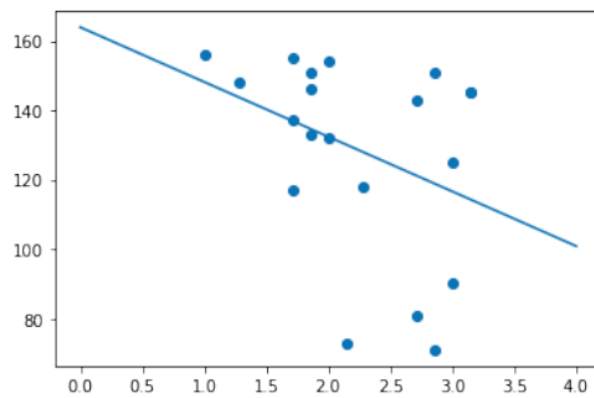
Age 30 - 39 (n=20)
Coef: -0.36 | PValue: 0.119

CSI-32 scores were also correlated to each of individual stressor questions among the same sub-populations used in the correlation analysis for CSI-32 scores and average stress. Stressor Question 1 which states, "Please rate the impact of the academic workload on your stress level" had significant weak correlations in the following sub-populations: PA students with relationships greater than 5 years in length, $r(38) = -0.335$, $p = 0.034$; PA students who are married, $r(40) = -0.318$, $p = 0.04$; and PA students who live with their partner, $r(45) = -0.34$, $p = 0.02$. A significant moderate correlation was found between CSI-32 scores and stressor score in
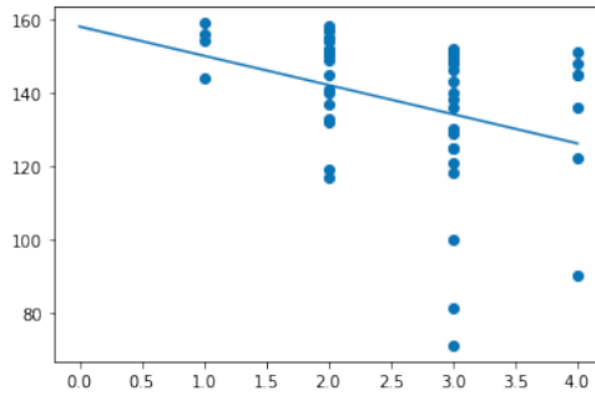
PA students who did not notice a change in their relationship satisfaction due to COVID, $r(40) =$ -0.415, $p = 0.006$. Additional correlations can be found in figure 4.

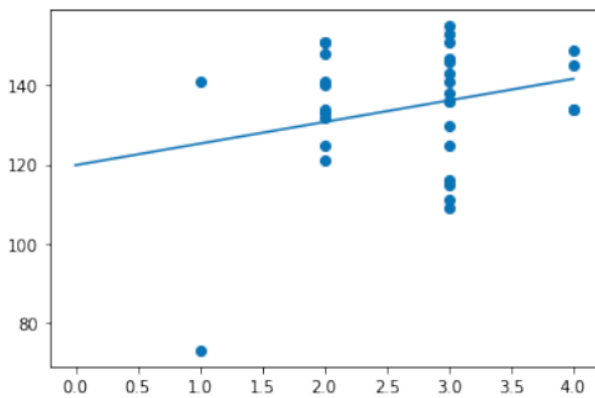*Figure 4.* CSI-32 score (Y-axis) vs stressor question 1 (X-axis)

All Students (n=79)
Coef: -0.138 | PValue: 0.224

Relationship > 5 years (n=39)
Coef: -0.335 | PValue: 0.0344

Relationship < 5 years (n=39)
Coef: 0.095 | PValue: 0.565

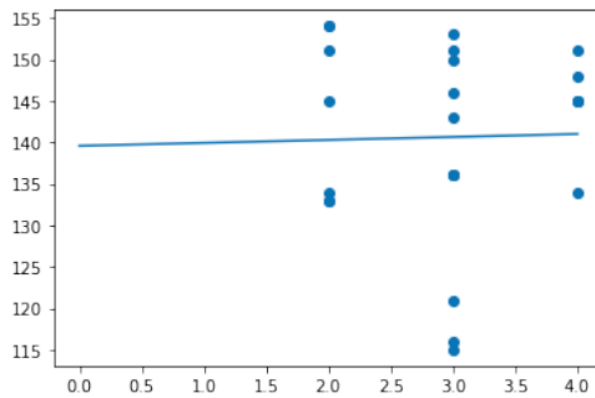Married (n=42)
Coef: -0.318 | PValue: 0.04

Not married (n=37)
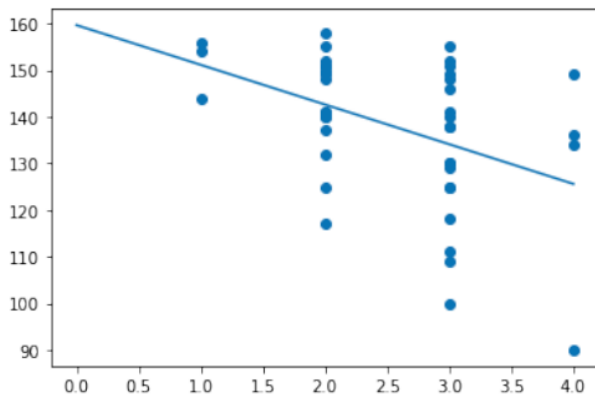Coef: 0.059 | PValue: 0.729

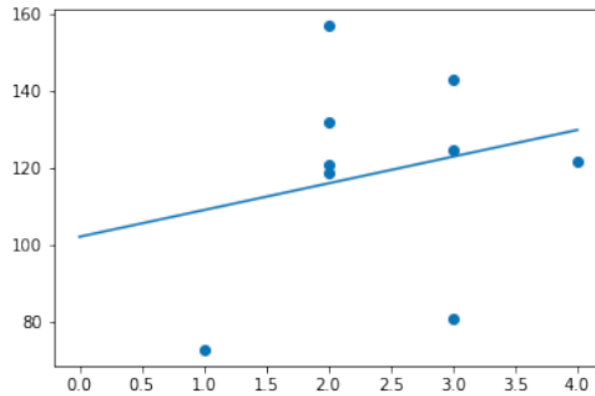Living together (n=47)
Coef: -0.34 | PValue: 0.0196

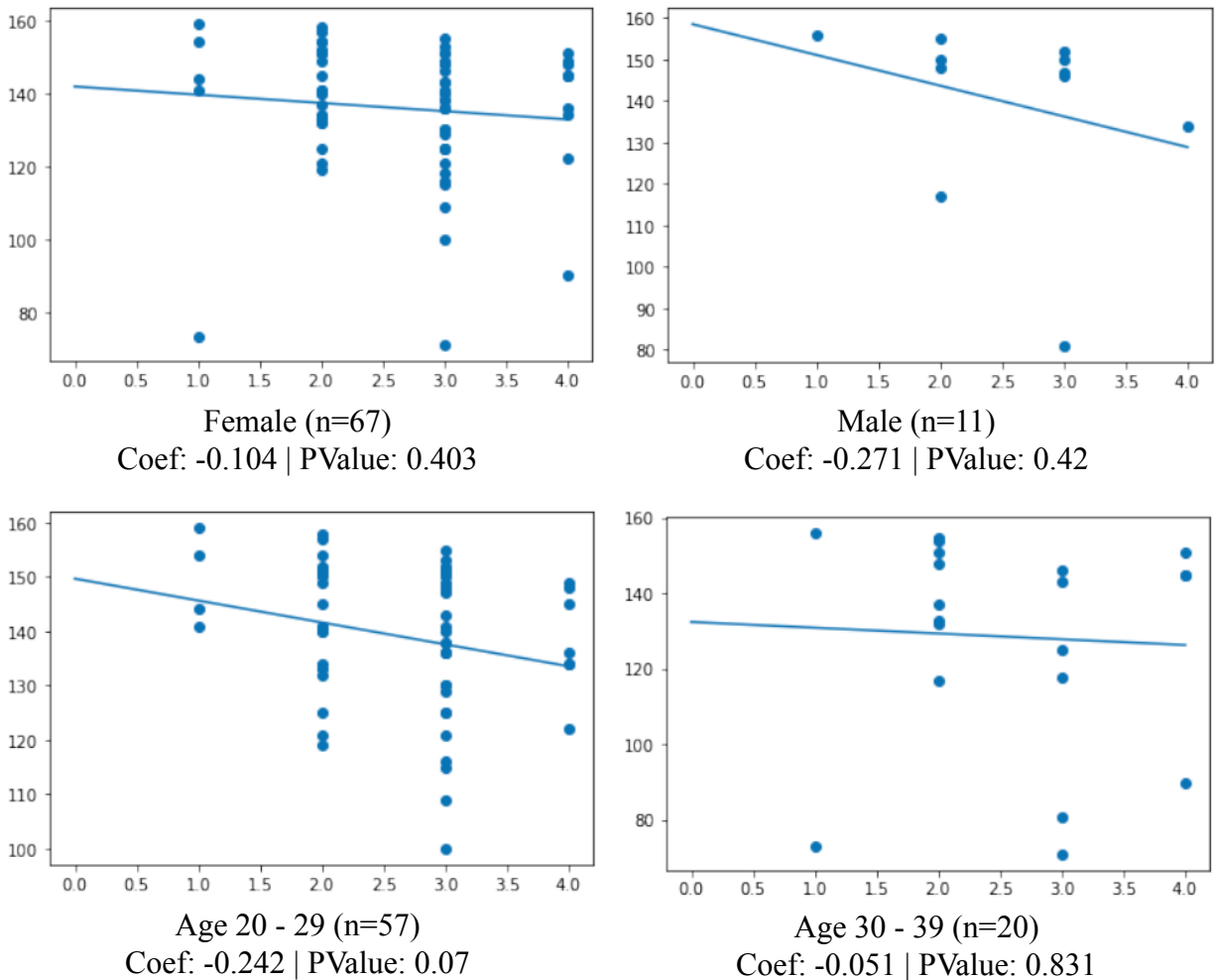Not living together (n=32)
0.254 | PValue: 0.161

More satisfied due to COVID-19 (n=24)
Coef: 0.023 | PValue: 0.913

No change due to COVID-19 (n=42)
Coef: -0.415 | PValue: 0.006

Less satisfied due to COVID-19 (n=9)
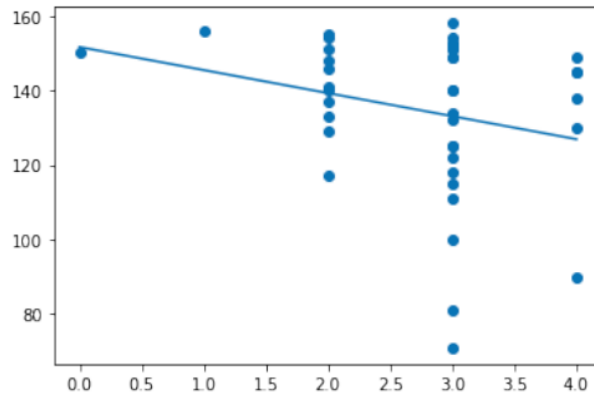Coef: 0.227 | PValue: 0.557

Female (n=67)
Coef: -0.104 | PValue: 0.403

Male (n=11)
Coef: -0.271 | PValue: 0.42

Age 20 - 29 (n=57)
Coef: -0.242 | PValue: 0.07

Age 30 - 39 (n=20)
Coef: -0.051 | PValue: 0.831

Stressor Question 2 which states, "Please rate the impact of exam/performance pressure on your stress level" did not have any significant correlations between CSI-32 and stressor score in the population as a whole or any of the sub-populations (Figure 5).
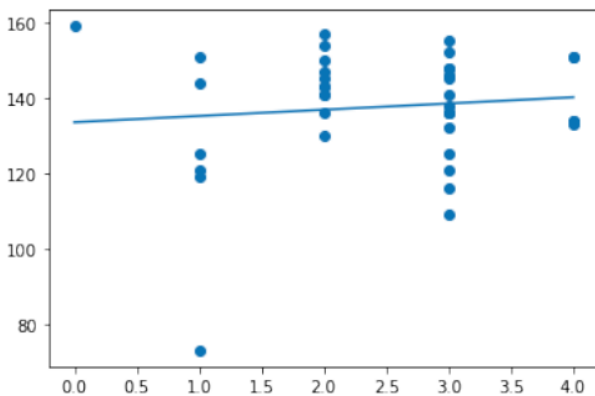
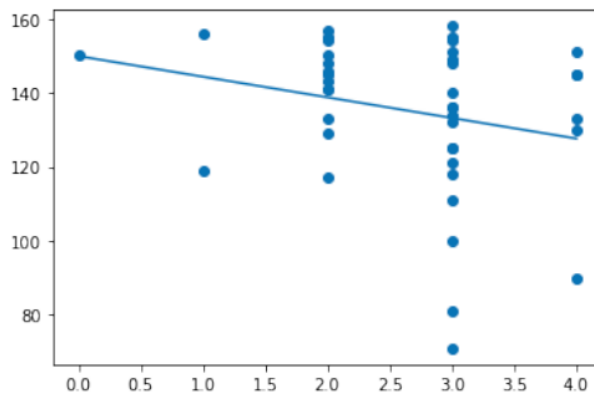*Figure 5.* CSI-32 score (Y-axis) vs stressor question 2 (X-axis)
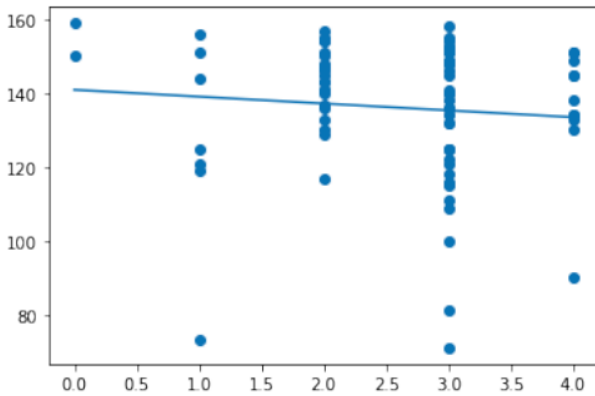
All Students (n=79)
Coef: -0.092 | PValue: 0.418

Relationship > 5 years (n=39)
Coef: -0.247 | PValue: 0.125

Relationship < 5 years (n=39)
Coef: 0.103 | PValue: 0.533

Married (n=42)
Coef: -0.236 | PValue: 0.133
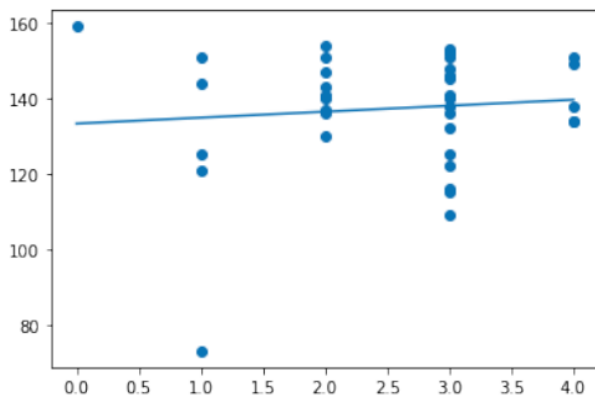
Not married (n=37)
Coef: 0.096 | PValue: 0.573
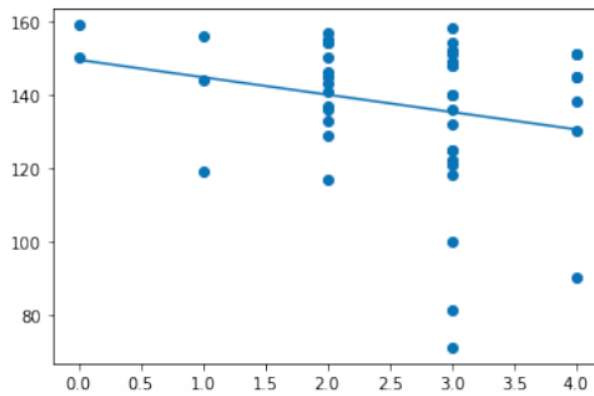
Living together (n=47)
Coef: -0.231 | PValue: 0.118
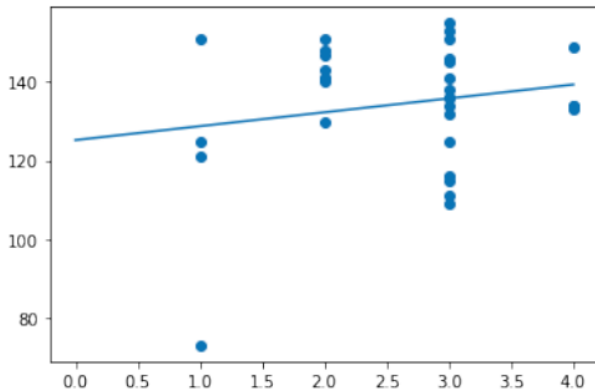
Not living together (n=32)
Coef: 0.183 | PValue: 0.315
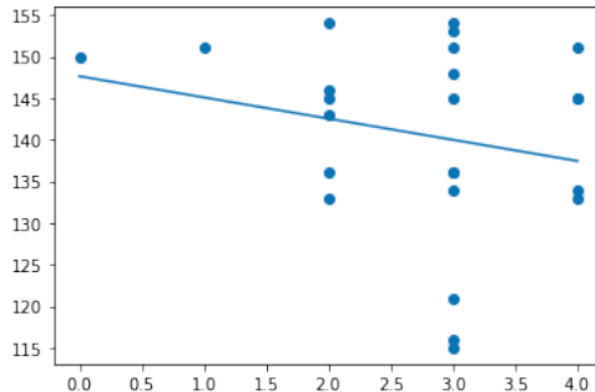
More satisfied due to COVID-19 (n=24)
Coef: -0.22 | PValue: 0.301
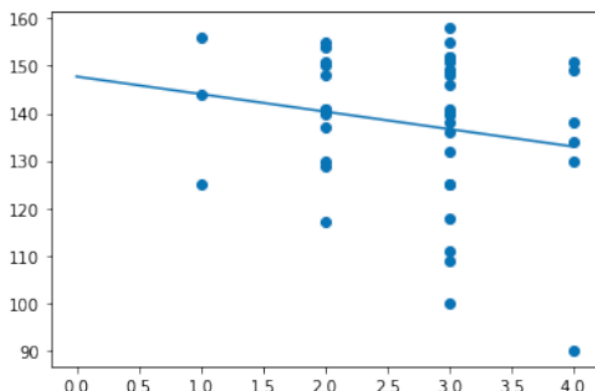
No change due to COVID-19 (n=42)
Coef: -0.188 | PValue: 0.233
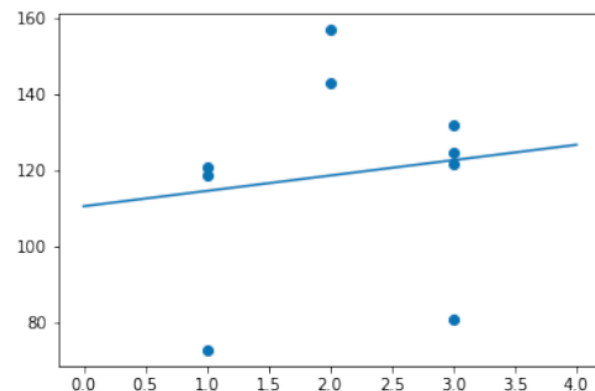
Less satisfied due to COVID-19 (n=9)
Coef: 0.139 | PValue: 0.721

Female (n=67)
Coef: -0.008| PValue: 0.948
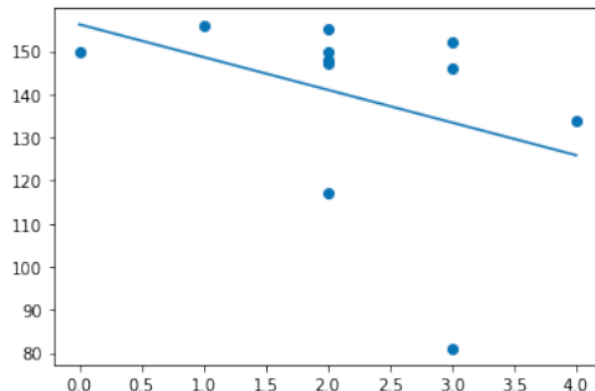
Male (n=11)
Coef: -0.365 | PValue: 0.269

Age 20 - 29 (n=57)
Coef: -0.145 | PValue: 0.282

Age 30 - 39 (n=20)
Coef: -0.012 | PValue: 0.959
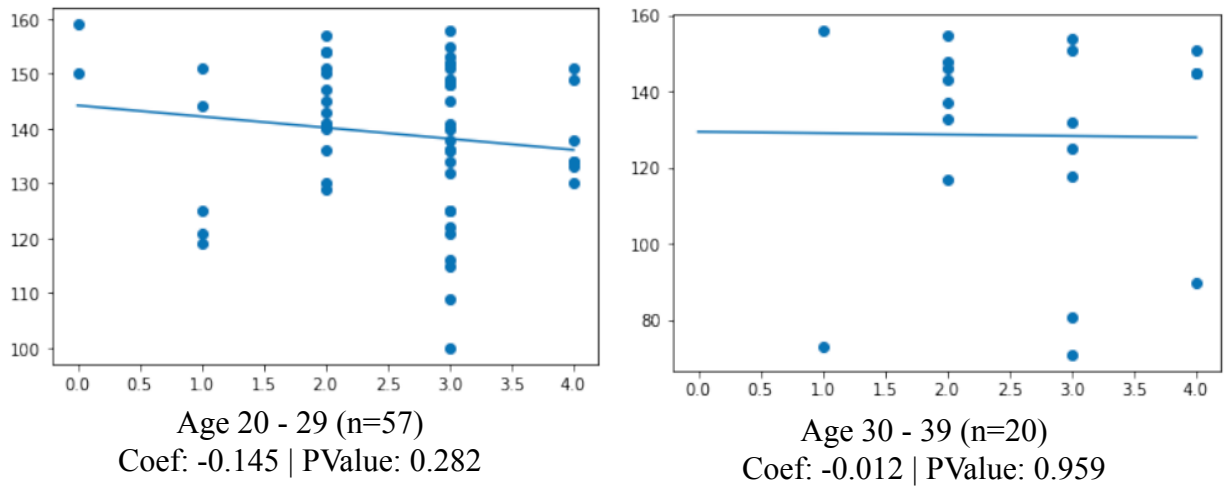
Stressor Question 3 which states, "To what extent do you agree with the following statement: I am able to balance PA school and my non-romantic relationships" had a significant weak correlations between CSI-32 and stressor score in PA students who live with their partner, $r(45) = -0.291$, $p = 0.047$. A significant moderate correlation was found in PA students who did not notice a change in their relationship satisfaction due to COVID, $r(40) = -0.437$, $p = 0.004$. Additional correlations can be found in figure 6.

Figure 6. CSI-32 score (Y-axis) vs stressor question 3 (X-axis)

All Students (n=79)

Relationship > 5 years (n=39)
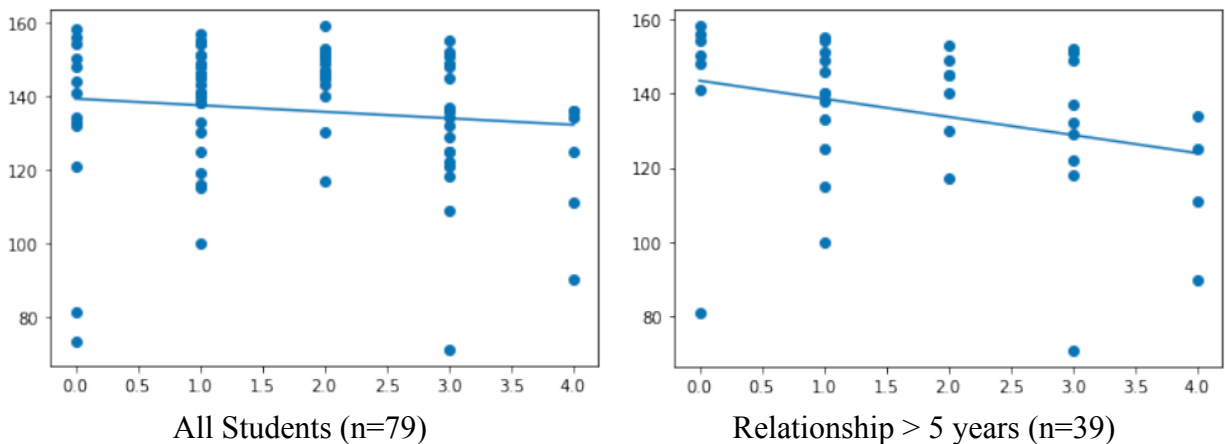
Coef: -0.117 | PValue: 0.304

Coef: -0.297 | PValue: 0.062
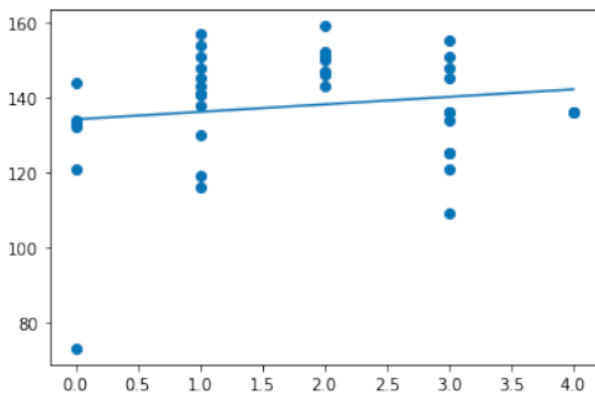

Relationship < 5 years (n=39)
Coef: 0.148 | PValue: 0.368
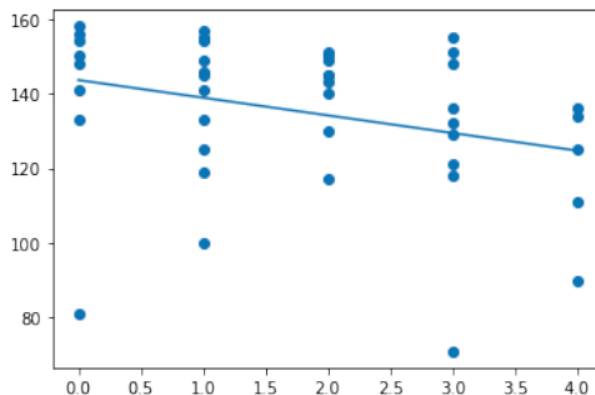
Married (n=42)
Coef: -0.3 | PValue: 0.054
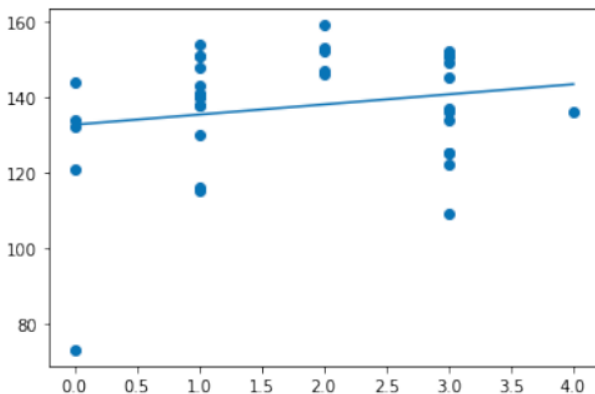
Not married (n=37)
Coef: 0.188 | PValue: 0.264
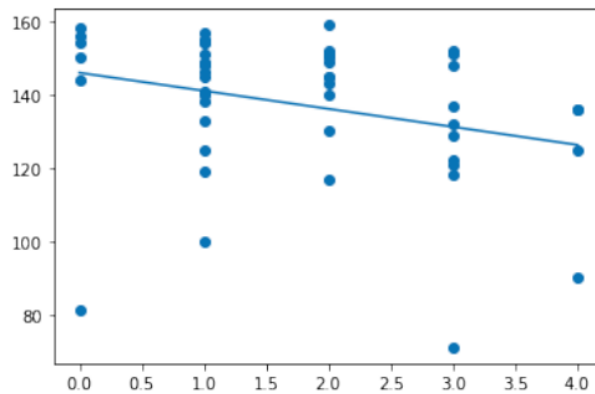
Living together (n=47)
Coef: -0.291 | PValue: 0.047
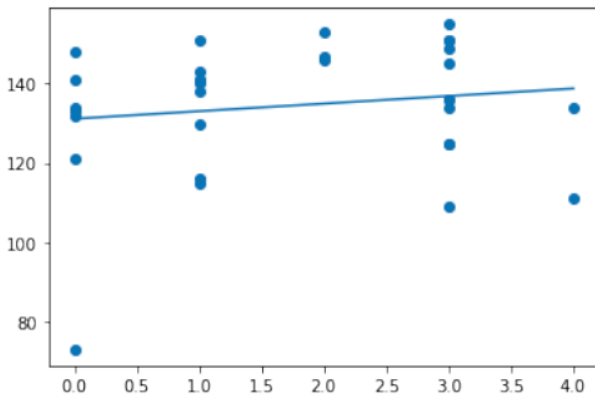
Not living together (n=32)
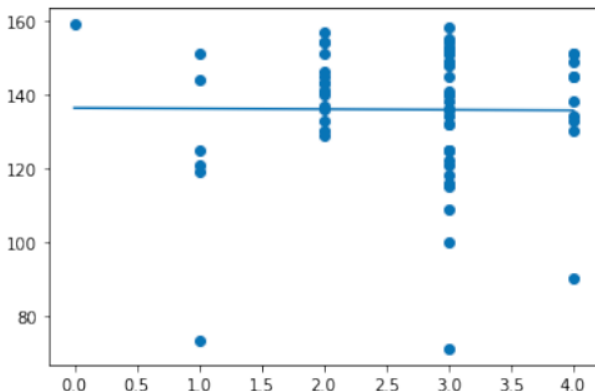Coef: 0.15 | PValue: 0.412
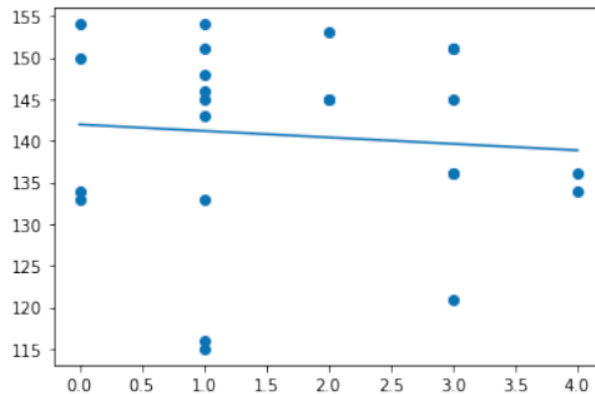
More satisfied due to COVID-19 (n=24)
Coef: -0.086 | PValue: 0.69
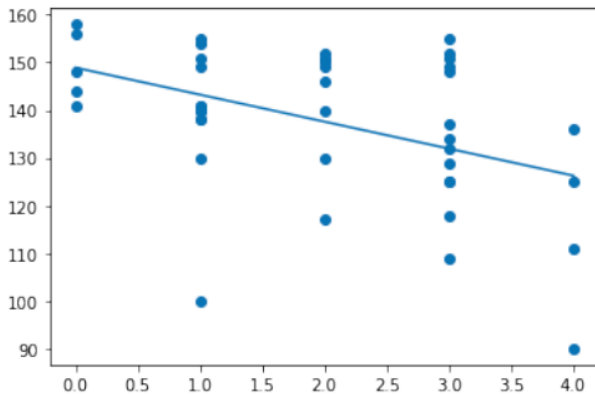
No change due to COVID-19 (n=42)
Coef: -0.437 | PValue: 0.004
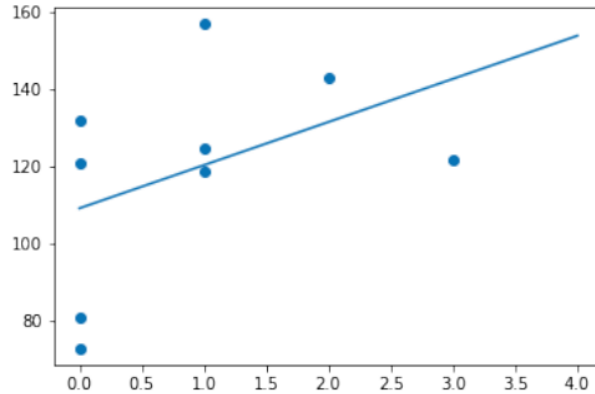
Less satisfied due to COVID-19 (n=9)
Coef: 0.437 | PValue: 0.239
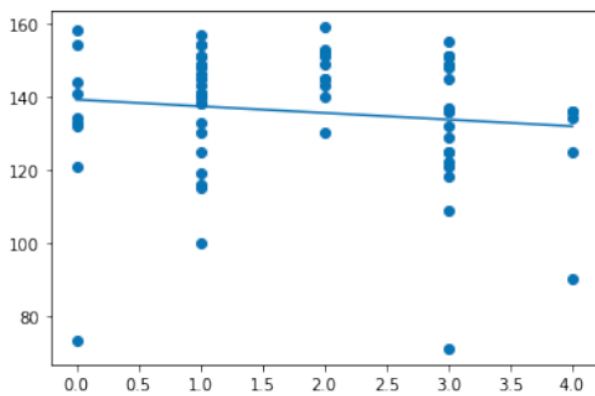
Female (n=67)
Coef: -0.122 | PValue: 0.324
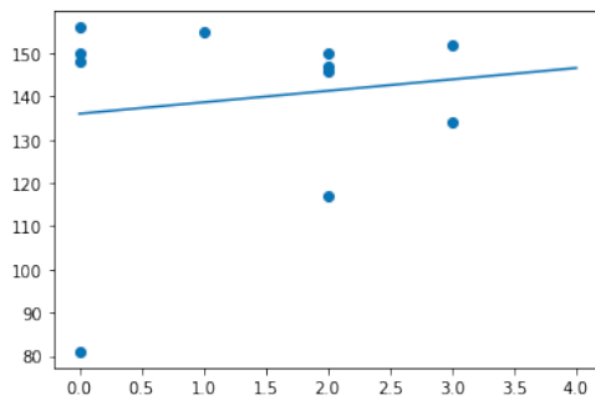
Male (n=11)
Coef: 0.142 | PValue: 0.676
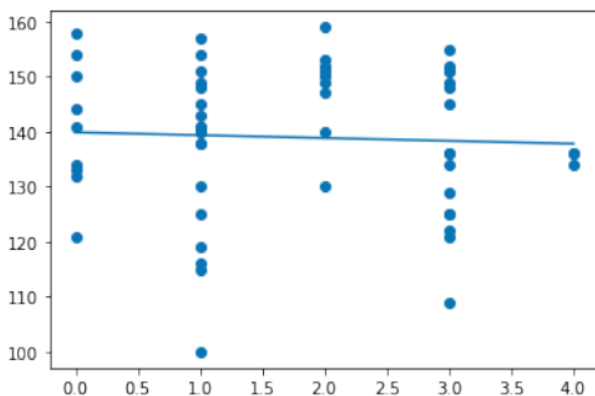
Age 20 - 29 (n=57)
Coef: -0.047 | PValue: 0.73
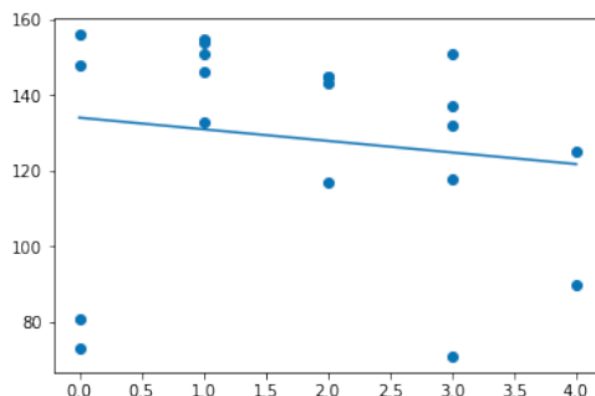
Age 30 - 39 (n=20)
Coef: -0.144 | PValue: 0.545

Stressor Question 4 which states, "To what extent do you agree with the following statement: I am able to balance PA school and my romantic relationships" showed a moderate negative correlation between CSI-32 scores and stressor score, $r(77) = -0.507$, $p = 1.822e-06$. Additionally, there were significant strong correlations in the following subpopulations: PA students with relationships greater than 5 years in length, $r(38) = -0.623$, $p = 1.733e-05$; PA students who are married, $r(40) = -0.623$, $p = 4.985e-07$; PA students who live with their partner, $r(45) = -0.711$, $p = 2.171e-08$; PA students who identify as male, $r(9) = -0.781$, $p = 0.005$; and PA students in the 30-39 age bracket, $r(18) = -0.653$, $p = 0.002$. There were significant moderate correlations in the following subpopulations: PA students who did not notice a change in their relationship satisfaction due to COVID, $r(40) = -0.482$, $p = 0.001$; and PA students who identify as female, $r(65) = -0.438$, $p = 0.0002$. There was a significant weak correlation in PA students in the 20-29 age bracket, $r(55) = -0.292$, $p = 0.028$. Additional correlations can be found in figure 7.

*Figure 7.* CSI-32 score (Y-axis) vs stressor question 4 (X-axis)

All Students (n=79)
Coef: -0.507| PValue: 1.822e-06

Relationship > 5 years (n=39)
Coef: -0.623 | PValue: 1.733e-05

Relationship < 5 years (n=39)
Coef: -0.243 | PValue: 0.136

Married (n=42)
Coef: -0.687 | PValue: 4.985e-07
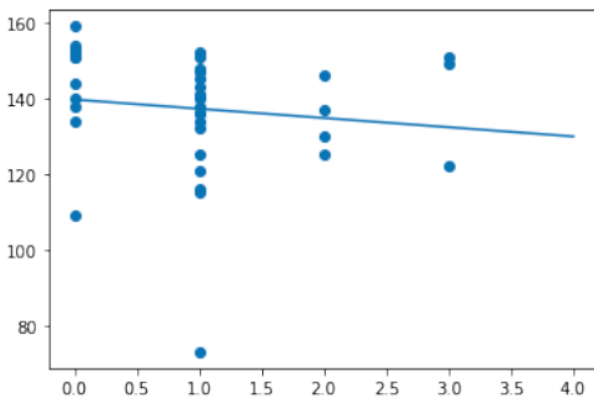
Not married (n=37)
Coef: -0.129 | PValue: 0.446
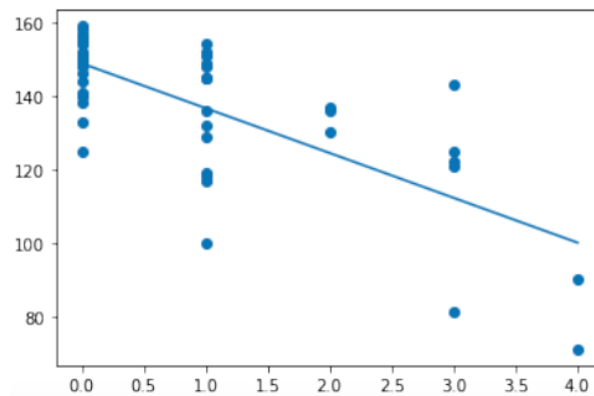
Living together (n=47)
Coef: -0.711 | PValue: 2.171e-08
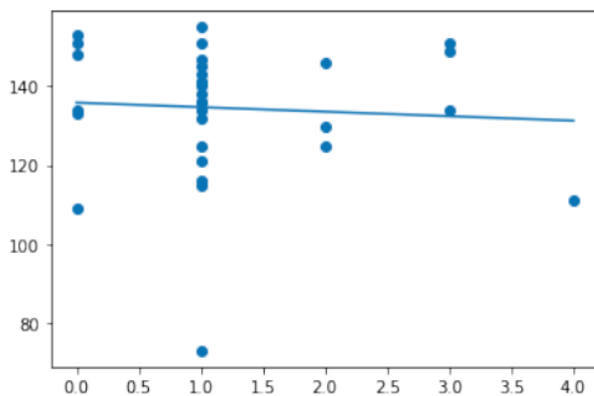
Not living together (n=32)
Coef: -0.066 | PValue: 0.721
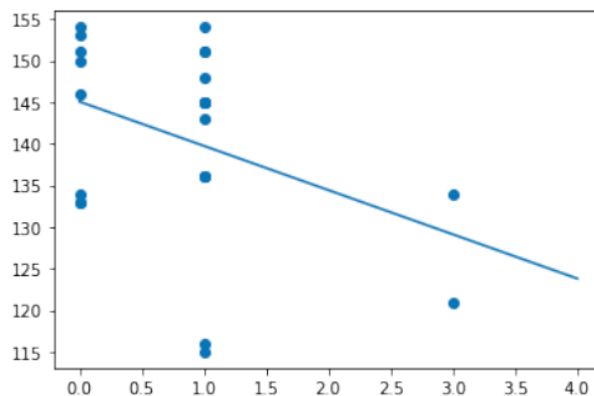
More satisfied due to COVID-19 (n=24)
Coef: -0.38 | PValue: 0.067
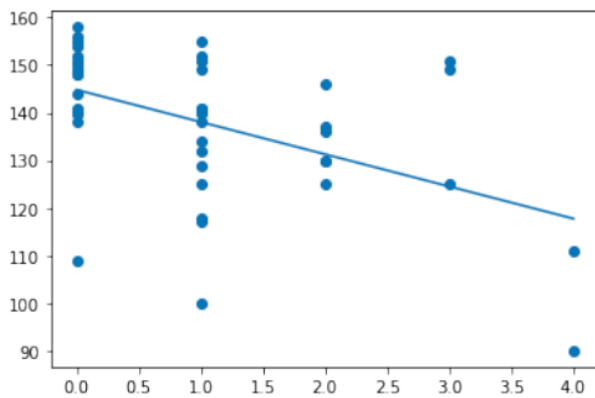
No change due to COVID-19 (n=42)
Coef: -0.482 | PValue: 0.001
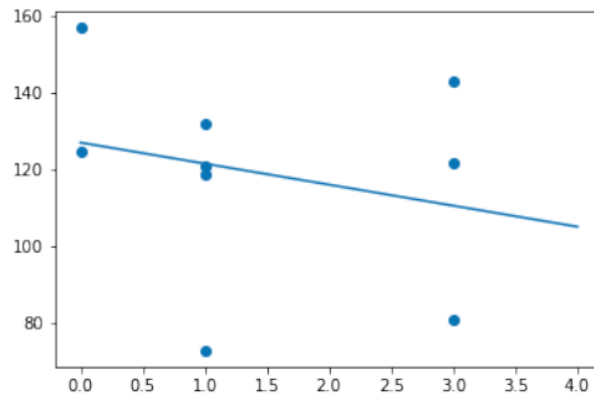
Less satisfied due to COVID-19 (n=9)
Coef: -0.251| PValue: 0.514
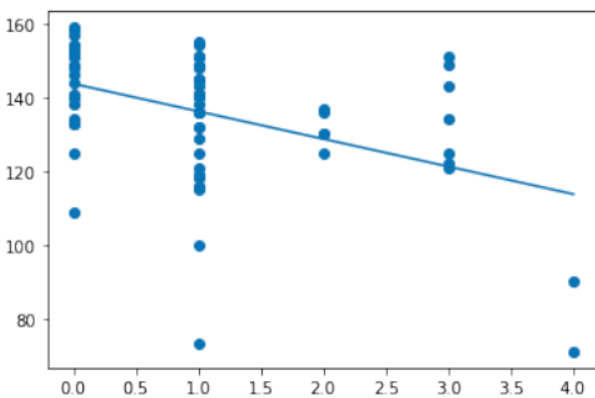
Female (n=67)
Coef: -0.438| PValue: 0.0002
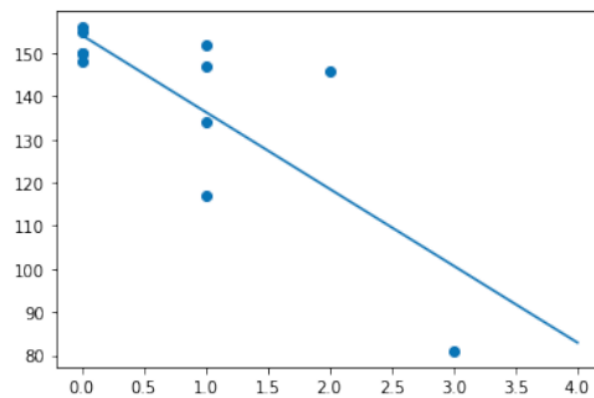
Male (n=11)
Coef: -0.781 | PValue: 0.005
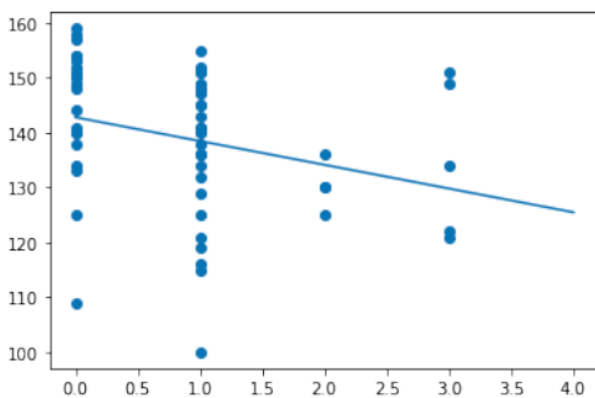
Age 20 - 29 (n=57)
Coef: -0.292 | PValue: 0.0277
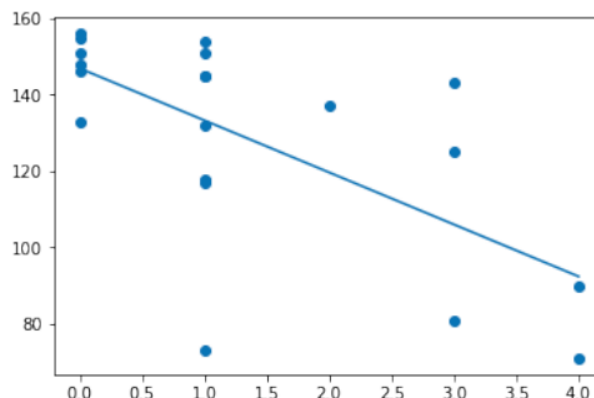
Age 30 - 39 (n=20)
Coef: -0.653 | PValue: 0.002

Stressor Question 5 which states, "Please rate the impact PA school has on your physical and mental health" showed a weak negative correlation between CSI-32 score and stressor score, $r(77) = -0.317$, $p = 0.004$. Additionally, there was a significant moderate correlation in PA students who did not notice a change in their relationship satisfaction due to COVID, $r(40) = -0.426$, $p = 0.005$. There were significant weak correlations in the following subpopulations: PA students with relationships greater than 5 years in length, $r(38) = -0.348$, $p = 0.028$; PA students who are married, $r(40) = -0.325$, $p = 0.036$; PA students who live with their partner, $r(45) = -0.311$, $p = 0.033$; and PA students who identify as female, $r(65) = -0.3$, $p = 0.014$. Additional correlations can be found in figure 8.

Figure 8. CSI-32 score (Y-axis) vs stressor question 5 (X-axis)

All Students (n=79)
Coef: -0.317 | PValue: 0.004

Relationship > 5 years (n=39)
Coef: -0.348 | PValue: 0.028
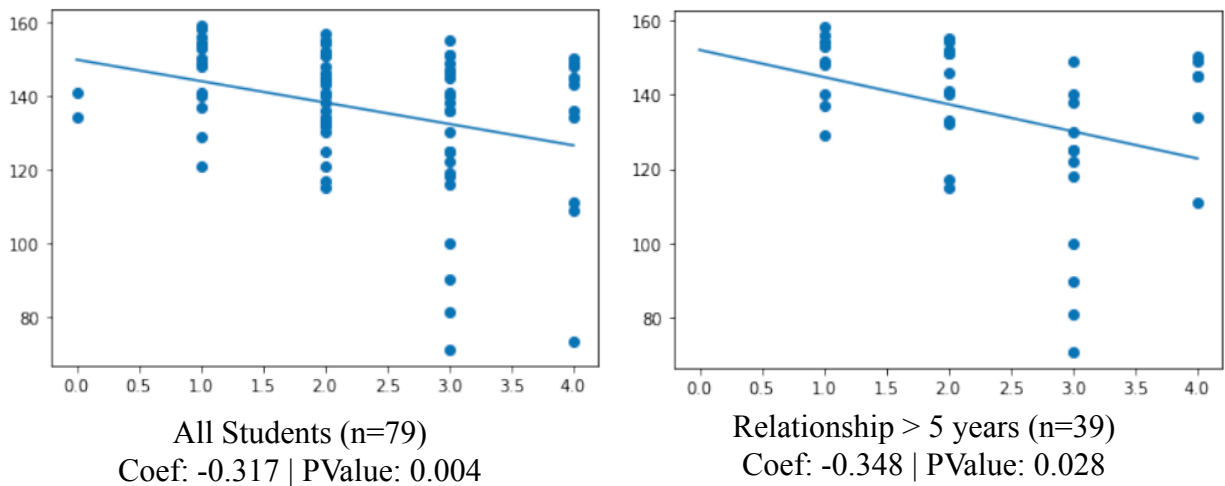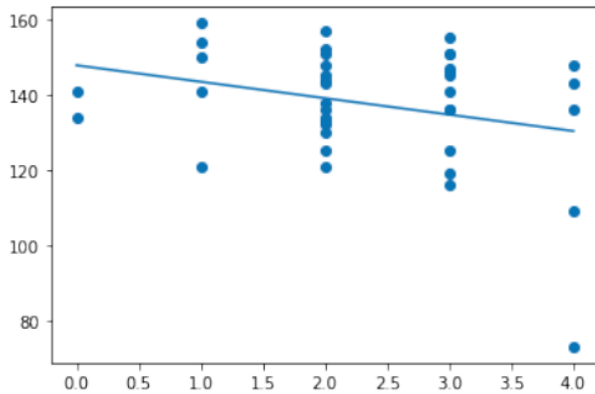
Relationship < 5 years (n=39)
Coef: -0.282 | PValue: 0.082
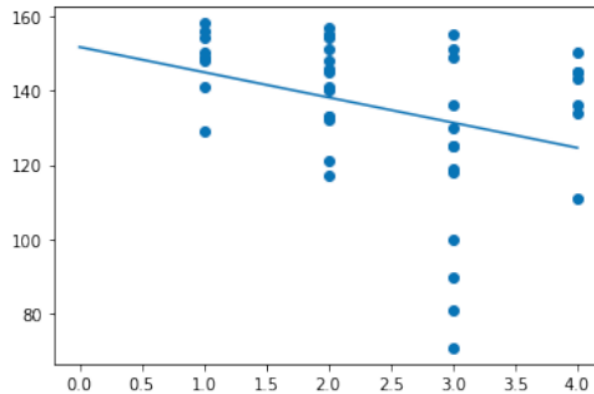
Married (n=42)
Coef: -0.325 | PValue: 0.036
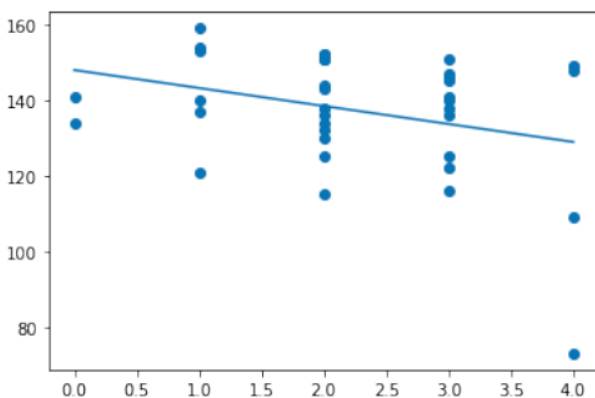
Not married (n=37)
Coef: -0.303 | PValue: 0.069
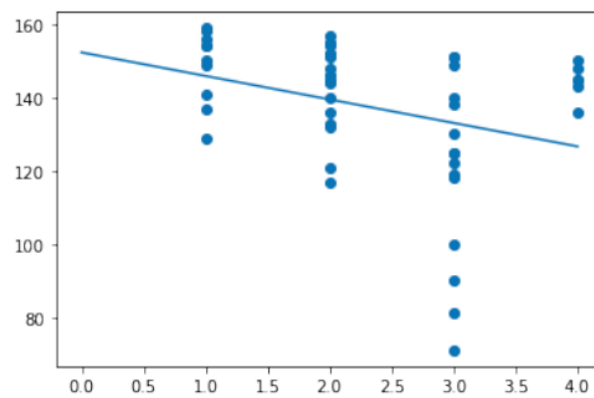
Living together (n=47)
Coef: -0.311 | PValue: 0.033
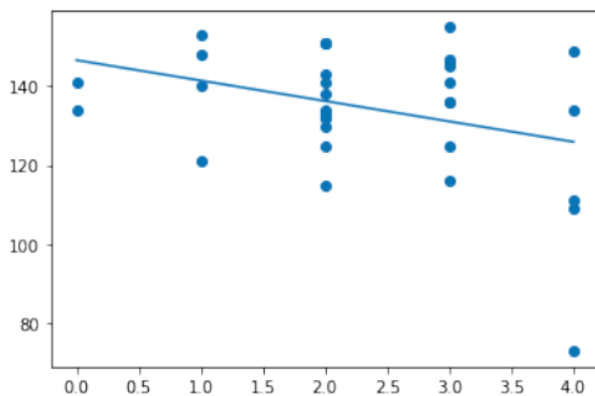
Not living together (n=32)
Coef: -0.338 | PValue: 0.058
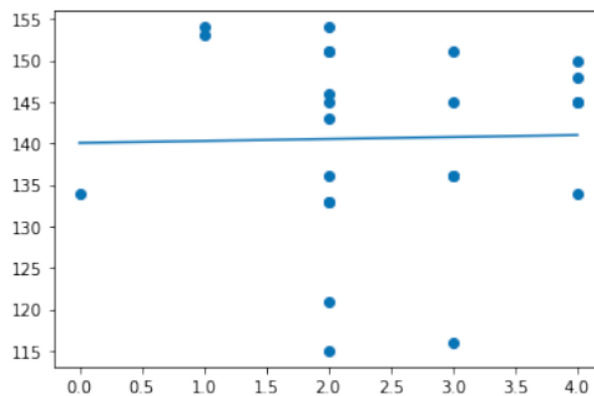
More satisfied due to COVID-19 (n=24)
Coef: 0.022 | PValue: 0.919
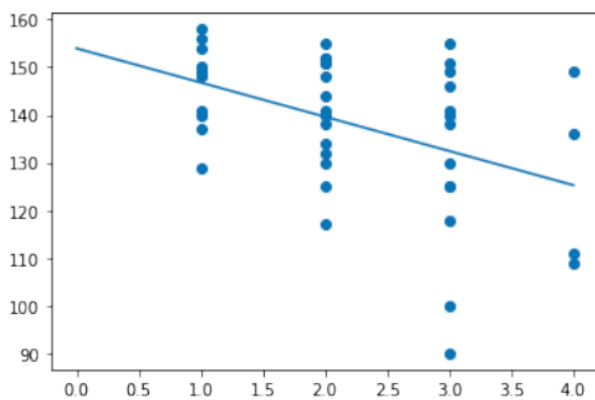
No change due to COVID-19 (n=42)
Coef: -0.426 | PValue: 0.005
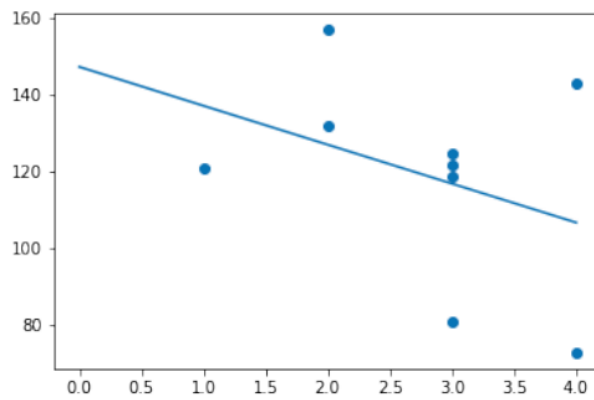
Less satisfied due to COVID-19 (n=9)
Coef: -0.366 | PValue: 0.333
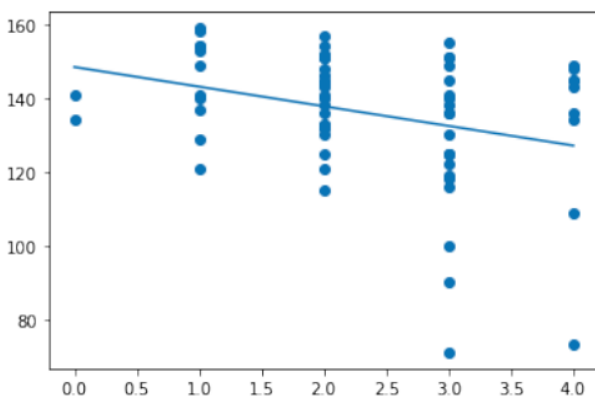
Female (n=67)
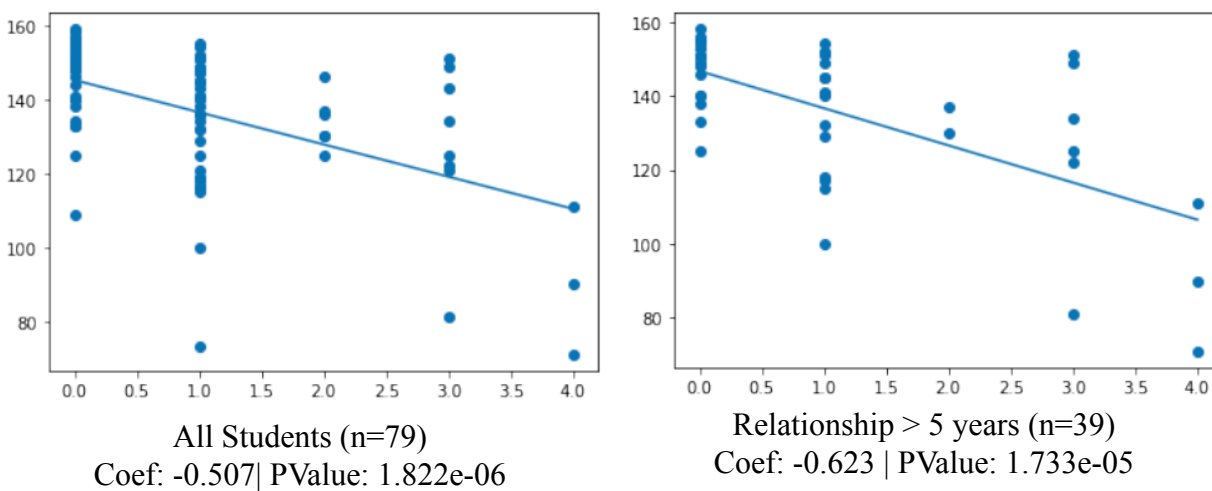Coef: -0.3 | PValue: 0.014
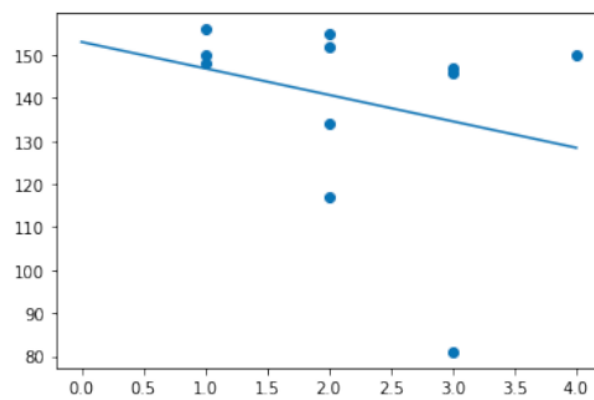
Male (n=11)
Coef: -0.269 | PValue: 0.423
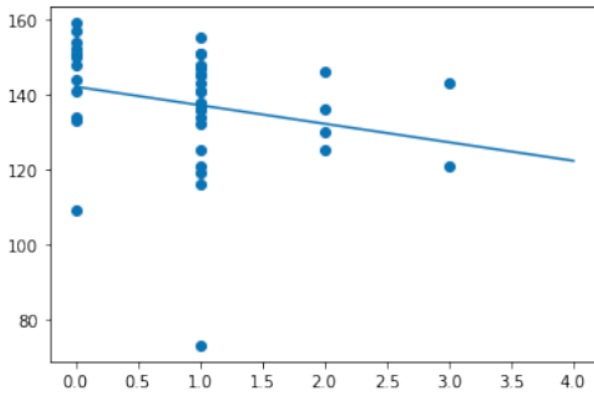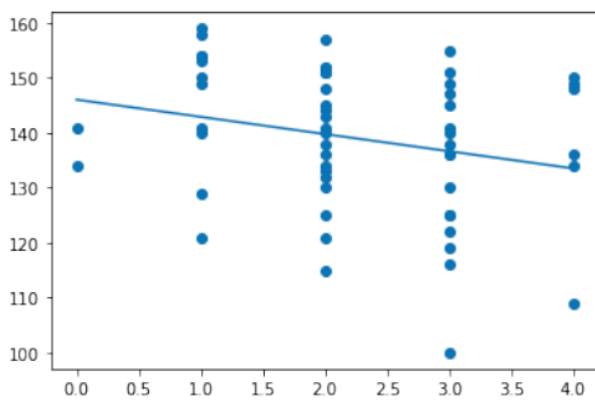
Age 20 - 29 (n=57)
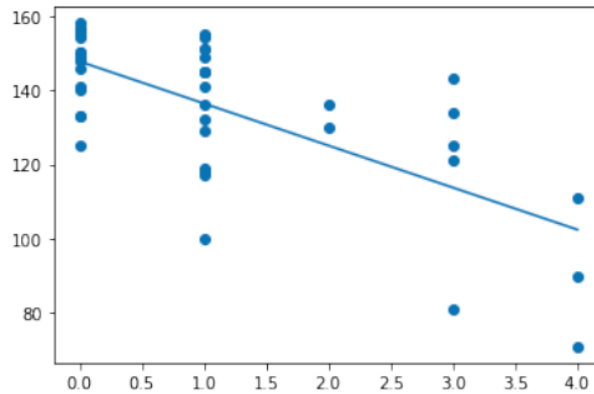Coef: -0.239| PValue: 0.074
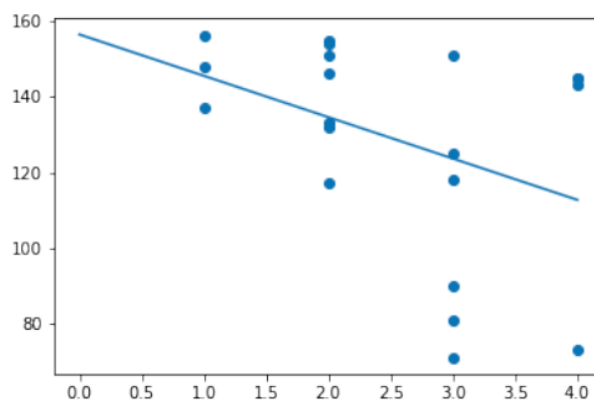
Age 30 - 39 (n=20)
Coef: -0.388| PValue: 0.091

Stressor Question 6 which states, "Please rate the impact of financial concerns/difficulties on your stress level" showed a weak positive correlation between CSI-32 score and stressor score only in the subpopulation of PA students who did not notice a change in their relationship satisfaction due to COVID, $r(40) = 0.326$, $p = 0.035$. Additional correlations can be found in figure 9.

Figure 9. CSI-32 score (Y-axis) vs stressor question 6 (X-axis)

All Students (n=79)
Coef: 0.008 | PValue: 0.945

Relationship > 5 years (n=39)
Coef: 0.073 | PValue: 0.653

Relationship < 5 years (n=39)
Coef: -0.078 | PValue: 0.637

Married (n=42)
Coef: 0.088 | PValue: 0.579
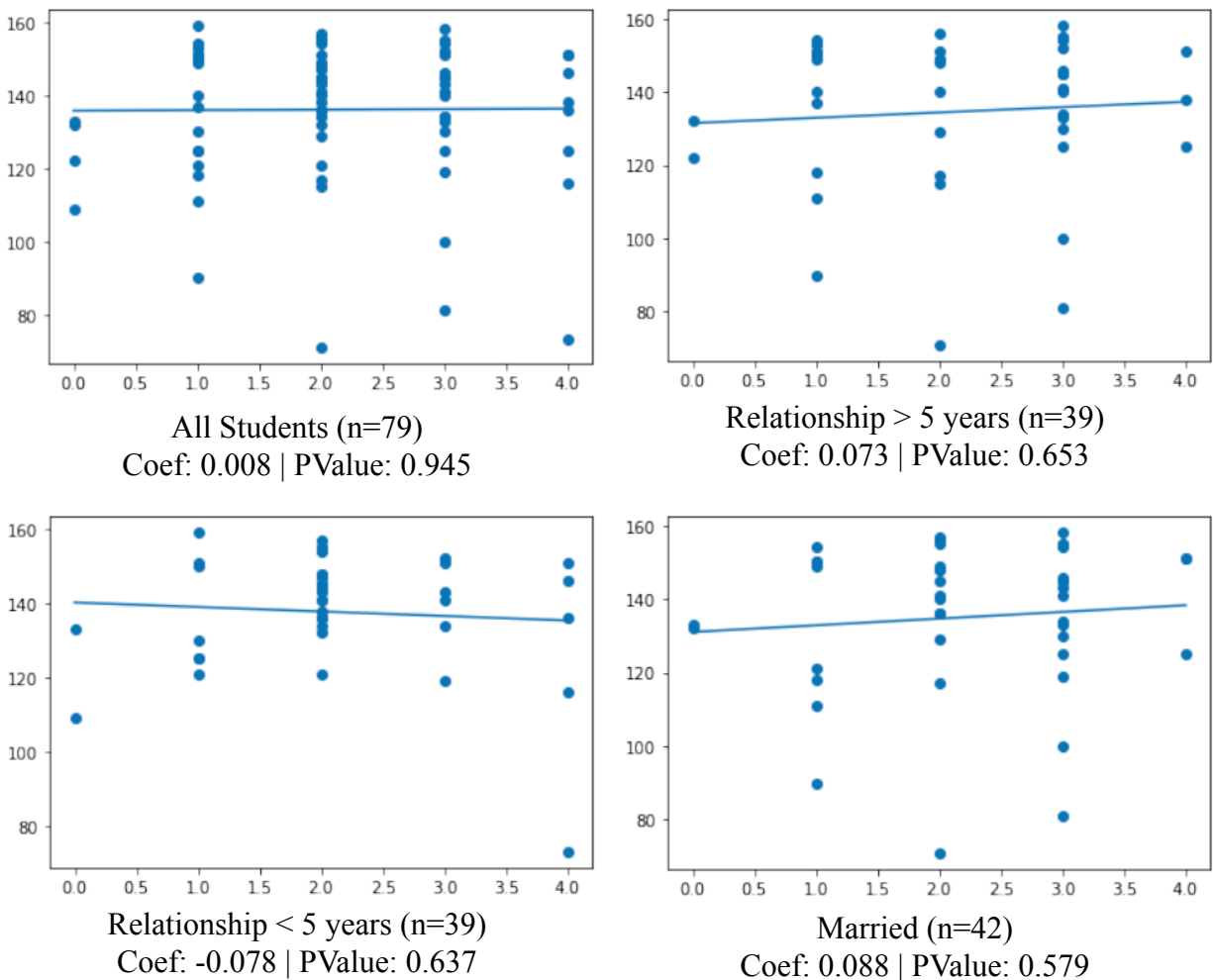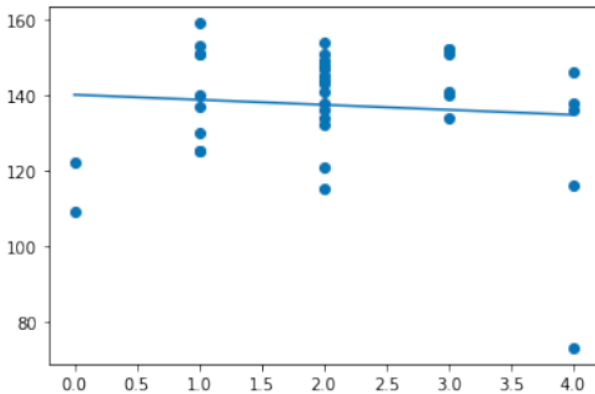
Not married (n=37)
Coef: -0.089 | PValue: 0.601
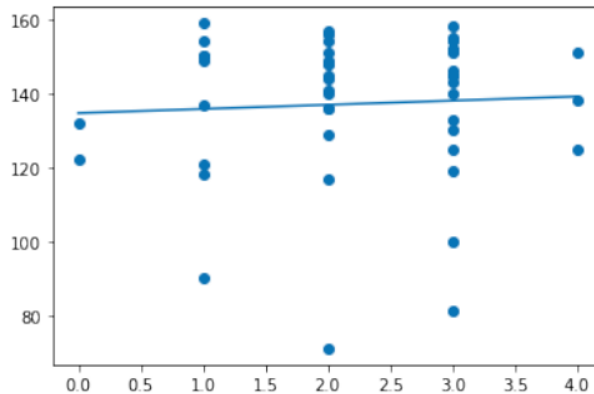
Living together (n=47)
Coef: 0.055 | PValue: 0.713
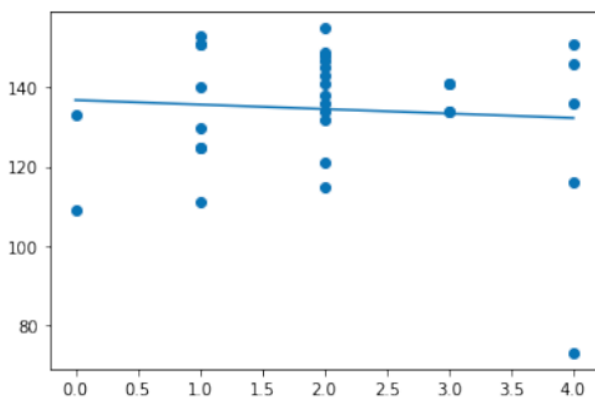
Not living together (n=32)
Coef: -0.076 | PValue: 0.678
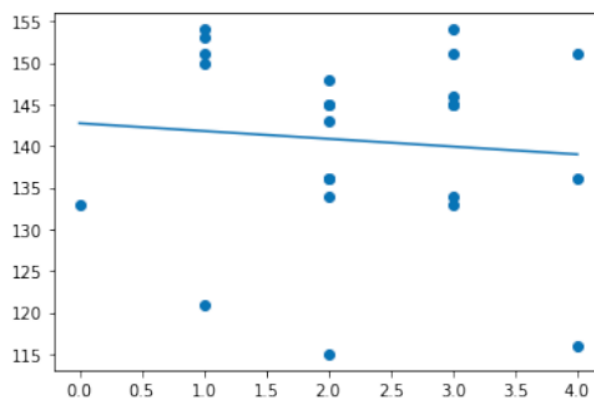
More satisfied due to COVID-19 (n=24)
Coef: -0.088 | PValue: 0.684
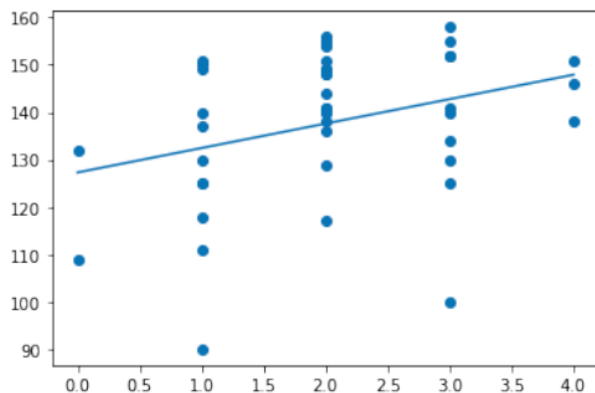
No change due to COVID-19 (n=42)
Coef: 0.326 | PValue: 0.035
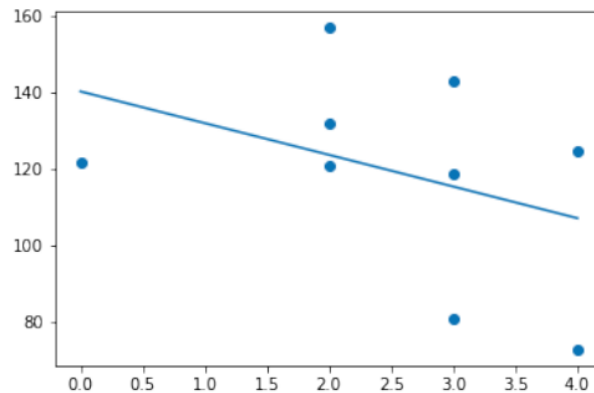
Less satisfied due to COVID-19 (n=9)
Coef: -0.38 | PValue: 0.313

Female (n=67)
Coef: 0.015 | PValue: 0.903

Male (n=11)
Coef: -0.215 | PValue: 0.525

Age 20 - 29 (n=57)
Coef: -0.009 | PValue: 0.946

Age 30 - 39 (n=20)
Coef: 0.029 | PValue: 0.904
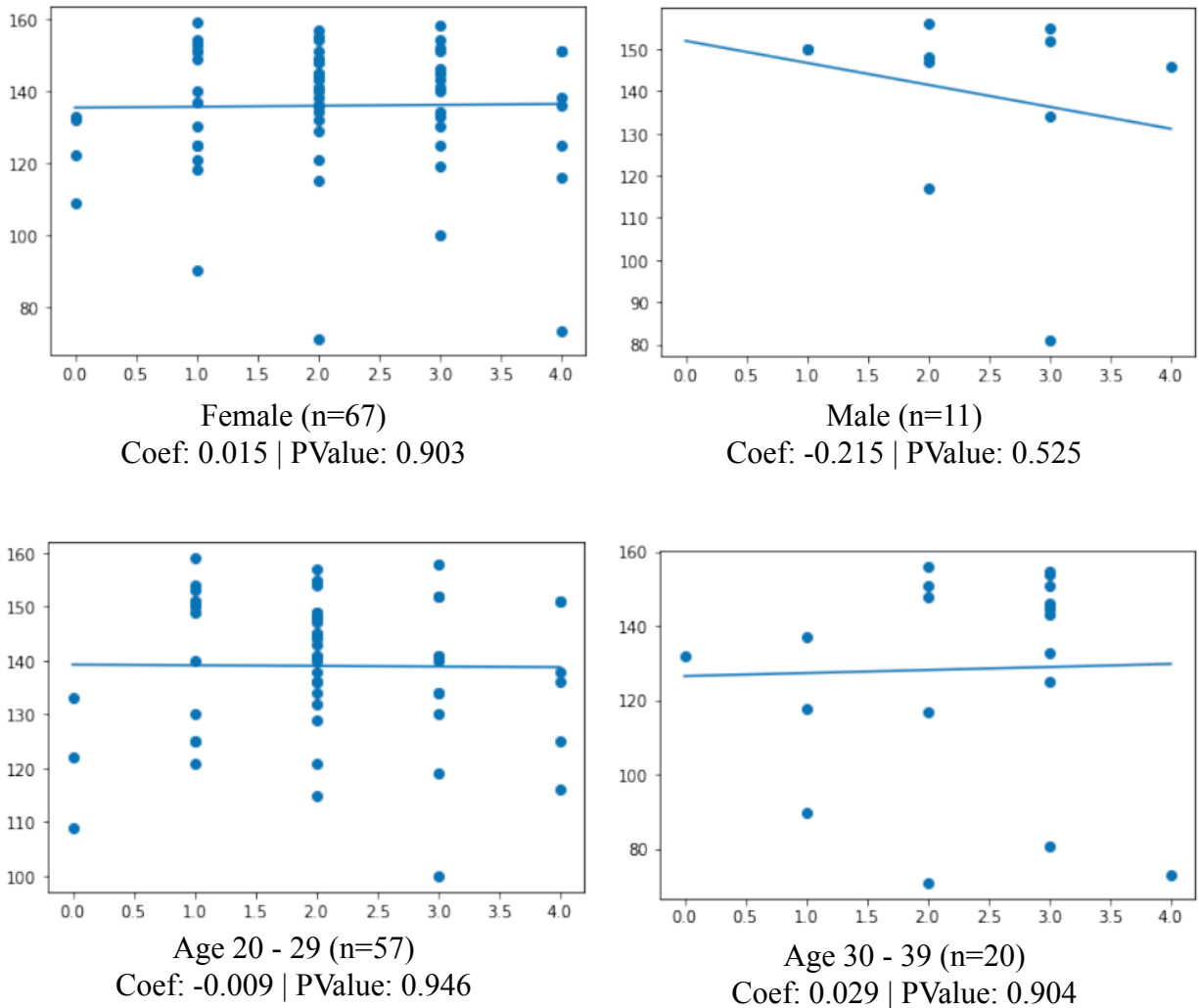
Stressor Question 7 which states, "Please rate the impact of Coronavirus disease 2019 (COVID-19) on your stress level" showed a weak negative correlation between CSI-32 score and stressor score, $r(77) = -0.241$, $p = 0.032$. Additionally, there was significant moderate correlation in PA students who are not married, $r(35) = -0.415$. There were significant weak correlations in the following subpopulations: PA students with relationships less than 5 years in length, $r(37) = -0.399$, $p = 0.012$; and PA students in the 20-29 age bracket, $r(55) = -0.282$, $p = 0.034$. Additional correlations can be found in figure 10.

*Figure 10.* CSI-32 score (Y-axis) vs stressor question 7 (X-axis)

All Students (n=79)
Coef: -0.241 | PValue: 0.032

Relationship > 5 years (n=39)
Coef: -0.128 | PValue:0.432

Relationship < 5 years (n=39)
Coef: -0.399 | PValue:0.012

Married (n=42)
Coef: -0.117 | PValue: 0.462

Not married (n=37)
Coef: -0.415 | PValue: 0.011

Living together (n=47)
Coef: -0.241 | PValue: 0.103
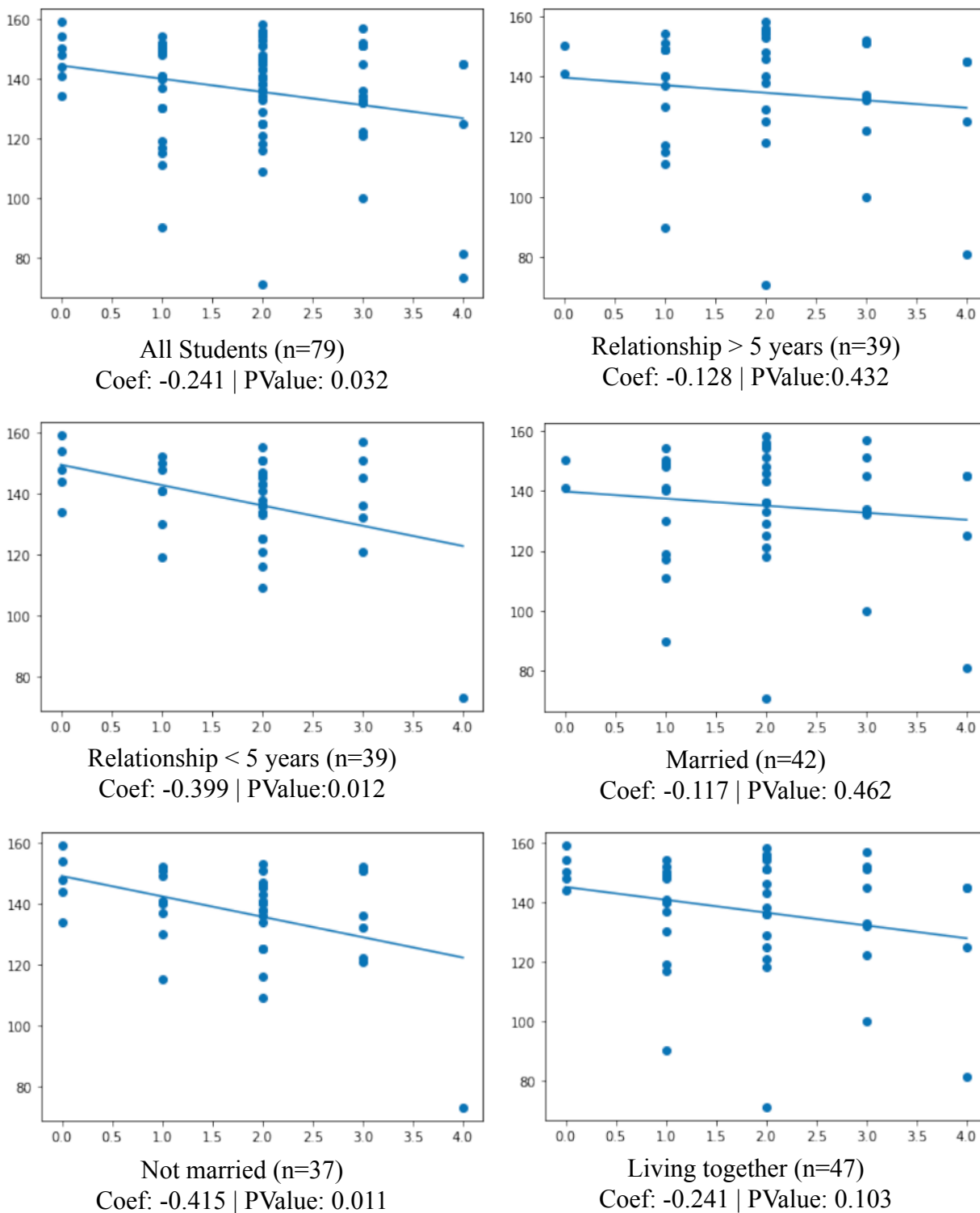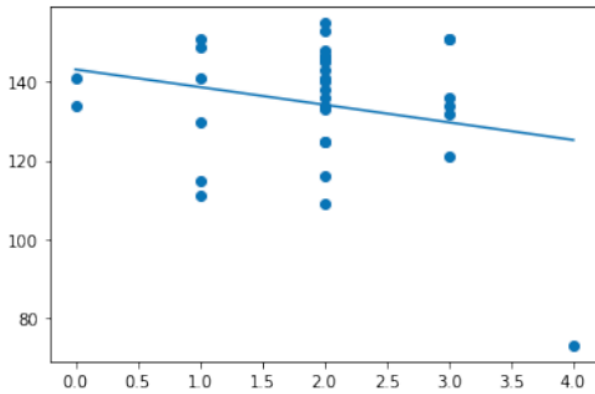
Not living together (n=32)
Coef: -0.235 | PValue: 0.196
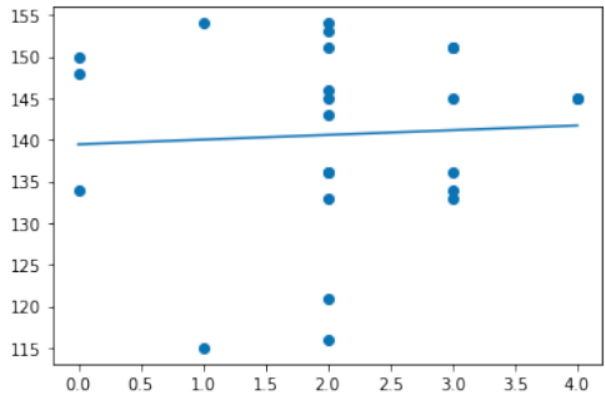
More satisfied due to COVID-19 (n=24)
Coef: 0.054 | PValue: 0.8
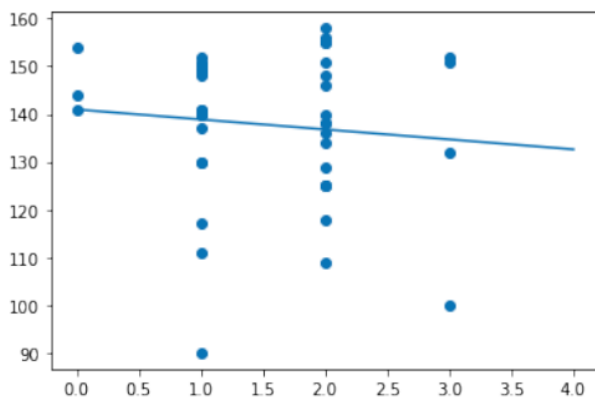
No change due to COVID-19 (n=42)
Coef: -0.102 | PValue: 0.52
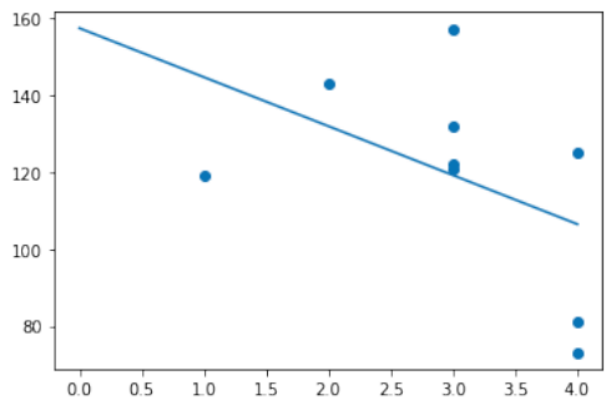
Less satisfied due to COVID-19 (n=9)
Coef: -0.474 | PValue: 0.198
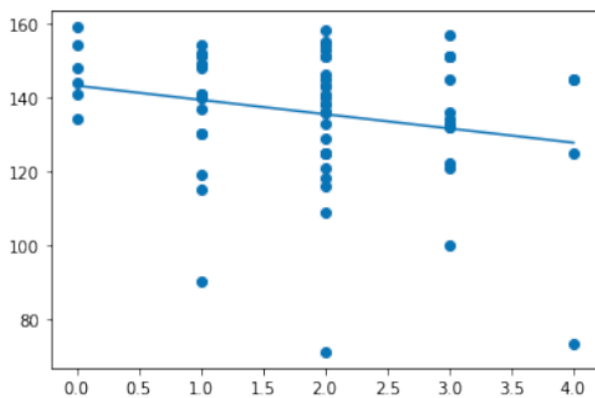
Female (n=67)
Coef: -0.22 | PValue: 0.074
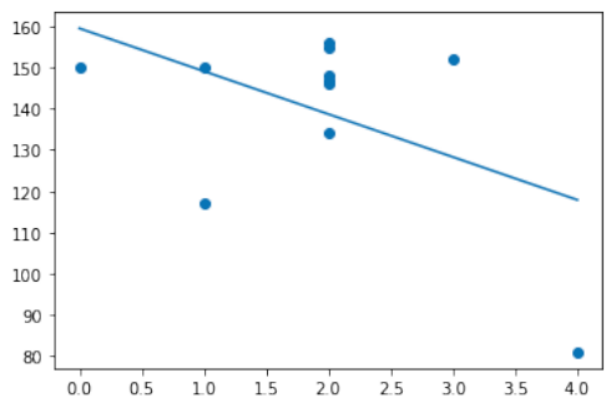
Male (n=11)
Coef: -0.484| PValue: 0.131

Age 20 - 29 (n=57)
Coef: -0.282 | PValue: 0.034

Age 30 - 39 (n=20)
Coef: -0.129 | PValue: 0.589
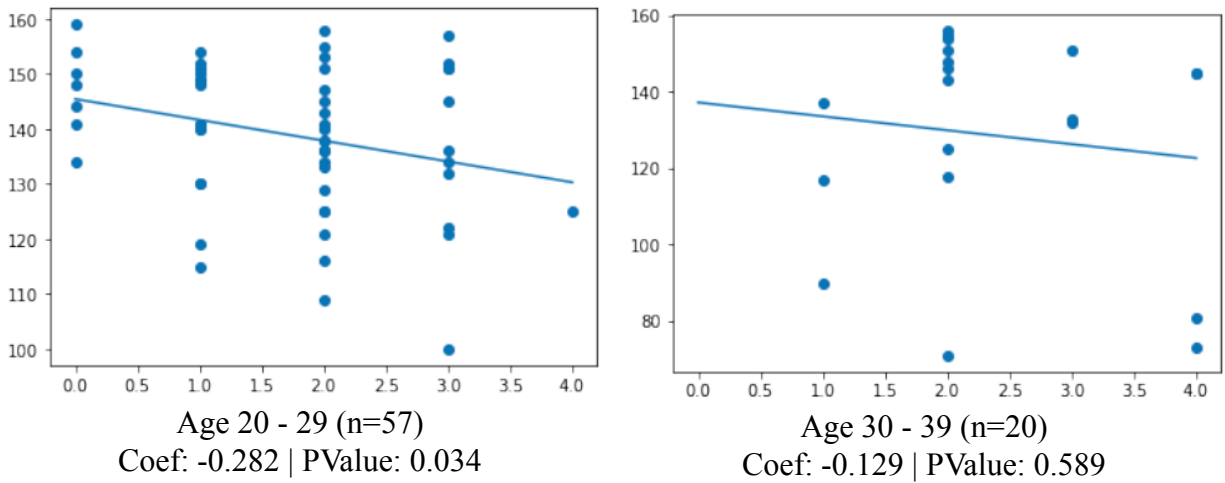
Stress

Additionally, we calculated the average stress and the average of each individual stressor question with a minimum score of 0 and a maximum of 5. The average stress was 2.083 ± 0.616. The averages for the individual questions are as follows: Stressor Question 1 was 2.638 ± 0.815, Stressor Question 2 was 2.617 ± 0.905, Stressor Question 3 was 1.66 ± 1.214, Stressor Question 4 was 1.213 ± 1.096, Stressor Question 5 was 2.362 ± 0.993, Stressor Question 6 was 2.151 ± 0.999, and Stressor Question 7 was 1.957 ± 1.015 (See Figure 11). Stressor Question 4 had the lowest average score whereas Stressor Question 1 had the highest average score.

Figure 11. Stressor question (X-axis) versus average stress scores (Y-axis)
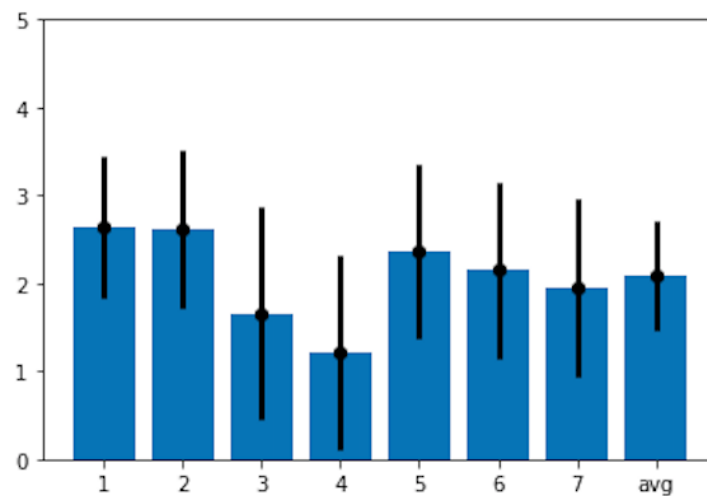
Coping Mechanisms

The fill in the blank portion of the survey asked participants what their coping

mechanisms were to manage PA school stress and their romantic relationships. Many responses

included quality time with their significant other. One participant wrote, "We also made it a

priority to plan dates together or carve time out of my studying to relax and be with each other"

and another wrote, "Planned time together, such as weekly date nights". Another common theme

was the importance of communication. Participants wrote, "communication played a key role in

dealing with my stress" and "communicating with my partner my to-do list and when big tests

are coming up, planning time to set aside to spend together".

Several participants wrote that their significant other helped them manage the PA school

stress with quotes such as "My fiance has been extremely supportive and understanding

throughout PA school. I feel he has actually made PA school easier for me. He takes care of

things that I am not able to do because of time constraints due to studying (such as

cooking/cleaning/running errands)". Another quote stated, "my husband is my best friend and

biggest supporter. He made PA school more doable in many aspects. I contribute a lot of my

successes to his grounding me. We are a team through and through and that was apparent

throughout PA school".

In contrast, an interesting theme appeared that some participants felt PA school

was/would be easier if living separate from their significant other. One participant wrote,

PA school was less stressful when we were living apart in comparison to when we

were together. Long distance allowed me to focus solely on my studies (and
nothing else) whereas my partner was a significant distraction when present. I
found myself distracted by ordinary things such as house chores, cleaning, food
prep, social planning and waking/sleeping times. I would willingly choose to live
separate from my partner for my didactic portion of PA school if I did it over
again. It ended up being a huge, unexpected blessing to my PA school journey! I
can't imagine doing my entire didactic while living together.

Another participant wrote, "I do believe us living mostly apart (except during COVID, one
positive) throughout my schooling was the best decision we made. It was hard, but being apart
was better than the social distractions that would have come along with being together".

Additional Stressors

The survey contained a second fill in the blank portion that asked participants to write in
any other additional stressors that were not included in the PA school stressors likert scale.
Family obligations such as weddings, showers, raising children, and being pregnant were
brought up by several participants. Family or personal health concerns were mentioned the most
by the participants as well as loss of a loved one. Housing concerns were discussed by many
participants as an additional stressor especially in the setting of clinical rotations. They wrote
about the difficulty of finding and paying for housing for clinical rotations that were far away
from their current residences.

Lack of faculty support was another stressor that several participants wrote about. One

participant wrote, "Lack of support by faculty. They constantly say that they are there for us and want to support us, but they rarely actually DO anything" while another wrote, "Lack of positive feedback -- The faculty claimed to be supportive but only met with us or contacted us if they had negative feedback or concerns".

There were also several COVID related stressors mentioned in the responses. Some spoke of COVID's effects on the uncertainty of finding rotations and graduating on time. Others were more worried about the negative effects the pandemic would have on job prospects and changes to the patient-provider relationship. Another common theme was isolation and the inability to connect with others.

Conclusion

There were no significant differences between the PA student and recent graduate populations along the basis of relationship satisfaction scores. There were several significant correlations in the PA student population between CSI-32 scores and average stressors scores as well as individual stressor question scores. The stressor with the highest average was found to be related to academic workload and the stressor with the lowest average was found to be related to balancing PA school and romantic relationships. There were additionally common themes found in questions regarding additional stressors and coping mechanisms. The results from this analysis will be further discussed in the next chapter.

Chapter 5: Discussion

Introduction

Chapter five discusses the research questions and the summary of the study's findings. The findings and how they fit in with the previous studies examined in the literature review will be discussed. This chapter will focus on the findings of the research questions which are the following: how the stress of PA education impacts the relationship satisfaction of students, identify the main stressors of PA education, and the coping mechanisms PA students are using to benefit their romantic relationships.

Research Question One: Impact of PA Education Stress on Romantic Relationships

The impact of stress on the relationship satisfaction of PA students was analyzed by measuring the average stress score and correlating it with the CSI score. Recent graduates were used as a control group but no significant difference was found in the CSI scores of PA students versus graduates. It is also important to note that only two recent graduates and five students scored low enough on the CSI to be considered dissatisfied in their romantic relationship. This was a pleasant surprise that the population generally reports being satisfied in their romantic relationships but this did make analyzing the data difficult. The researchers found that non-married students scored slightly lower on the CSI than married graduates suggesting that marriage may be a protective factor but it was not a statistically significant difference.

A moderate negative correlation between average stress scores and CSI scores was found in participants with relationships longer than five years. The same finding was found for married couples and couples who lived together. This may suggest that the relationship satisfaction of

married, cohabitating, and students in long term relationships were more impacted by PA school stress. This is consistent with previous research by Barr and Simons (2014) who reported "partner hostility" had more impact on the "self-reported health" of individuals living with their significant others versus those who were dating. Their conclusion was that cohabitation may lead to more stress in the romantic relationship (p. 457).

A weak negative correlation between average stress score and CSI score was found in all PA students, female PA students, and students between the ages of 20-29. This may suggest that the stressors of PA school impact the romantic relationships of these sub-populations more than others but the weakness of this correlation makes it difficult to confirm. The purpose of the study was to analyze the interaction between the average stress score and the CSI score of PA students so it is disappointing there was only a weak negative correlation. However, the findings were consistent with research by Unger et al. (2017) who concluded "coping with stress largely depletes energetic resources and this, in turn, affects daily relationship interactions" (Unger et al., 2017, p. 81).

The most significant finding was the rating students gave their ability to balance PA school and their romantic relationships. The CSI scores were significantly lower in married students, male students, students living with their significant others, and students in the 30-39 age group. Previous research by Gold (2006) also found that graduate students struggled to balance romantic relationships and the demands of schooling. He found that both genders' main concerns were about "time together, reflecting lack of sufficient time for shared recreational activities, and about disagreement about finances" (Gold, 2006, p. 490). The interesting part of

the findings was that male students and those in the 30-39 age group reported a stronger negative correlation than younger or female students. Women previously have been found to report lower relationship satisfaction in high stress situations than men as demonstrated in the study by Neff and Karney (2004). They concluded that "on average, increases in external stressors were significantly associated with decreases in marital satisfaction for wives" but there was no decrease in marital satisfaction for the husbands (Neff & Karney, 2004, p. 141).

Further evaluation was completed on each individual PA school stressor's impact on relationship satisfaction through correlations between the participants scoring on that stressor with their CSI score. The sub-population of participants who reported no change in their stress levels due to COVID-19, had several moderate negative correlations between PA school stressors and relationship satisfaction. The stressors were: the impact of the academic workload on their stress level, their ability to balance their non-romantic relationships, and the impact of PA school on their physical/mental health. This suggests those stressors negatively impacted relationship satisfaction more in participants who did not experience any additional stress due to COVID-19. Perhaps COVID-19 had a significant impact on the results of the study, but it is difficult to determine without a repeat study.

Interestingly enough, exam/performance pressure had no significant impact on relationship satisfaction. The only positive correlation was in participants who reported a high impact of COVID on their stress and financial concerns. The significance of this finding is unknown as it was a weak correlation.

Research Questions Two: Main Stressors of PA Education

When measuring common stressors experienced in PA school on a scale of 0 to 5, the student participants in the study averaged a score of about 2. Of all of the stressors about which were asked, the highest score was seen in the impact on academic workload on stress, with exam performance/pressure as a close second. This is consistent with the study conducted by Fares, Al Tabosh, Saadeddin, El Mouhayyar, and Aridi (2016) on third year medical students which found two of the main stressors to be academic demands and exams. Additionally, two separate studies of medical students by Dyrbye et al. (2006) and Mazurkiewicz (2012) found that 45%, for the former, and 71%, for the latter, of students experience burnout while in medical school.

The lowest stressor score was found in the question asking participants about their ability to balance PA school and romantic relationships. The average score was 1.213 ± 1.096. It appears that the participants were able to balance their romantic relationships better than their non-romantic relationships as the average score for that question was higher at 1.66 ± 1.214. Overall, these were still the two lowest scoring questions of the stressor portion of the questionnaire. The researchers's findings conflict with the findings from Kuhn et al. (2005) which found that 41% of PA students reported a "moderate to significant amount of stress contributing to changes in their relationships", but the study did not differentiate between romantic and non-romantic relationships. The difference between results could be accounted for by the fact that the grand majority of respondents of PA students were considered to be satisfied with their romantic relationships. Nearly a third of the respondents also reported an increase in relationship satisfaction due to the COVID-19 pandemic.

When examining the write in portion for additional stressors, it appears many participants took the time to type thorough responses with journal-like quality. There were several students that spoke of personal hardships they have experienced from the loss of someone close to them to wishing they had never gone to PA school in the first place. We as researchers would like to take a moment to thank the participants for their open-hearted responses and honesty and hope they have been able to find the support needed to get through these tough times. For the purpose of future studies, additional stressors that could be further examined include family obligations, family health concerns, housing concerns, lack of faculty support, and COVID-19.

Research Question Three: Coping Mechanisms

The main focus of the research was on the impact of PA school on romantic relationships but the researchers also wanted to identify any coping mechanisms students were using to benefit their romantic relationships. There were many responses to the fill in the blank portion of the survey with several themes present. One theme was quality time spent together doing hobbies or even studying together. Several participants reported how valuable their significant other was to them as they found them to be an excellent support system. This correlates well with the concept of dyadic coping which involves helping a partner manage stressors; delegated dyadic coping which requires one partner to take on additional stress to minimize the stress on the other partner; and common dyadic coping which refers to both partners working together to manage stressful events (Bodenmann et al., 2005). When dyadic coping is high, relationship satisfaction increases (Bodemann et al., 2005). The fill in the blank portion of the survey was not linked with the CSI score thus it is unclear if these coping mechanisms demonstrated higher relationship satisfaction

in the participants.

Another theme was the importance of communication and working together to complete household tasks and responsibilities. Participants wrote that keeping their significant others aware of upcoming events in school and planning together was beneficial to their relationship. This correlates with the study by Lao, Randall, Duran, and Tau (2019) which "tested whether partners' observed engagement in stress communication and dyadic coping, more specifically in the form of language use, would contribute to their perceptions of quality of their real-time interactions about external stressors" (p. 9). Pagani et al. (2019) also found responsiveness in dyadic coping with stress was improved through communication and that this "contributed to the effectiveness of dyadic coping behaviors in fostering partners' relationship satisfaction" (p.1). These studies along with the results of this study emphasize the importance of communicating during stressful situations and formulating a plan together to accomplish tasks.

One of the more interesting themes discovered in this section was how several students reported that living apart from their significant other made PA school easier than when they lived together. The reasons were being able to focus entirely on PA school and avoiding distractions and obligations such as "house chores, cleaning, food prep, social planning and waking/sleeping times". This is actually again consistent with the study done by Barr and Simmons (2014) that "partner hostility" had more impact on the "self-reported health" of individuals living with their significant others suggesting that cohabitation may lead to more stress in the romantic relationship (p. 457). The added obligations of household tasks and social responsibilities appear to add to stress levels and decrease relationship satisfaction.

Limitations

As mentioned in chapter three, the study population included ninety-two current students and twenty-three recent graduates from the PA programs of Bethel University and St. Catherine University. The limitation was the small sample size of PA students from private schools in Minnesota and it is unclear if our results would apply on a National level. The researchers attempted to include all four PA schools in the state of Minnesota to address this limitation but only received participation from Bethel University and St. Catherine's PA programs.

A significant delimitation of this study was the differences such as age, gender, marital status, and personality differences between the current PA students and PA graduates. The PA graduates were used as a control group as it was believed they would have similarities to PA students. Comparing PA students before and after PA school did not fit in the time constraints of this study. The researchers accepted this limitation and it may be the reason there was no significant difference in CSI scores of recent graduates and PA students.

Another inherent limitation of the study was the risk for recall bias since this study asked student participants to recall information on past relationships. In addition, the goal was to obtain responses from approximately 30 percent of the overall study population in order to gain an adequate representation of the study population. There was a substantial amount of participation with ninety-two PA students and twenty-three recent graduates.

It is difficult to know the impact of COVID-19 on results of this study as it dramatically changed the format of PA school as well as impacting living situations, financial concerns, and

various other changes for the participants. However, forty-two of the participants demonstrated no change in their relationship satisfaction due to COVID-19. Repeating the study with a larger population size and not during a global pandemic would address this limitation.

Further Research

This study was an exploratory investigation into the impact PA school has on the relationship satisfaction of students. As it was the first of its type, it is difficult to understand the validity of any of the results. Distributing out the survey to other PA schools and new classes of students would assist in confirming any of the findings discovered.

Furthermore, the survey was distributed in the middle of a global pandemic which led to the previously mentioned limitation of COVID-19 and its unknown effects on the results. Distributing the survey to PA students once the world has returned to a normalized state may lead to differing results and is an interesting avenue of further research.

The most interesting and surprising results of the study were in regards to male students, students in the 30-39 age bracket, and students living with their significant other. There was a decrease in relationship satisfaction in those who reported difficulty balancing PA school and their romantic relationships. Perhaps more responsibilities and other life stressors are present in this sub-population and further research into this finding could be of value.

Conclusion

Physician assistant (PA) graduate programs are fast-paced programs and have been associated with a decrease in student overall well-being when comparing incoming students to new graduates (PAEA, 2019). A 2012 study on physician assistant students discovered "28.4%

and 21% were likely to be diagnosed with a psychiatric disorder during the first and second semesters, respectively" (Childers, May, & Ball, 2012, p. 38). This study was one of the firsts of its kind and will hopefully lead to further research in the future. Determining the extent of the effect PA programs have on romantic relationships may aid in the development of coping mechanisms for couples, reduce student and partner stress, and improve student well-being.

The purpose of this study was to determine the effect of PA school on the relationship satisfaction of students. The results did not ubiquitously support our hypothesis that the stress of PA school would lower the relationship satisfaction of students but several themes of interest were found. Students who were married, male, between the ages of 30-39, cohabiting, and in long term relationships experienced the most impact of PA school on their relationship satisfaction. These sub-populations are likely under more stress in regards to their home responsibilities and the difficulty of managing PA school and their home lives. Several participants attributed additional stress due to the family obligations and expectations of living with a significant other.

The main stressors of PA school were identified as being the academic demands of PA school which is unsurprising. Family illnesses/loss, family obligations and issues with faculty were identified as impactful stressors as well by the participants. PA school is rigorous academically and very time intensive. This leaves significantly less time for other responsibilities or other life stressors that will invariably come along and impact the wellbeing of PA students.

The final goal of this study was to identify the coping mechanisms students were using to benefit their romantic relationships and there were many responses to that portion of the survey.

The participants stressed the importance of communication, working as a team to accomplish household tasks, and quality time as being mutually beneficial to themselves and their significant others. Encouraging PA students to use these mechanisms may help them balance PA school and their romantic relationships as effectively as possible.

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APPENDIX A

St. Catherine's University Permission for Research Inclusion

On Wed, Mar 11, 2020 at 1:04 PM Wallace Boeve <w-boeve@bethel.edu> wrote:
Fellow MN Program Directors;

As faculty chair for one of our student research projects, I am reaching on their behalf to
see if you'd be willing to help distribute an anonymous web-based survey to your students
and recent grads (see attached details). Thank you for your consideration of partnering on
this project, and I look forward to hearing from you soon.

Respectfully;
  Wally

On Thu, May 28, 2020 at 3:25 PM Heather Bidinger <hkbidinger@stkate.edu> wrote:

Happy to Wally,
Hope you are doing well too.

Sincerely,
Heather

Heather KT Bidinger MMS, PA-C, DFAAPA
Founding Program Director/Assistant Professor
Master of Physician Assistant Studies Program
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Mail Stop 4227
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APPENDIX B

Bethel University Permission for Research Inclusion

Wallace Boeve <w-boeve@bethel.edu>
Mon, Apr 6, 10:27 AM

Hannah & Rebecca;

The PA program at Bethel would be happy to participate in your study. You will work with the program's administrative assistant, Jan Johnson, to blindly disseminate your survey to our recent graduates as well as the Class of 2020 and Class of 2021. Let me know if you have any questions.

Sincerely;
Wally

Wallace Boeve, EdD, PA-C
Program Director
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APPENDIX C

Google Survey

Section 1: Informed Consent:

You are invited to take part in a research study. The goal of this study is to examine the effects of PA school on romantic relationships. You were selected as a possible participant in this study because you are either a PA student or a recent graduate of a PA program. This research is for the completion of the Physician Assistant program at Bethel University.

If you choose to participate, you will be asked to complete a survey that will take approximately 10 minutes. You may be asked to answer questions regarding the relationship satisfaction of romantic relationships as well as the stress experienced while in PA school. Due to the nature of these questions, you may experience minor emotional distress while completing the survey. Participation is completely voluntary.

Any information obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. In any written reports or publications, no one will be identified or identifiable and only aggregate data will be presented. Your email address will not be connected to your survey response.

Your decision whether or not to participate will not affect your future relations with the physician assistant program you are affiliated with in any way. If you decide to participate, you are free to discontinue participation at any time without affecting such relationships. If you have any questions about the research and/or research participants' rights or wish to report a research-related injury, please contact

Researcher: Hannah Kerkhof, PA-S (Hannah-Kerkhof@bethel.edu)
Researcher: Rebecca Kornowski, PA-S (Rebecca-Kornowski@bethel.edu)
Research Chair: Lisa Naser, MS, PA-C (L-Naser@bethel.edu)

Please confirm your willingness to participate in the question below.

I have read the informed consent and agree to participate in this research study. *
○ Yes
○ No

* This is a required question

Section 2: Student Status

Are you a PA student or PA graduate?
○ PA student
○ PA graduate

Section 3: Relationship Information

Have you been in a romantic relationship during PA school?
○ Yes
○ No

Section 4: Relationship Demographics

Taking into consideration your longest romantic relationship while in PA school, past or current, please answer the following questions.

What is/was the duration of this relationship?
○ < 3 months
○ 3 - 6 months
○ 6 - 12 months
○ 1 - 3 years
○ 3 - 5 years
○ 5+ years

Which best describes this relationship?
○ Dating
○ Engaged
○ Married

Are you currently in this relationship?
○ Yes
○ No

Are/were you and your partner living together?
○ Yes
○ No, but live(d) close
○ No, it is/was a long distance relationship

Section 5: Coronavirus Disease 2019 (COVID-19)

If your relationship started before the COVID-19 pandemic (March 2020), how has the pandemic changed your relationship satisfaction?
○ More satisfied
○ No change
○ Less satisfied
○ N/A

Sections 6-13: PA Student Couples Satisfaction Index

Taking into consideration your longest romantic relationship while in PA school, past or current, please answer the following questions.

Please indicate the degree of happiness, all things considered, of your relationship.
○ Extremely unhappy
○ Fairly unhappy
○ A little unhappy
○ Happy
○ Very happy
○ Extremely happy
○ Perfect

Most people have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

Amount of time spent together
○ Always agree
○ Almost always agree
○ Occasionally disagree
○ Frequently disagree
○ Always disagree

Making major decisions
○ Always agree
○ Almost always agree
○ Occasionally disagree
○ Frequently disagree
○ Always disagree

Demonstrations of affection
      ○ Always agree
      ○ Almost always agree
      ○ Occasionally disagree
      ○ Frequently disagree
      ○ Always disagree

In general, how often do you think that things between you and your partner are going well?
      ○ All of the time
      ○ Most of the time
      ○ More often than not
      ○ Occasionally
      ○ Rarely
      ○ Never

How often do you wish you hadn't gotten into this relationship?
      ○ All of the time
      ○ Most of the time
      ○ More often than not
      ○ Occasionally
      ○ Rarely
      ○ Never

I still feel a strong connection with my partner
      ○ Not at all TRUE
      ○ A little TRUE
      ○ Somewhat TRUE
      ○ Mostly TRUE
      ○ Almost completely TRUE
      ○ Completely TRUE

If I had my life to live over, I would marry (or live with / date) the same person
      ○ Not at all TRUE
      ○ A little TRUE
      ○ Somewhat TRUE
      ○ Mostly TRUE
      ○ Almost completely TRUE
      ○ Completely TRUE

Our relationship is strong
○ Not at all TRUE
○ A little TRUE
○ Somewhat TRUE
○ Mostly TRUE
○ Almost completely TRUE
○ Completely TRUE

I sometimes wonder if there is someone else out there for me
○ Not at all TRUE
○ A little TRUE
○ Somewhat TRUE
○ Mostly TRUE
○ Almost completely TRUE
○ Completely TRUE

My relationship with my partner makes me happy
○ Not at all TRUE
○ A little TRUE
○ Somewhat TRUE
○ Mostly TRUE
○ Almost completely TRUE
○ Completely TRUE

I have a warm and comfortable relationship with my partner
○ Not at all TRUE
○ A little TRUE
○ Somewhat TRUE
○ Mostly TRUE
○ Almost completely TRUE
○ Completely TRUE

I can't imagine ending my relationship with my partner
○ Not at all TRUE
○ A little TRUE
○ Somewhat TRUE
○ Mostly TRUE
○ Almost completely TRUE
○ Completely TRUE

I feel that I can confide in my partner about virtually anything
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I have had second thoughts about this relationship recently
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

For me, my partner is the perfect romantic partner
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I really feel like part of a team with my partner
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I cannot imagine another person making me as happy as my partner does
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

How rewarding is your relationship with your partner?
- ◯ Not at all
- ◯ A little
- ◯ Somewhat
- ◯ Mostly
- ◯ Almost completely
- ◯ Completely

How well does your partner meet your needs?
- ◯ Not at all
- ◯ A little
- ◯ Somewhat
- ◯ Mostly
- ◯ Almost completely
- ◯ Completely

To what extent has your relationship met your original expectations?
- ◯ Not at all
- ◯ A little
- ◯ Somewhat
- ◯ Mostly
- ◯ Almost completely
- ◯ Completely

In general, how satisfied are you with your relationship?
- ◯ Not at all
- ◯ A little
- ◯ Somewhat
- ◯ Mostly
- ◯ Almost completely
- ◯ Completely

How good is your relationship compared to most?

	0	1	2	3	4	5	
Extremely Bad	◯	◯	◯	◯	◯	◯	Extremely Good

Do you enjoy your partner's company?
- ○ Never
- ○ Less than once a month
- ○ Once or twice a month
- ○ Once or twice a week
- ○ Once a day
- ○ More often

How often do you and your partner have fun together?
- ○ Never
- ○ Less than once a month
- ○ Once or twice a month
- ○ Once or twice a week
- ○ Once a day
- ○ More often

Is your relationship…

	0	1	2	3	4	5	
Boring	○	○	○	○	○	○	Interesting

Is your relationship…

	0	1	2	3	4	5	
Bad	○	○	○	○	○	○	Good

Is your relationship…

	0	1	2	3	4	5	
Empty	○	○	○	○	○	○	Full

Is your relationship…

	0	1	2	3	4	5	
Lonely	○	○	○	○	○	○	Friendly

Is your relationship…

	0	1	2	3	4	5	
Fragile	○	○	○	○	○	○	Sturdy

Is your relationship…

	0	1	2	3	4	5	
Discouraging	○	○	○	○	○	○	Hopeful

Is your relationship…

	0	1	2	3	4	5	
Miserable	○	○	○	○	○	○	Enjoyable

Section 14: PA Relationship Information

Are you currently in a romantic relationship?
  ○ Yes
  ○ No

Section 15: PA Relationship Demographics

Taking into consideration your current romantic relationship, please answer the following questions.

What is/was the duration of this relationship?
  ○ < 3 months
  ○ 3 - 6 months
  ○ 6 - 12 months
  ○ 1 - 3 years
  ○ 3 - 5 years
  ○ 5+ years

Which best describes this relationship?
- ○ Dating
- ○ Engaged
- ○ Married

Are you currently in this relationship?
- ○ Yes
- ○ No

Are/were you and your partner living together?
- ○ Yes
- ○ No, but live(d) close
- ○ No, it is/was a long distance relationship

Section 16: Coronavirus Disease 2019 (COVID-19)

If your relationship started before the COVID-19 pandemic (March 2020), how has the pandemic changed your relationship satisfaction?
- ○ More satisfied
- ○ No change
- ○ Less satisfied
- ○ N/A

Sections 17-24: PA Student Couples Satisfaction Index

Taking into consideration your current romantic relationship, please answer the following questions.

Please indicate the degree of happiness, all things considered, of your relationship.
- ○ Extremely unhappy
- ○ Fairly unhappy
- ○ A little unhappy
- ○ Happy
- ○ Very happy
- ○ Extremely happy
- ○ Perfect

Most people have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

Amount of time spent together
- ○ Always agree
- ○ Almost always agree
- ○ Occasionally disagree
- ○ Frequently disagree
- ○ Always disagree

Making major decisions
- ○ Always agree
- ○ Almost always agree
- ○ Occasionally disagree
- ○ Frequently disagree
- ○ Always disagree

Demonstrations of affection
- ○ Always agree
- ○ Almost always agree
- ○ Occasionally disagree
- ○ Frequently disagree
- ○ Always disagree

In general, how often do you think that things between you and your partner are going well?
- ○ All of the time
- ○ Most of the time
- ○ More often than not
- ○ Occasionally
- ○ Rarely
- ○ Never

How often do you wish you hadn't gotten into this relationship?
- ○ All of the time
- ○ Most of the time
- ○ More often than not
- ○ Occasionally
- ○ Rarely
- ○ Never

I still feel a strong connection with my partner
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

If I had my life to live over, I would marry (or live with / date) the same person
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

Our relationship is strong
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I sometimes wonder if there is someone else out there for me
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

My relationship with my partner makes me happy
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I have a warm and comfortable relationship with my partner
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I can't imagine ending my relationship with my partner
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I feel that I can confide in my partner about virtually anything
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I have had second thoughts about this relationship recently
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

For me, my partner is the perfect romantic partner
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I really feel like part of a team with my partner
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

I cannot imagine another person making me as happy as my partner does
- ◯ Not at all TRUE
- ◯ A little TRUE
- ◯ Somewhat TRUE
- ◯ Mostly TRUE
- ◯ Almost completely TRUE
- ◯ Completely TRUE

How rewarding is your relationship with your partner?
- ◯ Not at all
- ◯ A little
- ◯ Somewhat
- ◯ Mostly
- ◯ Almost completely
- ◯ Completely

How well does your partner meet your needs?
- ◯ Not at all
- ◯ A little
- ◯ Somewhat
- ◯ Mostly
- ◯ Almost completely
- ◯ Completely

To what extent has your relationship met your original expectations?
- ◯ Not at all
- ◯ A little
- ◯ Somewhat
- ◯ Mostly
- ◯ Almost completely
- ◯ Completely

In general, how satisfied are you with your relationship?
- ◯ Not at all
- ◯ A little
- ◯ Somewhat
- ◯ Mostly
- ◯ Almost completely
- ◯ Completely

How good is your relationship compared to most?

	0	1	2	3	4	5	
Extremely Bad	◯	◯	◯	◯	◯	◯	Extremely Good

Do you enjoy your partner's company?
- ◯ Never
- ◯ Less than once a month
- ◯ Once or twice a month
- ◯ Once or twice a week
- ◯ Once a day
- ◯ More often

How often do you and your partner have fun together?
- ◯ Never
- ◯ Less than once a month
- ◯ Once or twice a month
- ◯ Once or twice a week
- ◯ Once a day
- ◯ More often

Is your relationship…

	0	1	2	3	4	5	
Boring	◯	◯	◯	◯	◯	◯	Interesting

Is your relationship…

	0	1	2	3	4	5	
Bad	○	○	○	○	○	○	Good

Is your relationship…

	0	1	2	3	4	5	
Empty	○	○	○	○	○	○	Full

Is your relationship…

	0	1	2	3	4	5	
Lonely	○	○	○	○	○	○	Friendly

Is your relationship…

	0	1	2	3	4	5	
Fragile	○	○	○	○	○	○	Sturdy

Is your relationship…

	0	1	2	3	4	5	
Discouraging	○	○	○	○	○	○	Hopeful

Is your relationship…

	0	1	2	3	4	5	
Miserable	○	○	○	○	○	○	Enjoyable

<div align="center">Section 25: Coping Mechanisms</div>

Please describe how you have coped with the stress of PA school with respect to your romantic relationship.

```
[                                                                        ]
```

<div align="center">Section 26: PA School Stressors</div>

Please rate the impact of the academic workload on your stress level
- ○ Insignificant
- ○ Minor
- ○ Moderate
- ○ Major
- ○ Severe

Please rate the impact of exam/performance pressure on your stress level
- ○ Insignificant
- ○ Minor
- ○ Moderate
- ○ Major
- ○ Severe

To what extent do you agree with the following statement: I am able to balance PA school and my non-romantic relationships.
- ○ Strongly disagree
- ○ Slightly disagree
- ○ Neutral
- ○ Slightly agree
- ○ Strongly agree

To what extent do you agree with the following statement: I am able to balance PA school and my romantic relationships.
- ○ Strongly disagree
- ○ Slightly disagree
- ○ Neutral
- ○ Slightly agree
- ○ Strongly agree

Please rate the impact PA school has on your physical and mental health
- ◯ Insignificant
- ◯ Minor
- ◯ Moderate
- ◯ Major
- ◯ Severe

Please rate the impact of financial concerns/difficulties on your stress level
- ◯ Insignificant
- ◯ Minor
- ◯ Moderate
- ◯ Major
- ◯ Severe

Please rate the impact of Coronavirus disease 2019 (COVID-19) on your stress level
- ◯ Insignificant
- ◯ Minor
- ◯ Moderate
- ◯ Major
- ◯ Severe

(Optional) Please add any additional stressors you've experienced in PA school

Section 27: Demographic Information

What is your gender?
- ◯ Male
- ◯ Female
- ◯ Other: _____

What is your age?
- ◯ 20-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50-59
- ◯ 60+

APPENDIX D

Informed Consent

Informed Consent:

You are invited to take part in a research study. The goal of this study is to examine the effects of PA school on romantic relationships. You were selected as a possible participant in this study because you are either a PA student or a recent graduate of a PA program. This research is for the completion of the Physician Assistant program at Bethel University.

If you choose to participate, you will be asked to complete a survey that will take approximately 10 minutes. You may be asked to answer questions regarding the relationship satisfaction of romantic relationships as well as the stress experienced while in PA school. Due to the nature of these questions, you may experience minor emotional distress while completing the survey. Participation is completely voluntary.

Any information obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. In any written reports or publications, no one will be identified or identifiable and only aggregate data will be presented. Your email address will not be connected to your survey response.

Your decision whether or not to participate will not affect your future relations with the physician assistant program you are affiliated with in any way. If you decide to participate, you are free to discontinue participation at any time without affecting such relationships. If you have any questions about the research and/or research participants' rights or wish to report a research-related injury, please contact

Researcher: Hannah Kerkhof, PA-S (Hannah-Kerkhof@bethel.edu)
Researcher: Rebecca Kornowski, PA-S (Rebecca-Kornowski@bethel.edu)
Research Chair: Lisa Naser, MS, PA-C (L-Naser@bethel.edu)

APPENDIX E

Couple Satisfaction Index (CSI-32) - Survey and Permission for Use

Couples Satisfaction Index (CSI-32)

Please indicate the degree of happiness, all things considered, of your relationship.

Extremely Unhappy 0	Fairly Unhappy 1	A Little Unhappy 2	Happy 3	Very Happy 4	Extremely Happy 5	Perfect 6

Most people have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

	Always Agree	Almost Always Agree	Occa-sion ally Disagree	Fre-quentl y Disagree	Almost Always Disagree	Always Disagree
Amount of time spent together	5	4	3	2	1	0
Making major decisions	5	4	3	2	1	0
Demonstrations of affection	5	4	3	2	1	0

	All the time	Most of the time	More often than not	Occa-si onally	Rarely	Never
In general, how often do you think that things between you and your partner are going well?	5	4	3	2	1	0
How often do you wish you hadn't gotten into this relationship?	0	1	2	3	4	5

	Not at all TRUE	A little TRUE	Some-what TRUE	Mostly TRUE	Almost Completely TRUE	Completely TRUE
I still feel a strong connection with my partner	0	1	2	3	4	5
If I had my life to live over, I would marry (or live with / date) the same person	0	1	2	3	4	5
Our relationship is strong	0	1	2	3	4	5
I sometimes wonder if there is someone else out there for me	5	4	3	2	1	0
My relationship with my partner makes me happy	0	1	2	3	4	5
I have a warm and comfortable relationship with my partner	0	1	2	3	4	5
I can't imagine ending my relationship with my partner	0	1	2	3	4	5
I feel that I can confide in my partner about virtually anything	0	1	2	3	4	5
I have had second thoughts about this relationship recently	5	4	3	2	1	0
For me, my partner is the perfect romantic partner	0	1	2	3	4	5
I really feel like **part of a team** with my partner	0	1	2	3	4	5
I cannot imagine another person making me as happy as my partner does	0	1	2	3	4	5

	Not at all	A little	Some-what	Mostly	Almost Completely	Completely

How rewarding is your relationship with your partner?	0	1	2	3	4	5
How well does your partner meet your needs?	0	1	2	3	4	5
To what extent has your relationship met your original expectations?	0	1	2	3	4	5
In general, how satisfied are you with your relationship?	0	1	2	3	4	5

	Worse than all others (Extremely bad)				**Better than all others (Extremely good)**	
How good is your relationship compared to most?	0	1 2 3 4			5	

	Never	**Less than once a month**	**Once or twice a month**	**Once or twice a week**	**Once a day**	**More often**
Do you enjoy your partner's company?	0	1	2	3	4	5
How often do you and your partner have fun together?	0	1	2	3	4	5

For each of the following items, select the answer that best describes _how you feel about your relationship_. Base your responses on your first impressions and immediate feelings about the item.

INTERESTING	5	4	3	2	1	0	**BORING**
BAD	0	1	2	3	4	5	**GOOD**
FULL	5	4	3	2	1	0	**EMPTY**
LONELY	0	1	2	3	4	5	**FRIENDLY**
STURDY	5	4	3	2	1	0	**FRAGILE**
DISCOURAGING	0	1	2	3	4	5	**HOPEFUL**
ENJOYABLE	5	4	3	2	1	0	**MISERABLE**

PERMISSION FOR USE: We developed the CSI scales to be freely available for research and clinical use. No further permission is required beyond this form and the authors will not generate study-specific permission letters.

SCORING: To score the CSI-32, you simply sum the responses across all of the items. The point values of each response of each item are shown above. NOTE – When we present the scale to participants, we do not show them those point values. We just give them circles to fill in (on pen-and-paper versions) or radio buttons to click (in online surveys) in place of those point values.

INTERPRETATION: CSI-32 scores can range from 0 to 161. Higher scores indicate higher levels of relationship satisfaction. CSI-32 scores falling below 104.5 suggest notable relationship dissatisfaction.

CITATION: If you are using this scale, then you should cite the research article validating it as follows:

Funk, J.L., & Rogge, R.D. (2007). Testing the Ruler with Item Response Theory: Increasing Precision of Measurement for Relationship Satisfaction with the Couples Satisfaction Index. *Journal of Family Psychology, 21*, 572-583.

APPENDIX F

IRB Approval

October 5, 2020

Hannah & Rebecca;

As granted by the Bethel University Human
Subjects committee as the program director, I write
this letter to you in approval of Level 3 Bethel IRB
of your project entitled: "PA School and Romantic
Relationship Satisfaction." This approval is good
for one year from today's date. You may proceed
with data collection and analysis. Please let me
know if you have any questions.

Sincerely;

Wallace Boeve, EdD, PA-C
Program Director
Physician Assistant Program
Bethel University
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ian-assistant

CC: Bethel IRB Chair
        Faculty Chair Advisor
        PA Program Research Coordinator